

→ ENTRANCE

HANDBOOK

How to embed CERL into
your institution

2020



HANDBOOK: HOW TO EMBED CERL INTO YOUR INSTITUTION

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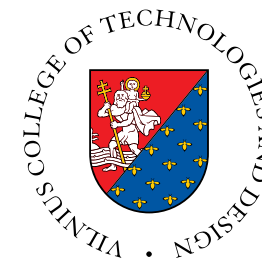
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CERL



Community Engaged Research and Learning

- **THE OVERARCHING TERM** for service-learning, community-based learning and research, civic learning / scholarship / engagement, learning-linked volunteering, research / education in collaboration with community partners etc.
- **EDUCATION & RESEARCH STRATEGY** in which academic learning goes hand in hand with societal engagement. It always consists of:
 - ◇ **A THEORETICAL COMPONENT** (academic teaching matter and frameworks, lecturers, readers, workshops...)
 - ◇ **A PRACTICAL COMPONENT** (a 'service' to a concrete community / organisation /...) that enables students to gain societal, professional and personal experience
 - ◇ **A REFLECTION COMPONENT** (makes students reflect critically on their experiences, their learning process, their handling & thinking, and help them to match this with the academic teaching matter)
 - ◇ **A LEARNING COMMUNITY** (opportunity for active learning and interaction between students and community partners)

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Intro to ENTRANCE

ENTRANCE, ENGAGED RESEARCH CONNECTING COMMUNITY with higher Education is a three year-long Erasmus+ project that ran between 2017-2020 and involved hundreds of students, lecturers and civil society organizations across Europe.

THE PROJECTPARTNER INSTITUTIONS INVOLVED are Vrije Universiteit Brussel, LAB University of Applied Sciences, Maiêutica - Cooperativa de Ensino Superior CRL, Vilnius college of Technologies & Design and Wageningen University & Research.

THE PURPOSE OF THIS HANDBOOK is to give insight into how to improve societal responsibility and engagement in higher education institutions. In this handbook, the five partner institutions in five countries will introduce how they engage staff and students in collaborating with civil society organizations in research projects to find effective solutions for local societal challenges. Based on the results of the societal impact evaluation (Chapter 2) and the needs study (Chapter 3), the partner institutions have developed training materials and tools (Chapter 4) to be used when collaborating with local civil society organizations. Each partner institution evaluated its training material and tools (Chapter 5). 25 civil society organizations are presented in this Handbook as case studies (Chapter 6). Based on the results of the project, the partner institutions have developed a collaborative platform (in trello.com) to be used when collaborating with local civil society organizations (Chapter 7).

THIS HANDBOOK CAN BE SEEN AS A SOURCE OF INSPIRATION for other education institutions seeking to utilize the skills of students and staff and to engage in research projects together with civil society organizations. This Handbook will demonstrate that it is not only the civil society organizations that gain from projects like these, but most university staff members and students also found this kind of cross boundary collaboration fruitful.

IMPACT

Study summary

COMMUNITY ENGAGED RESEARCH AND LEARNING (CERL) STUDENT PROJECTS
SOCIETAL IMPACT EVALUATION





THROUGH CERL PROJECTS, students collaborate with Civil Society Organisations (CSOs) on a societal topic, supervised by an experienced researcher. In some higher education institutions, CERL student projects are supported by Science Shops: intermediary mechanisms in between students, CSOs and supervisors/lecturers. CERL projects are aiming for societal impact, but how do CSOs evaluate the projects they have been involved in and students they have collaborated with? Have the project results been useful to them and impacted their (way of) work?

WITHIN THE ENTRANCE PROJECT Vrije Universiteit Brussel (VUB-BE), Wageningen University & Research (WUR-NL) and LAB University of Applied Sciences (LAB-FIN, former Lahti University of Applied Sciences) have surveyed (72) and interviewed (23 of) their CSO partners in order to measure the benefits and impact of Science Shop / CERL student projects, by addressing both an outcome and process perspective. While CERL projects at VUB and WUR are supported by a Science Shop since decennia, in LAB CERL takes place through direct contact between lecturers (and subsequently their students) and CSOs – without Science Shop support.

FOLLOWING THE INTERVIEWED/SURVEYED CSOs, CERL student project results lead to a better understanding of the societal topic in the first place and are useful for internal communication/use in a second place. The majority of CSOs expressed their satisfaction with the research results and most of them consider their goals reached with the delivered research results. The most frequent action taken with the research results in all three countries is internal communication.

CSOS APPRECIATE CERL PROJECTS because it's offering free research and time, it's based on a (sometimes seldomly earlier researched) topic originating in their community/practice and because it's scientifically valid. Furthermore, they welcome fresh student ideas and perspectives. In general, CSOs are pleased with their Science Shop/institutional CERL contact and open for more regular collaboration thanks to the structured process, coordination & administrative support they offer, together with care & enthusiasm. They also appreciate the project flexibility along the way and welcome new insights and developments but combined with academic time schedules this also implies the danger of delay in their opinion.

MOST CSOS ARE PLEASED with the general research process and start meetings. On the other hand, VUB and LAB CSOs reported on a lack of communication between students and CSOs in some CERL projects. Almost 95% of VUB CSOs agree with implementing an intermediate meeting (in general or in case

problems arise) – with student, CSO and Science Shop. CSOs appreciate working with students because of three reasons: their fresh ideas & energy, intrinsic motivation and topic commitment and the fact that they are able to work proactively and relatively autonomous. Student skills CSOs value most are General research skills, Collaboration skills, Situational awareness and Openness & transparency.

TAKEN INTO ACCOUNT the different way of CERL work in the three involved institutions – supported by Science Shop or not, one could wonder:

What is and/or could be the role of a Science Shop in this impact story?



ALTHOUGH 98 % of VUB and WUR CSOs that completed the survey confirm that Science Shops have added value, LAB CSOs don't seem to miss the intermediate structure very often. Pleas LAB CSOs are the highest in number (compared to VUB and WUR ones) when it comes to the goals reached by the research (although an even larger LAB percentage doesn't remember this anymore) and the broadened university network. Furthermore, 81 % of LAB CSOs is open for regular collaboration, compared to 71 % of VUB CSOs and 50 % of WUR CSOs. Also, 50 % of LAB CSOs knows the institutional CERL services through a university contact, which means those are widely known and promoted through university staff.

BUT IN SOME CASES THE EXISTENCE or lack of a Science Shop may have impact. When it comes to the accessibility of lecturers/Science Shop, the lower LAB rates could be the consequence of the absence of a clear way of work to collaborate with LAB students and lecturers. On the other hand, the lower VUB rates (65%) could be the consequence also of the absence of a newsletter, updated website, social media account etc. – compared to the high WUR rates (91%). CERL taking place directly through lecturers and supervisors, without support of an intermediary mechanism or Science Shop – like in LAB, seems to cause a lack of continuous CERL evaluation, monitoring and overview within the institution.

ALSO, THE LOWER AND MORE anonymous survey and interview response rate of LAB compared to VUB and WUR may be related to the fact that LAB CSOs were invited by a LAB staff member they are not familiar with, whereas VUB and WUR CSOs were invited by the Science Shop contact person they may have been in touch with earlier. Known and reliable Science Shop intermediaries may be important in this CSO networking frame, but one could also argue that the LAB response rate would be higher in case the in CERL projects involved lecturers would have invited the CSOs they have been collaborating with earlier. Furthermore, considering the average FTEs in the CSOs the involved partners are working with and the main Science Shop focus on not-for-profit organizations, one could say that smaller and voluntary CSOs may benefit from the existence of Science Shops.

SOME VUB AND WUR CSO'S FELT A NEED for support with the implementation of the outcomes. But one could wonder if such an implementation support belongs to Science Shop's responsibility. This could count as a side effect of the existence of a Science Shop: creating too many / high expectations from CSOs.

[The full Impact study is available here.](#)

NEEDS

Study summary

CSO NEEDS STUDY: COLLABORATION WITH HIGHER EDUCATION INSTITUTION (HEIS), IN COMMUNITY-BASED RESEARCH PROJECTS





THE CURRENT SOCIETAL CHALLENGES and their growing complexity, make us realize that the expertise of civil society organizations (CSOs) is more important than ever. Scientific research provides a solid basis to build solutions on, however, the lack of resources and (access to) research expertise often hinders CSOs to be involved. Higher Education Institutions (HEIs) can have an active role in helping CSOs to surpass these obstacles while engaging in relevant research and boosting key competencies in their students and staff. But what are the actual needs of CSOs in terms of societal research questions that could be answered by higher education students?

IN ORDER TO GAIN MORE INSIGHT and better understand the current and desired collaboration between CSOs and HEIs in terms of research, CSOs needs study was conducted in 5 countries (Belgium, Finland, Lithuania, the Netherlands, Portugal) within the European ENTRANCE project with the support of the Erasmus+ programme of the European Union.

➤ **Research methodology**

The CSOs needs study was conducted using a mixed methods approach:

- ◇ **DESK STUDY** focused on an overview of various official documents, review of reports and CSO surveys, past research findings, and discussions.
- ◇ **FIELD STUDY** consisted of CSO online surveys (255) and interviews (40).

CSOs profile

The total number of CSOs in 5 project countries is enormous – according to official statistics, it's near to 304 thousand (respectively 87302 in Belgium, 68500 in Finland, 32476 in Lithuania, 61268 in Portugal, 54291 in the Netherlands).

IN THE ONLINE SURVEY of this project, CSOs were mainly represented by associations (58%) and NGOs (29%). Almost half of the respondents were very small organizations having less than 5 employees, however, the other half are larger organizations having more than 10 employees; the vast majority of CSOs are working with volunteers.

THE RESPONDENTS are mainly working in the fields of following societal challenges: Health, demographic change and wellbeing, Europe in a changing world - inclusive, innovative and reflective societies, Secure societies – protecting freedom and security of Europe and its citizens, Climate action, environment, resource efficiency and raw materials¹.

THE RESPONDENTS MAINLY CARRY OUT educational activities, support people and submit suggestions on regulatory documents or policies, but they rarely or never take judicial actions, protest or start debates. This would reflect that CSOs are very hands on within their own domains or fields and rather do the actual work than try to affect the circumstances behind the societal issues.

¹ **European Commission. (2014).** Societal Challenges - Horizon 2020. Retrieved from <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/societal-challenges> 02.12.2018



CSOs needs for research

68% of the respondents answered they need to conduct research in order to address societal challenges. However, in different countries, we could observe different trends. In Belgium and Portugal, the vast majority of CSOs believe they need research for their work, whereas in Finland, Lithuania and the Netherlands only half of the respondents indicated they deal with research activities addressing societal challenges. The same situation we observe by examining CSOs willingness to collaborate with HEIs in terms of research. 84,6% Belgian and 84,3% Portuguese respondents were very enthusiastic regarding possible collaboration, whereas, in Lithuania, Finland and the Netherlands near half of the respondents expressed their doubts about such collaboration. The reasons for doubting about collaboration vary from time management issues to past experiences and also not being sure if students could handle the issues in a sensitive and discreet manner.

THE RESEARCH PROBLEMS that the CSOs usually face are mainly problems that require expertise in more than one academic discipline. They are complex or complicated. There are some wicked problems (very ambiguous, requiring the blending of multiple expertise from various academic disciplines and practical insights from society) and simple problems as well, so the whole spectrum is represented.

INTERVIEWS REVEALED that the possible future trends of collaboration between CSOs and HEIs in terms of research are as follows: product/service development or design, knowledge sharing, measuring the impact of social intervention.

CSOS CONSIDER THAT 5 TOP RESEARCH SKILLS in order to be able to tackle societal problems are as following: collaboration, openness & transparency, action skills, skills to anticipate future, situational awareness².

Recommendations

CSOs are more likely to expect not only some research but rather a solution to some particular problem they face – suggestion for a new model, a creative solution etc. Thus HEIs could think about embedding educational models allowing to combine research and action resulting in a solution of societal problems.

BY APPROACHING CSOs it is important to remember that they lack time due to the problems with human resources. So it would be important to be aware of the domain and activity of the particular CSO and apply tailor-made communication. For example, it would be beneficial to create targeted messages to the CSOs in different domains and ask them about their needs with some open-ended questions in order to find out their specific needs.

² Tassone, Eppink. (2016). The EnRRICH tool for educators: (Re-)Designing curricula in higher education from a “Responsible Research and Innovation” perspective. Retrieved from: https://www.livingknowledge.org/fileadmin/Dateien-Living-Knowledge/Dokumente_Dateien/EnRRICH/D2.3_The_EnRRICH_Tool_for_Educators.pdf



DUE TO A LACK OF PREVIOUS collaboration experiences in the countries where the Science Shop model is relatively new, it is less likely that CSOs will ask HEIs for help, so HEIs should be proactive by establishing cooperation.

SOME CSOS NEED HELP with the formulation of a good research question (starting from the concrete societal challenge they face): the lecturer or Science Shop mediator should help the CSO with this. In some cases, it could also help if a HEI would not ask to identify a research problem, but would just observe organizations' daily activities, would have a conversation with CSOs representatives and then would „translate“ their findings into research problems.

IN ORDER TO KEEP THE PROCESS smooth and build trust, it is necessary to teach students how they should work with CSOs in terms of communication, ethics and time management. In this, it also helps to have one person in charge (e. g. Science Shop mediator) and communicate with the CSO in addition to the students conducting the research.

CSOS HAVE MENTIONED it would be important to increase their general visibility in the society and proper communication of research findings could contribute to it. So it would be helpful to teach students how to efficiently introduce their research results to a broader public.

The full Needs study is available here.

CERL Training

at partner institutions





ENTRANCE PARTNERS

LAB University of Applied Sciences

(former Lahti University of Applied Sciences/LUAS), Finland

Maiêutica – Cooperativa de Ensino Superior CRL

(ISMAI/IPMAIA), Portugal

Vilnius College of Technologies and Design

(VTDK), Lithuania

Vrije Universiteit Brussel

(VUB), Belgium

Wageningen University & Research

(WUR), Netherlands

LAB Finland

LAB University of Applied Sciences

CERL TRAINING MATERIALS

➤ **Training given to teachers**

Objectives of the training:

- ✦ What is ENTRANCE
- ✦ How to motivate students to explore the possibilities for collaboration with local CSOs
- ✦ How to combine experimental learning and utilize technology in a real-life environment

SKILLS DEVELOPED BY THE TEACHERS:

- ✦ Training was designed to meet the needs of the **Key theme group: Social Inclusion.**
- ✦ The key theme promoted and enhanced processes, services and operating models that support clients' everyday social environments together with working life and CSOs
- ✦ Participants of the key theme group were junior and senior lecturers of the degree program in social services and research, development and innovation experts (RDI) engaged with this topic
- ✦ Key theme group met regularly once a month

➤ **Training given to students during Bachelor's Thesis course:**

Objective of the training and the skills developed:

THE STUDENTS WERE ABLE TO:

- ✦ apply the acquired theoretical knowledge to the problems and phenomena of the CSO
- ✦ solve grand societal challenges; organize and perceive wholes

- ✦ work interactively, tenaciously and systematically
- ✦ work according to the practices of their own profession
- ✦ gather information and evaluate sources critically - report their work orally, in writing and visually document the sources

TRAINING FOLLOWED A PROCESS OF:

1. Orientation and seminar

local CSOs and their grand societal challenges
how to transform a problem from a CSO into a project

2. Planning seminar

scientific framework
strategies to achieve the objective and complete key activities

3. Implementation

in a co-operation with CSO's

4. Evaluation and writing a final report

evaluation of the results of interventions

5. Publishing results

it is recommended that CSO's representative participates in a seminar

TRAINING WAS CARRIED OUT in a dialogical discussion group, which met once a month, three hours at a time. Training was based on shared expertise. Shared expertise is the process by which multiple people share

the intellectual resources of knowledge, plans, and goals to achieve something that an individual would not be able to accomplish. Shared expertise is characterized by e.g. testing and developing one's own thinking, reflective working with different perspectives expanding and complementing, and collective learning.

STUDENTS WERE ADVISED TO RETURN their seminar paper in advance before every meeting. For this purpose, we normally use a digital platform, in which students can see and read their peers' scientific papers. In a training meeting, students gave and received feedback from their peers. Supervising teacher gave feedback and advice how to continue the process. Students were mentored on how to carry out dialogical discussions with the CSO's representatives.

Training the trainers and training the students

Objective of the training

- ✦ to introduce the local CSOs to the students under the supervision of the lecturer in charge of the case
- ✦ to increase the students' knowledge and awareness of local civic society organizations and their grand societal challenges

IN SOME OF THE CASES multidisciplinary teams were formed, e.g. a multidisciplinary team - which consisted of four to five students including a design student, the lecturer of the course "Innovation of Digital Solutions", the mentor of the student team and a representative for the voluntary organization - was involved when developing an online reporting application for Clean Beach - Keep the Archipelago Tidy Association.

ISMAI / IPMAIA Portugal

Maiêutica – Cooperativa de Ensino Superior CRL

CERL TRAINING MATERIALS

THE ENTRANCE TRAINING at ISMAI/IPMAIA was developed and implemented by a team consisting of staff members/lecturers from business sciences, social sciences and technology departments/schools.

AUTHORS/PROJECT MEMBERS: Ana Sofia Neves, Carla Peixoto, Carla Silva, Cláudia Azevedo, João Carvalho, Pedro Gaspar, Rui Carreira, Sónia Ruão, Vera Duarte, Yamilis Espino

Case Studies on Community Based Research

VIDEO

This video describes the conceptual development of a Case Study using two concrete examples that enable multidisciplinary teams to convert problems identified by Civil Society Organizations (CSOs) into research topics. The Case Study is organized in sections: Introduction, Story (of the problem), Scientific framework, Social intervention and Theoretical/ practical implications. This structure will help other researchers to better understand the scientific details of the cases, but also the main achievements and how to overcome the problems encountered. The video also aims at motivating lecturers and students to engage in collaborative work with CSOs while enhancing their action skills, situational awareness, transdisciplinary analysis and teamwork.

Click here to see the video:

[ENTRANCE – Case Studies](#)

Project Based Learning

VIDEO

This set of videos introduces PBL as learning didactics. PBL stands for “Project Based Learning” or “Problem Based Learning”. PBL transforms the context into a central square where technical and transversal skills merge. The context/ central square is the crux of this learning didactics. PBL can be applied in varied situations. Its application in Community Engaged Research and Learning (CERL) is possible and desirable, it just needs to be adapted to the specific context. This set of videos is aimed at introducing PBL to lectures and students as teaching/ learning didactics that can be adjusted to any context and that are very useful in Community Engaged Research and Learning (CERL) related projects.

Here are the videos:

[Overview](#)

[1. PBL – Principles](#)

[2. Projects’ Typologies](#)

[3. Workshop](#)

[3.1 Activity 1 – PBL Requirements](#)

[3.2 Activity 2 – Theme/Problem Definition](#)

[3.3 Activity 3 – Implementation Proposal](#)

Case Studies

PDF

The case study is a pedagogical tool whose main advantage is the ability to engage students and develop critical-thinking skills. The use of Case Studies makes it

possible to link theory and practice, as it focuses on individuals, organizations, events or phenomena which are investigated and explored in their own context. It also has the advantage of being flexible in terms of types of research, questions that can be addressed and data collection methods. This paper aims to motivate lecturers and students to use Case study in Community Engaged Research and Learning (CERL) related projects, as a methodology that allows for the investigation and understanding of complex issues in real world settings.

[Click here for the pdf:](#)

[Case Studies](#)

Basics about CERL

PDF

As Community Engaged Research and Learning (CERL) gains currency as a ‘research strategy of choice’ for the community sector, and increasingly establishes itself as a credible research approach also in the academic sector, there is a need to revisit what have become the conventions of CERL and consider how these are enacted in practice. This paper aims to understand the current state-of-the art concerning CERL and from there help researchers and students to develop their work and studies on this topic.

Interested? [Click here for the pdf:](#)

[Basics about CERL](#)

VTDK Lithuania

Vilnius College of Technologies and Design

CERL TRAINING MATERIALS

THE ENTRANCE TRAINING at VTDK was developed and implemented by the project team, consisting of administrative staff and lecturers from Technical Faculty and Construction Faculty.

AUTHORS/MEMBERS OF THE IMPLEMENTATION TEAM: Ana Aleknavičienė, dr. Gražina Strazdienė, Airida Tylienė, Jolanta Pileckienė, dr. Andrius Gulbinas.

THE TRAINING MATERIAL IS DEVELOPED TO INCREASE students' engagement and to support lecturers who would like in the frame of their course to set up a Science Shop project addressing societal issues and based on community-engaged research and learning (CERL).

LEARNING MATERIAL WAS DEVELOPED AS A TOOLKIT basing on identified CSOs needs in terms of students' competences, which they would need in order to conduct research or community project addressing societal problems. The toolkit contains a tailor-made selection of concise materials addressing specific questions:

- ✦ **How to run a Science Shop project?**
- ✦ **How to approach CSOs and identify societal problems?**
- ✦ **How to transform practical problems into a research question?**
- ✦ **How to transform a problem into a project and develop a solution?**
- ✦ **How to make the results of the research/project visible?**
- ✦ **How to evaluate students in order to increase their engagement and motivation?**

THE LEARNING MATERIAL CAN BE USED by Science Shop coordinators, lecturers, students and helps to develop the following competencies: collaboration, action skills, situational awareness, ethical thinking, skills to anticipate futures, openness & transparency.

- ◇ **THE HEADING DOCUMENT HOW TO RUN A SCIENCE SHOP PROJECT?** is designed for lecturers and contains guidelines, presenting the concept of Science Shop projects, explaining its relevance to institutional strategy, introducing lecturers to the steps of the Science Shop projects. The document also includes templates for a description of Science Shop project and for a report after completion of the project.
- ◇ **HOW TO APPROACH CSOS AND COLLECT THEIR PROBLEMS?**
This document guides students in the situations when a team starts their activity from scratch, i.e. when a problem relevant to their field of interest is not registered in the problems bank and/or there is no “potential customer”, or when the research problem is not clear enough. A situation when students need to be proactive and have to identify the problem themselves is quite common in Lithuania, due to the fact that cooperation between HEIs and CSO in terms of research is not strong yet and needs to be developed.
- ◇ **HOW TO TRANSFORM PRACTICAL PROBLEMS INTO A RESEARCH QUESTION?**
It was noticed that very often students struggle to “translate” a practical problem into the research question. This document with concrete steps and examples helps them to better understand how it could be done.
- ◇ **HOW TO TRANSFORM A PROBLEM INTO A PROJECT AND DEVELOP A SOLUTION?**
According to the Needs study, CSOs are more likely to expect not only research but rather a solution to some particular problem they face – a suggestion for a new model, a creative solution, etc. In this case, students need to implement a project, requiring planning, budgeting, time-management, collaboration skills. This module guides student team through the process.
- ◇ **HOW TO MAKE THE RESULTS OF THE RESEARCH/PROJECT VISIBLE?**
After the implementation of the project, the visibility and audibility of the project results are very important. Otherwise, the main goals of the Science Shop project would not be fully achieved – to respond to societal needs and to provide alternative sustainable solutions that could influence changes in various fields. The document guides students on planning dissemination, choosing target groups, dissemination channels and means, evaluating dissemination results.
- ◇ **HOW TO EVALUATE STUDENTS IN ORDER TO INCREASE THEIR ENGAGEMENT AND MOTIVATION?**
The document contains guidelines for lecturers on an evaluation of a student’s team, which is considered to be one of the key aspects of the Science Shop projects. The document provides recommendations on how to help students evaluate the achievements of their team and the input of each team member, how to better engage them and motivate to improve.

VUB Belgium

Vrije Universiteit Brussel

CERL TRAINING MATERIALS

THE ENTRANCE TRAINING at VUB was developed and implemented by the UNIVER.CITY team – consisting of staff members/lecturers from both the Science Shop (R&D department) and the Educational Department.

AUTHORS/PROJECT MEMBERS: Jozefien De Marrée, Catherine Morel, Linde Moriau, Bram Pynoo, Julie Bertone

VUB TRAINING MODULES – TARGET PUBLIC: TEACHERS

Introduction VUB Module 1: Design of a CERL course

OVERVIEW

In this module, we will explore:

- ✦ Introducing concepts and paradigms about CERL
- ✦ The variety of CERL goals and outcomes
- ✦ Resources that can be used and actors that can be involved in CERL
- ✦ Engagement strategies that can be employed for CERL

LEARNING GOALS

After this module you will be able to:

- ✦ Describe core principles & criteria for designing VUB-proof CERL-strategies
- ✦ Describe the uniqueness of CERL-strategies in comparison with other teaching and learning approaches
- ✦ Define and illustrate the concepts ‘community’ and ‘engagement’ within CERL-context
- ✦ Give examples of personal, institutional & societal impact of CERL-strategies
- ✦ Give examples of impactful CERL-strategies

DELIVERABLES

Through the activities of this module you will be able to formulate or design:

- ✦ Your CERL ambitions and success indicators
- ✦ The outline of your CERL activity
- ✦ An overview of interesting community partners to involve in your CERL activity
- ✦ Your CERL values and (re)design actions

Click here for the pdf: [VUB CERL GUIDE – DESIGN](#)

Introduction VUB Module 2: Preparation of a CERL course

OVERVIEW

In this module, we will explore:

- ✦ How to prepare partnerships for CERL
- ✦ What needs to be thought through for quality collaborations
- ✦ How to prepare (blended) learning environments for CERL

LEARNING GOALS

After this module you will be able to:

- ✦ Build sustainable and mutually beneficial CERL partnerships
- ✦ Prepare the CERL strategy in alignment with the intended outcomes and starting capacities
- ✦ Prepare the (blended) learning environment for your CERL project
- ✦ Prepare students for CERL
- ✦ Recognize factors influencing collaborative learning processes

DELIVERABLES

Through the activities of this module you will be able to formulate or design:

- ✦ A CERL agreement form
- ✦ Your CERL syllabus
- ✦ An online learning environment for your CERL project

Click here for the pdf: [VUB CERL TOOLKIT – PREPARATION](#)

Introduction VUB Module 3: Execution of a CERL course

OVERVIEW

In this module, we will explore:

- ✦ Guidelines for thoughtful follow-up and coaching throughout CERL processes
- ✦ How to cross-link research and teaching in CE strategies
- ✦ Some ethical considerations to be made when putting CERL into practice

LEARNING GOALS

After this module you will be able to:

- ✦ Define characteristics and obstacles for quality CERL processes
- ✦ Define the relevance and application possibilities of the GRROW coaching model for CERL
- ✦ Integrate elements from the GRROW coaching model into your CERL course
- ✦ Make thoughtful choices about instruments and methods for critical reflection
- ✦ Make thoughtful choices for interconnecting teaching and research activities in CERL

DELIVERABLES

Through the activities of this module you will be able to formulate or design:

- ✦ Outline of your CERL coaching and reflection activities.

Click here for the pdf: [VUB CERL TOOLKIT – EXECUTION](#)

Introduction VUB Module 4: Completion of a CERL course

OVERVIEW

In this module, we will explore:

- ✦ Elements to be taken into account for the assessment of CERL
- ✦ Guidelines for impactful communication about CERL outcomes
- ✦ Guidelines for and actors to involve in quality improvement of CERL strategies

LEARNING GOALS

After this module you will be able to::

- ✦ Define sound evaluation criteria for CERL strategies
- ✦ Develop an adequate assessment instruments for CERL
- ✦ Implement guidelines for impactful communication about CERL outcomes
- ✦ Formulate suitable actions for quality improvement and sustaining CERL strategies

DELIVERABLES

Through the activities of this module we formulate or design:

- ✦ A CERL course sheet (ECTS sheet)
- ✦ CERL goals, evaluation criteria & assessment tools
- ✦ (re)design goals & actions

Click here for the pdf: [VUB CERL TOOLKIT – COMPLETING](#)



WUR Netherlands

Wageningen University & Research

CERL TRAINING MATERIALS

THE ENTRANCE ACTIVITIES at WUR were developed and implemented in the context of the Academic Consultancy Training (ACT) course – involving educational coordinators, teachers, coaches, scientists, students, knowledge brokers and societal actors.

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Developing an Academic Consultancy Proposal

WUR HANDBOOK

This Handbook provides guidance to higher education students that wish to develop an academic consultancy proposal in collaboration with societal stakeholders. Students working on Community Engaged Research and Learning (CERL) can use this material when they want to create a project proposal for defining and addressing, in an academic consultancy fashion, a specific query or challenge faced by societal actors (the commissioners of the project). This Handbook includes steps for the development of a successful project proposal, including objectives of each steps, exercises, links to video clips, self-assessment guidelines, etc..

You can find the handbook here:

[WUR Handbook Developing an Academic Consultancy Proposal](#)

And here is an interesting report:

[ACT research study report](#), on “Cultivating learning in the transdisciplinary-oriented Academic Consultancy Training”

ASSESSMENT

of CERL training



LAB Finland

LAB University of Applied Sciences

ASSESSMENT OF CERL TRAINING

Introduction

This evaluation is done based on the feedback given by lecturers, students and CSOs which were summarized and reported by the lecture in charge.

The aim of the training modules was to enhance the social responsibility and societal engagement of both students and staff at LAB University of Applied Sciences.

SEVERAL LECTURERS FROM DIFFERENT TRAINING PROGRAMS at the university and over a hundred of students were involved in the training modules. Local civil society organizations were:

- ✦ two volunteers' associations (Päijät-Hämeen vapaaehtoistoiminta/Lahden lähimmäispalvelu ry and Harjulan Setlmentti ry – Harjula Settlement House)
- ✦ an association of hard hearing (Keski-Uudenmaan Kuulo ry – Association of Hard of Hearing in Central Uusimaa)
- ✦ an organization for keeping the beaches / the archipelago clean (Siisti Biitsi, Pidä Saaristo Siistinä ry – Clean Beach, Keep the Archipelago Tidy Association)
- ✦ a mental health association, (Miete ry)
- ✦ an evangelical Lutheran parish (Hollola parish)
- ✦ a social enterprise (Lahti Diakonia Institution)
- ✦ an organization to clean up a local lake (Lake Vesijärvi foundation)

Level of satisfaction

Due to the different nature of the cases the evaluation here is done on a general level. The feedback given by all partners; lecturers, students and local civil society organizations was mostly positive. Most lecturers found this kind of cooperation fruitful. In one case, however, the lecturer in charge found the schedule to be too tight. Most students felt that they had learnt from the collaboration with the local civil society organizations and many of the students created a more positive attitude towards volunteer work. The collaboration between the students and the local civil society organizations worked well. Some students felt, however, that the tasks were somewhat challenging. The feedback given by the representatives for the local civil society organizations was only positive; the students were able to generate new ideas and ways of developing the activities of the civil society organizations.

Level of learning

The students were able to learn about voluntary work, the CSOs were able to benefit from the know-how of the students. The students had to work in “real life”, together with a real customer (local civil society organization) and a real problem. Some students felt that the tasks were somewhat challenging.

THE TRAINING MATERIAL AND PEDAGOGY used was adjusted by lecturers according to the needs of the local CSO in question; PBL, digital platforms, Seppo-game for learning outdoors and Lean Service Creation (LSC) among

them. Project based learning is a real-life oriented pedagogical method for students to learn via doing actual projects for actual clients. Seppo - a game for learning outdoors is a new way of learning that combines experiential, project-based learning and utilizes technology in a real-life environment. The 21st century important skills, such as problem solving, creativity, teamwork, and sharing your know-how are an integral part of the learning process of **Seppo games**. Lean Service Creation (LSC) is a systematic and adjustable way for multidisciplinary teams to create new services. It stands on the shoulders of a Lean Startup, Agile methods, and Design thinking. LSC is a service design process which guides the development team through all the phases of the project for creating services from an early idea to finishing the last lines of computer program code.

Conclusions

The outcome of the cases was successful, and the feedback given by representatives for the local civil society organizations was only positive. All the cases presented here had a positive outcome for all parties involved. In addition to the concrete solutions given to the local CSOs, new plans for cooperation between LAB and local CSOs have been made, positive feedback from both students and CSOs has been gathered and CSOs are thankful for valuable input from students.

ISMAI / IPMAIA Portugal

Maiêutica – Cooperativa de Ensino Superior CRL

ASSESSMENT OF CERL TRAINING

Introduction. Assessment method

The action-training programme was designed with the aim of introducing Community Engaged Research and Learning (CERL) to the ISMAI/IPMAIA academic community - with the ultimate goal of enhancing the students' and lecturers' social and civic awareness and responsibility, while stimulating the merge of technical and transversal skills of students through the application of new research methodologies.

THE PROGRAMME WAS DIVIDED IN 2-STAGES. The training stage ran from March to June 2019 as preparation for the piloting stage that was carried out throughout the academic year 2019/2020. The training addressed the concept and current state-of-the-art of CERL, and focused on its practical operationalisation in order to support researchers and students in the integration of this research approach within their projects and studies. Some of the modules were addressed exclusively to teachers, such as Project Based Learning; while others concerning introduction to CERL and development of Case Studies were directed at both teachers and students. The piloting stage consisted of the collaboration with the CSOs and corresponded to the second stage of the programme. There were multidisciplinary teams supervised by teachers from different areas of study, but also groups of students from the same course supervised by their teacher, and projects carried out solely by a master student under supervision. In total, 45 students and 8 teachers were involved in the piloting stage. The projects carried out were mainly in the socio-economic field, with 3 out of the EU 7 Societal Challenges being addressed. The evaluation was conducted by collecting participant feedback on the overall action-training, with special emphasis on the piloting stage. The methods used were mainly surveys and observation. A set of surveys was designed and addressed specifically to each group: teachers, students and the CSO representatives.

Level of satisfaction

There is an overall sense of satisfaction with the action-training programme expressed by all stakeholders: lecturers, students and the CSOs, even though a few challenges have been reported and suggestions of improvement have been proposed.

LECTURERS WERE GENERALLY PLEASED with the training materials and approach, and both students and lecturers expressed high or very high satisfaction with the possibility of choosing the work topic or specific research field. Regarding the collaboration with all interested parties, lecturers were generally very satisfied, but a few reported issues that had to be tackled. Nevertheless, when questioned if they felt gratified by the results obtained, the great majority of the lecturers reported positive feedback. However, student perception, both on the collaboration with all interested parties and on the satisfaction with the results obtained was varied, denoting the different individual experiences lived in each project.

ALL THE PARTICIPANT LECTURERS EXPRESSED INTEREST in the teaching-learning collaborative model and would like to participate in new projects. In their perspective, it represents a great opportunity for students to associate theory and practice in the field while developing civic and transversal skills. Most of the **students** were also enthusiastic about engaging in new collaborative projects, both for the development of their skills and for the positive impact on the organisations. But a few considered that this type of projects should not be mandatory, at least in certain course disciplines. The **organisations** were generally pleased with the collaborative experience between higher education

institutions and civil society organisations. When asked if the organisational needs and perspectives were well integrated by the academic teams, the great majority of the organisations answered positively, with one stating that it even exceeded their expectations. Most of them attribute great value to these initiatives and would like to engage in further partnerships. A few organisations, however, made suggestions of improvement, namely: i) previous preparation and awareness of the students on how civil society organisations are structured and on how they operate; ii) closer proximity between the supervising teachers and the organisations; iii) mediation by the supervising teachers of the first contact between the students and the organisations.

Level of learning

At this level, the aim was to assess to what extent the students have been able to develop transversal skills throughout the piloting stage. When they were directly asked which type of skills they feel to have developed, **students** frequently referred to a better capacity of teamwork, self-management, including autonomy and responsibility, self-confidence, resilience and also improved communication and collaboration skills derived from the contact with the organisations, and often directly with the target groups, “clients”. Greater research capacity and critical thinking were also experienced and valued by the students.

ACCORDING TO THE LECTURERS who have supervised the work, besides the opportunity of bridging theory and practice, students were able to reflect on specific research and intervention methodologies, putting the knowledge acquired at the service of social transformation. It is the lecturers’ belief that

the opening to collaboration with the civil society organisations, and often directly with their target public, has effective impact on the development of transversal skills, at the level of autonomy, problem solving, collaboration and communication. A few lecturers highlighted that some of the students were effectively able to demonstrate a collaborative and assertive approach throughout the whole process.

BY CROSS-CHECKING student and lecturer feedback with the **CSOs' perspective** which referred to students' most relevant and useful skills, some of the skills match, namely research capacity, responsibility, autonomy and communication skills. However, CSOs also valued other competencies, such as motivation and availability, capacity to recognise errors and improve work, and empathy with the direct beneficiaries (this last one was mentioned by organisations that work with specific groups, both with the elderly and with children).

Level of result

The majority of the participants (students, lecturers, CSOs) were satisfied with the results achieved throughout the piloting stage, although some challenges have been reported. From their feedback, it is possible to conclude that diverse experiences have been gained by each individual.

WHEN ASKED ABOUT THE MAIN CHALLENGES encountered, **lecturers** pointed out two, which can be interrelated: the hurdle in articulation of availabilities and in finding a balance at motivational level among all the intervenients. Another issue cited, both by some lecturers and MA students was the difficulty in fitting the research study in the parameters set up in the "Case Study" template. From the **students'** point of view, the main challenge faced was related with the low level of responsiveness from the CSOs' side. This may be justified, from the CSOs' perspective, by the work overload faced by most organisations and also by a misinterpretation of the students' role and of the aim of the project. Students also mentioned the difficulty in accessing resources and responses for some specific investigations.

CONCERNING THE RESULTS ACHIEVED, **lecturers** reported that the academic teams were able to deliver useful outputs to the organisations, such as guidelines and new intervention tools.



They also noticed that some of these outputs have the potential to be used by other organisations working in the same field and with the same target audiences. As not so tangible results, organisations were given more comprehensive information on the needs of their “clients”. In a few specific cases, the organisation’s intervention teams have also received specific training. As a result, **students** perceived a general positive impact for the organisation, as well as for themselves. This can be translated as expanded knowledge on the specific working topics and the ability to interpret the results from diverse perspectives. It was observed, however, that in some cases more time is required in order to be able to effectively assess the results. In what concerns the **CSOs’ perception** on the results and on the value of the work developed by the academic teams, the answers were generally positive. Some organisations reported that they will continue with the projects initiated by integrating the guidelines and tools into their intervention programmes. Others agreed that the research themes were very relevant for the organisations’ work, that they allowed for a better understanding of the needs and expectations of their users, and that the results can be both integrated in current projects or used for dissemination purposes.

Conclusions

In general terms, all the intervenients (lecturers, students and organisations) were satisfied with the experience based on a teaching-learning collaborative model between higher education institutions and civil society organisations, and most of them would like to engage in new projects. The development of transversal skills by the students is clearly recognised by themselves and by the lecturers. The positive impact for the organisations is also acknowledged

by all the intervenients, both for the effective resulting outputs but also for the openness to a new model of collaboration with the academy.

ASIDE FROM A GENERAL SATISFACTION, a few challenges have been reported. And although the feedback received shows that diverse experiences have been gained by each individual, it is possible to take conclusions on the main challenges faced. From the academic side, finding the right balance at motivational level among all the intervenients, and specifically the low level of responsiveness from the CSOs in some cases, seem to embody the main challenges to be tackled. From the organisations’ view, a better preparation of the students for the reality of the civil society organisations and a closer proximity and mediation work between the supervising teachers and the organisations could help improve this collaborative model.

THE CHALLENGES AND SUGGESTIONS FOR IMPROVEMENT mentioned lead to the deduction that the existence of a “liaison” from the academic side - a science shop - would help overcome the issues presented. This liaison office would be responsible for: getting into contact with the CSOs and clearly communicating the context and goals of the teaching-learning collaborative model, collecting the CSOs’ needs and setting up the multidisciplinary teams, guaranteeing the proper preparation and motivation of the teams (both students and supervising teachers), facilitating the process of transforming the needs of the CSOs into research projects and would function as mediators throughout the whole process. From an institutional perspective, this “liaison” would function as ISMAI/IPMAIA’s extension to the community, as well as representing centre for applied research, action research and practice/internships.

VTDK Lithuania

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ASSESSMENT OF CERL TRAINING

THE ACTION TRAINING AT VTDK aimed to increase students' engagement and to support lecturers who would set up Science Shop projects in the frame of their course.

Assessment method

Basing on identified CSOs needs in terms of students' competencies, which they would need in order to conduct research or community project addressing societal problems, tailor-made learning material was developed. The material was tested in the pilot projects, which involved 138 students and was supervised by 3 lecturers. In order to evaluate participants' experiences, students who implemented CERL projects were asked to participate in a survey (60 questionnaires were completed). Lecturers supervising pilot projects and few other lecturers who were supervising Science Shop projects in the period of last 4 years were invited to a discussion (7 lecturers participated). Further is presented a reflection on students' and lecturers' experiences in terms of satisfaction, learning and results.

Level of satisfaction

Students who participated in Science Shop projects were provided with learning materials developed by the VTDK ENTRANCE team. Particular parts of methodological materials were used in various stages of the projects and were evaluated by students exceptionally positively. No student indicated that the material was unnecessary or useless. On the contrary, all students noted that the material was as a roadmap in understanding the point of CERL project, setting the goals and searching for solutions. The students also emphasized that the examples provided in the learning materials were especially helpful – they helped

to clarify and reveal the interrelationships between the elements of the process. Lecturers also responded positively to the developed methodological materials and found a helpful tool to successfully carry out Science Shop projects.

IN THEIR FEEDBACK students were very positive about problem-based learning without traditional theoretical lectures, giving an opportunity to work and think differently; they say teamwork, discussions and a participatory approach also proved to be engaging and highly appealing for them.

THE MAJORITY OF STUDENTS were happy to freely choose the topic of the project and look for new, innovative solutions, however, collaboration with CSOs was noted as one of the biggest challenges. Even in the cases where CSOs were interested in the topic of the project, they often did not have time for providing more information or for reflecting on various solution options, which hampered the further development and

implementation of the project idea. Nevertheless, some students noted that this helped them gain additional and invaluable communication and collaboration experience.

REFLECTING ON THE ACHIEVED RESULTS at the end of the project, 90 per cent of students expressed joy and satisfaction with the work done by the team. Some of them think they have “surpassed themselves”, while others have expressed concern that with a lot of time and effort invested in the project, it is still not clear if their solution will be implemented.

TEACHERS NOTED THAT IT WAS RATHER CHALLENGING to work on CERL projects. However, in the cases where the idea was implemented in practice and demonstrated its value, it proved the importance of such projects, which is very satisfying for both teachers and students.

Level of learning

96% of students indicated that they not only gained new knowledge but also valuable experience of project work and communication with societal actors, learned to work in a team, improved their planning and time management skills. 65% of students emphasized the importance of interdisciplinary learning experience gained. As most of the Science Shop projects focused on renewable energy sources, sustainable solutions and environmentally friendly



materials or technological innovations, students have learned to consider decisions they take from a future perspective. For example, to think about how the solutions they currently propose would influence climate change or the reduction of environmental pollution, and how relevant that would be in a few years. Almost 90% of students indicated that the newly acquired competencies, especially in collaboration and teamwork, will be applied in their future work.

LECTURERS ACKNOWLEDGED that by supervising CERL projects, they improved their skills of interdisciplinary teaching and collaboration competence, they found out what problems CSOs and communities face and better understood their needs. Lecturers also mentioned that the fair and motivating evaluation of the students' team was quite a challenge.

Level of result

90% of students participating in pilot projects stated they had achieved the goal set at the beginning of the project, even if some of the objectives due to various circumstances had to be changed during the implementation phase.

THE BIGGEST CHALLENGE, according to almost half of the students, was a collaboration with CSOs/communities, as the stakeholders were not that interested in research at the initial stage and later did not actively participate in the process in order to discuss various options of solutions or provide students with more detailed information. For some students, work in an international team became a challenge, for others – public presentation of the project results and justification of the proposed solution.

LECTURERS NOTED THAT STUDENTS' ENGAGEMENT was very different. Some students gladly got involved and started their projects, others were struggling to choose the problem they would like to work with. One of the major challenges for students was the collaboration with the CSOs; they also often feel shy to present the result of the project to the public.

THE LECTURERS EMPHASIZED that despite the above-mentioned challenges, there were very successful pilot projects that were met with interest among stakeholders and are very helpful in developing further cooperation. For example:

- ◇ **VTDK STUDENTS DESIGNED** creative educational spaces for Lazdynai secondary school. Project results were presented to the school community, who suggested ideas for other possible projects. In order to select which ideas should be implemented, there was a wider discussion with pupils of the school. After summarizing the results of the survey, two projects were selected: "Green Route to the School" and "Classroom Outside". Engineering and Design students were working in interdisciplinary groups on these new projects developing a safe green walking and cycling route and a space for creative outside activities. The projects were very positively evaluated by the school and the local community.
- ◇ **VTDK STUDENTS WERE OBSERVING** unregulated crossings in Vilnius for two years in a row and analyzed collected data in a survey "Undisciplined Driving at Unregulated Crossings". Study results were presented at the conference "Vision zero" and the Road Police Service was very interested in it.



Conclusions

The results of the assessment indicate that:

- ◇ **FOR STUDENTS**, participation in CERL projects is not easy and requires them to learn quickly, be flexible, get out of the comfort zone. Nevertheless, 90% of students are satisfied with their learning experience and believe that this experience has helped them to strengthen competencies as collaboration, action skills, situational awareness, ethical thinking, skills to anticipate future.
- ◇ **THE COLLABORATION PROCESS WITH CSOS** is one of the biggest challenges both for students and lecturers. It would be helpful to strengthen cooperation between CSOs and HEIs step by step building mutual trust and developing collaboration tradition in terms of CERL projects. For that purpose, it is important to increase the visibility of already implemented projects in order to give CSOs an idea of what they could expect.
- ◇ **TRANSDISCIPLINARY LEARNING IS A VERY IMPORTANT** aspect of CERL projects, so it would be important to support lecturers in terms of methodological tools, sharing best practices and creating opportunities for organizing such learning.

VUB Belgium

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ASSESSMENT OF CERL TRAINING

Introduction

Driven by the need to respond to the challenges of today's knowledge society, universities are implementing a diverse set of community engaged research and learning (CERL) strategies: education and research activities in which social partnerships, real-life contexts and collaborative forms of work are used as building blocks. Academic and non-academic actors are brought together to learn with, from and for each other. Studies show that impactful implementation of CERL requires long-term coordinated action, crosslinking research expertise and agendas, educational programmes and third pillar activities.

THROUGH AN INSTITUTION-WIDE professional learning community (called **Univer. City**), VUB explored innovative practices, evidence-based models and tools relevant for the implementation of high-impact CERL strategies. The learning community had 20 members, including lecturers and teaching assistants revising or starting up a CERL course, as well as **Science Shop** coordinators and VUB policymakers. The training comprised four common learning sessions (each lasting three hours), alternating with individual support moments. The content and format of the sessions were designed based on the expectations and expertise of the members of the learning community.

Assessment methods

At the end of the training, the participating lecturers (N=8) were asked to write a final reflection on the Univer.City learning community and training through a number of open questions (on the impact of their course, the lessons learned, points of improvement etc) and to answer a short 5- or 7-point Likert scale survey on the added value. As such, the following assessment is an overarching evaluation of the effect of the CERL training and learning community on the participating

teachers' knowledge, skills, attitude and courses. For the training materials, see chapter 4. The many student-CSO collaborations that were set up during the teachers' courses aren't evaluated here, but five of them are described as case studies, see chapter 6.

Level of satisfaction

In their final report, the training participants put forward as the **most important assets** of the CERL training trajectory: (i) the exchange with colleagues as a source of new inspiration, expertise, cross-linking and networking, (ii) the diversity of expertise, perspectives and experiences within the learning community, (iii) the fact that participation in the training resulted in making time for concrete course design, putting it into practice and evaluating its effects, (iv) the relevant information and sources, interesting methodologies and tools that were provided, (v) the nice atmosphere, good organisation and enthusiastic community. The fact that they were offered

tailor-made support from the Univer.City project team was also highly appreciated – e.g. the introduction/setting up of new partnerships with the help of Science Shop.

AS THE MOST IMPORTANT IMPROVEMENT AREAS of the learning trajectory, the following topics were put forward: (i) providing more room for translation of the CERL theory into participants' own profession/practice, (ii) aligning content with other professionalisation processes, (iii) more one-on-one (tailor-made) support, (iv) letting training take place at various locations in Brussels instead of at VUB, (v) developing learning sessions in cooperation with civil society organisations and students, (vi) monitoring the balance between the pedagogical and the broader social goals of CERL.

Level of learning

Based on the Likert scale questions in the final report, we conclude that the members of the learning community experienced a positive effect of the trajectory on their knowledge (average appreciation 3.9 on the 5-point scale), their pedagogical-didactical skills (average appreciation 4.0 on the 5-point scale), and attitude towards CERL (average appreciation 6.2 on the 7-point scale).

REGARDING THE COGNITIVE ADDED VALUE of the trajectory, the members of the learning community indicated that the training enabled them to describe characteristics of CERL and to become



Picture 1. VUB UNIVER.CITY learning community meeting

aware of its complexity (on pedagogical, institutional and societal dimensions). Training participants also indicated that they had gained better insight into the criteria for a high-quality CERL course, the added value of their CERL course in the VUB study programme, and existing initiatives within their own institution.

LOOKING INTO ACQUIRED PEDAGOGICAL-DIDACTICAL SKILLS, participants indicated that the learning trajectory enabled them to formulate learning objectives for their courses and to make evidence-based choices when designing a CERL course. Added value of the training on the ability to supervise and evaluate CERL courses in a qualitative way scored slightly lower. The most important insights are the need for course design and guidance that are well attuned to the set learning objectives, the need for taking into account great diversity (in student population, among partners etc), the importance of expectation management throughout the collaborations, and suitable infrastructure for collaborative and activating education (e.g. a co-working space).

CONCERNING THEIR ATTITUDE TOWARDS CERL, the participants indicated that the activities of the learning community contributed greatly to the development of (i) a common vocabulary and vision on CERL at VUB, (ii) a shared set of instruments and network for setting up a CERL course, (iii) greater support and more influence for CERL at VUB. At the end of the process, they had a noticeably positive attitude towards CERL and a strong intention to (continue to) work with it in a future-oriented way (average 6.5 on a 7-point scale). An important insight is the need for interdisciplinary collaboration and for an explicit vision and strategy for CERL for sustainable institutionalisation.

Level of result

The Univer.City trajectory led to the revision of eight existing course units, the design of three new course units and the wider distribution of Science Shop research questions. The main (re)design interventions through the learning trajectory were the implementation of *authentic learning* activities, more attention to *formative evaluation* and adjustments of intended learning outcomes and evaluation strategy.

Conclusion: elements of a high-quality CERL training and learning community

- ◇ **DIVERSITY OF EXPERTISE:** It's important to involve the various dimensions of CERL (pedagogical, institutional, social) and the perspectives of the various actors (teachers, training managers, administrative staff, social actors, students etc) in the training. The diversity of perspectives (combination of theoretical backgrounds and practical methods/tools) was greatly appreciated by the training participants. Exchanges with colleagues from various courses are a valuable source of expertise and inspiration – learning community members suggest bringing students and CSO partners into the learning community as well.
- ◇ **EVIDENCE-BASED TRAJECTORY:** The coherent, up-to-date and science-based information was appreciated.



- ◇ **OWN COURSE CENTRAL:** The members of the learning community were positive about the fact that the training trajectory generated space and time for their own course design. Practical examples, tools and methodologies that can be incorporated into one's own practice are welcomed. It is important that during the meetings of the learning community, sufficient time is available to make a concrete translation to one's own context/subject.
- ◇ **OWNERSHIP & TAILOR-MADE SUPPORT:** The combination of a collective learning process (attuned to specific needs within the various pilot projects) with tailor-made support was appreciated. In order to meet the demand for continued support and cooperation, we provide aftercare actions for pilots, aimed at (i) setting up and maintaining partner relations, (ii) framing the students pedagogically, (iii) offering a 'helpline' and sounding-board for further fine-tuning of the course and (iv) monitoring impact.
- ◇ **GOOD ATMOSPHERE:** In the final reports it is regularly mentioned that the pleasant atmosphere, smooth communication and organisation, and enthusiastic community contributed to the involvement and motivation for the learning trajectory.
- ◇ **"OIL STAIN STRATEGY":** The people that participated in this training, were already interested in CERL or working on CERL. How to reach a broader group of teachers? There is a need for VUB-wide CERL information sessions, a winter course and a targeted communication plan.

WUR Netherlands

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ASSESSMENT OF CERL TRAINING

Introduction

This study has focused on embedding (students') transdisciplinary learning into the Academic Consultancy Training (ACT) course, and on exploring the experiences resulting from this effort.

THE ACT COURSE, offered at Wageningen University and Research (WUR), the Netherlands, engages every year about 1,000 students working in small teams (5 to 7 students) on real life challenges, in collaboration with about 150 communities and organizations in society (called commissioners), and supported by over 200 university staff contributing as academic advisors, coaches, teachers, and ACT course coordinators. The project upon which the students are working, are recruited by the WUR Science Shop and WUR Society Based Education which facilitates a connection between academia and society.

IN THE COURSE, ACT STUDENTS' TEAM need to create a product for a commissioner in society that has a specific question or faces a challenge. The students work in a multi-disciplinary team and engage in a transdisciplinary team work effort. With the term *transdisciplinary* team work, we refer to the students collaborative process of applying and reaching a synthesis of their various disciplinary knowledge, and of the practical knowledge of societal commissioners (and stakeholders), in order to respond to challenges in society through an academic consultancy advice.

ALTHOUGH THE COURSE HAS ALREADY an intrinsic transdisciplinary nature, we have focused on making transdisciplinary learning more explicit in ACT, by embedding transdisciplinary learning materials and activities. See for example the handbook for developing a transdisciplinary ACT project proposal, available at <https://entrance-project.eu/results/> (under 'WUR').

Assessment method

In order to gain insights on the efforts made, we have explored and analysed the experiences of students, coaches and commissioners. We have selected 5 random ACT WUR Science Shop projects for this analysis. We have engaged in a survey all 30 students of the selected projects, and have hold interviews with the 5 project coaches and the 7 project commissioners (in two projects, two commissioners were active). The commissioners are all small to medium Civil Society Organisations (CSOs), working in the environmental and socio-economic fields.

IN THE SURVEY AND INTERVIEWS we have inquired about the overall learning experiences and relevant skills concerning the transdisciplinary collaboration, and about educational aspects supporting or hindering a transdisciplinary collaborative learning experience. We have then transcribed the results of the interviews. Consequently, we have analysed in a qualitative fashion both the transcript as well as the results of the survey.

Satisfaction, Learning and Results

Through the assessment study, the following insights about the experiences of ACT students, coaches, and commissioners have emerged:

◇ SATISFACTION

There is an overall sense of satisfaction for the ACT transdisciplinary learning material and activities developed. Participants acknowledge that a transdisciplinary design (typical of ACT) need to be coupled to supportive learning materials and activities, in order to foster transdisciplinary learning. Some participants have given suggestions for improvement, also in terms of making some activities more effective and to increase communication among the parties. Some students indicated they would like to engage more extensively in team building activities as foundation for collaborative work. Some others would like to receive more tips on how to bring forward their opinion as students-professionals in communication with the commissioner, and how to best bring on the table the intentions and needs of the commissioners. Coaches expressed satisfaction for how they are supported in their coaching work, especially the meetings amongst coaches to share experiences and reflect together with ACT coordinators were mentioned as very beneficial. But they also welcome more tips on how to coach in a transdisciplinary fashion.



◇ COLLABORATIVE ROLE OF STUDENTS

We identified 3 roles that ACT students' team take in relation to the commissioners:

- ✦ *Expert role:* The ACT students' team makes main choices and steer the direction of the project, while integrating the perspective of the commissioner.
- ✦ *Extra pair-of-hands role:* The commissioner makes main choices and steers the direction of the project, while the ACT students' team offers help by executing the project as set by the commissioner.
- ✦ *Collaborative role:* The ACT students' team is in charge of the project while main choices about project purpose, research questions and actions are elaborated collaboratively between students and commissioner.

IT IS INTERESTING TO NOTICE that in the majority of cases students and commissioners involved in the same project, have experienced in different ways their collaboration. For example while some students in a certain project thought they were collaboratively working together with the commissioner, the commissioner in that same project expressed the role of the students as extra pair of hands. Or for example some students experienced their role as collaborative, while others in the same project saw themselves as experts. In one case, a student expressed that she/he took up all three different roles in the duration of the project. All this suggests that, within the same context, different perceptions can arise probably due to different interpretations, frame of references and cultural background. While all roles are actually possible for reaching the transdisciplinary aim of integration of academic and practical insights, there is especially a high sense of satisfaction when it comes to the collaborative role, and the least satisfaction when it comes to the extra pair

of hands role. This implies however that students need to have the capacity to take up a collaborative role, and if appropriate be coached on it, and the commissioner should be open to it. Fostering coaching and communication about all those roles, could help boost roles' awareness which in turn could help shifting towards the desired role.

◇ COLLABORATION AND INTEGRATION SKILLS

From the perspective of students, *using ones' strengths and being open minded* is very important for working collaboratively. Some coaches highlighted that it is very valuable when commissioners (and academic advisors), are *open minded towards students ideas*, and *respond on time* to the request of students. Some other coaches expressed the importance of students' *reflexivity* and of making students aware that, although they are in a learning environment, they are a professional consultancy team and need to learn to behave as such. From a commissioners perspective, *students commitment and a proactive attitude* was perceived as an important prerequisite for working together.

FURTHERMORE, PARTICIPANTS SHARED that *regular, clear and open communication, a friendly climate and team spirit, a proper and multidisciplinary students' academic background matching the project needs, willingness to step out of ones' (disciplinary) perspective, critical thinking, integral thinking and organizational skills*, were important assets for connecting to, understanding and integrating each other's view in order to tackle the societal challenge at hand.



Conclusive reflections

This study has attempted to embed transdisciplinary learning in ACT by means of recruiting appropriate societal projects, developing suited materials and activities, and by exploring the experiences of ACT students, coaches and commissioners. The results indicate that:

- ◇ **IN ORDER TO FOSTER** transdisciplinary learning, it is relevant to couple a transdisciplinary course design connecting academia and society (typical of ACT) to *explicit transdisciplinary-focused learning materials and activities*.
- ◇ **IN THEIR COLLABORATION WITH THE COMMISSIONER**, students can take up three roles: *expert, extra pair of hands and collaborative roles*. Results show that within the same project, there are different perceptions about the role undertaken. Such different perceptions can arise due to for example different interpretations of the context, different frame of references and cultural background. In all those roles, the integration of academic and practical knowledge is possible, although there is more appreciation for the collaborative role. It is relevant thus to reflect with the students and commissioners about the different roles in order to boost roles' awareness which in turn could help shifting towards the desired role.
- ◇ **BEING OPEN MINDED, RESPONSIVE, AND REFLEXIVE** are some crucial ingredients for working together in a transdisciplinary setting. *Communication, friendliness, perspective-taking, multi-disciplinary backgrounds of the teams, willingness to step out of comfort zones, critical thinking, integral thinking and organizational skills* are considered crucial assets for working in a transdisciplinary fashion.

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FORESIGHT:

Recommendations to increase the birth rate

Kirsi Kallioniemi /
LAB University of Applied Sciences
CASE STUDY

Introduction

FORESIGHT: THERE IS NO BABY BOOM

The birth rate has declined in Finland for eight consecutive years. This case study sought to find out how to increase the birth rate by considering what should be done to alleviate the situation and why. The aim of the assignment was to make recommendations or propose measures to increase the birth rate.

THE ASSIGNMENT FOR THE CASE STUDY was given by the Lahti Diakonia Institution. Lahti Diakonia Institution is a social enterprise and their most important functions are to produce high-quality services for the purpose of helping the most vulnerable members of society.

Story of the problem

Last year, 47 577 children were born in Finland. Among them 22 947 girls and 24 630 boys. In 2010, more than 60 400 children were born. The great change is related to the fertility rate. Traditionally, the birth rate has been low in Finnish cities, but now the decrease in birth rates applies to all regions and does not only apply to Finland. The fall in birth rates impacts many developed countries where the birth rate had been previously high, such as France, the United States, Norway and Iceland. When the economy is doing well, birth rates go up, but during the last few years, this has not happened. The decline in birth rates has a significant impact on Finland's future. Low birth rates have a major impact on wellbeing, economy, housing, and education. The assumption is that something should be done and fast.

THE FORESIGHT COURSE BEGAN to solve the problem of low birth rates.

Scientific framework

The methods of future research were utilized to solve this case. During the study module, the students worked in groups of 3-4 people and solved problems related to the declining birth rate by using future research methods. As a result of the course, each group generated a scenario and an infographic with six tips to increase Finland's birth rate.

LECTURE 1. INTRODUCTION (4 H)

The case study was started with an introductory lecture, after which the students focused on searching for information on birth rates in general. Students searched for future information from databases, literature, previous research, etc. Their task was to search for links related to the subject.

LECTURE 2. MEGATRENDS, PESTEL – ANALYSIS (SYNONYM STEEP –ANALYSIS) (4 H)

Students presented the links which they had found. The second time, the topic was megatrends and how to make PESTEL (politics, economic, sustainable, technology, ecology,

legislation) analysis. The groups identified various megatrends from the environment.

LECTURE 3. THE FUTURES TABLE (4 H)

The theme of the third lecture was the futures table; what it is, how it is used, and when it should be used. Based on the analyses, the students formed a futures table of possible futures.

LECTURE 4. SCENARIOS (4 H)

Students formed two different outlooks on the future based on their futures table: a desirable future and an undesirable future. The scenarios were designed to realize what the future might be. In addition, students were familiarized to infographics; what they are and what kind of electronic platforms are used in this task.

SEMINAR 1. (4 H)

At the seminar, students presented their scenarios, future tables, and infographics. The other students asked questions about the scenarios and the teachers commented on their work.





Social intervention

The infographics produced for the case presented tips for influencing the birth rate. For example, attention should be paid to climate change, working conditions, child-friendly atmosphere, community, etc. Infographics generated discussion and increased awareness of low birth rates, made young people think about the issue, and helped design new activities. In addition, infographics can help policy-makers at local and regional level to take into consideration young people's thoughts.

BASED ON THE OBSERVATIONS MADE during the study module, teaching materials were gathered and created which can be used to reproduce a similar process.

Theoretical and practical implications

At the last meeting, teachers collected oral feedback. The students said that the task was challenging, well balanced and they learned to use new software to produce infographics. The students felt that they learned to create outlooks on the future and actively influence it. The school's own feedback system collected general feedback on the course.

MARKETING

communication and branding of volunteer organizations

Julia Ojapelto /
LAB University of Applied Sciences
CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

Päijät-Hämeen vapaaehtoistoiminta/Lahden lähimmäispalvelu ry

TYPE OF SOCIETAL PROBLEM INVOLVED

Young people don't know about the operations of Päijät-Hämeen vapaaehtoistoiminta. Hence, the organization has not been able to get the youth to participate in their programs.

DESCRIPTION OF PEOPLE INVOLVED

The area coordinator of Päijät-Hämeen vapaaehtoistoiminta and the employees who are responsible for the communication and branding operations in the participating volunteer organizations.

Story of the problem

ALL VARIABLES INVOLVED

To ensure the continuation of volunteer operations, it is essential to get more young people involved. Communications efforts so far have not been able to convince young people to contact and join volunteer organizations. The marketing communication, branding knowledge, and skills of the operational staff are not up to date.

AVAILABLE RESOURCES

As part of the actual target demographic, 25 visual communication students of LAB University of Applied Sciences are producing 9 branding plans for volunteer organizations during the course of their marketing communication and branding studies as a main task under the supervision of their course teacher. The area coordinator of Päijät-Hämeen vapaaehtoistoiminta is attending the course as a student. The course is worth 5 ECTS credits and consists of 3 days of lectures, 3 days of supervision, and the final presentation day.

DEFINITION OF AN OBJECTIVE

The purpose of the student team work is to solve the issue of how to develop current marketing communication material through the analysis of current operations and materials so that it reaches young people and motivates them to join volunteer programs.

Scientific framework

The core theories of marketing communication and branding, design, and product development processes.

STRATEGIES TO ACHIEVE THE OBJECTIVE

Based on the given brief, the client and students set the target for the task. Students study the available programs of volunteer operations. Using lectures, study materials, and course literature as source material they analyse the current situation of marketing communication and branding. Based on the analysis, they define the issues which should be developed and then build a documented branding plan which supports the set target. Additionally, students will be able to design new visual identity for operations, marketing communication, and user interfaces.

Social intervention

WHO SHOULD BE INVOLVED IN THE SOLUTION?

The area coordinator of Päijät-Hämeen vapaaehtoistoiminta, employees who are responsible for communication and branding operations, editors, developers and administrators of the web pages and social media in the participating volunteer organizations.



Picture 1. Students at work (Julia Ojapelto).



WHICH STRATEGY WILL BE FOLLOWED?

The students present their plans in a presentation meeting and give the plans to the area coordinator of Päijät-Hämeen vapaaehtoistoiminta.

IMPLEMENTATION OF SOCIAL INTERVENTION

The coordinator introduces the plans to the operators who exploit them in their operations.

Performance and results evaluation

The possibilities of volunteer organizations executing successful marketing communication and branding operations is already limited from a financial point of view. Those who are responsible for the operations don't necessarily have any education about the topic or financial resources to use co-operators.

THE PROJECT WAS OVERALL VERY SUCCESSFUL. While taking part in the course as a student, the area coordinator learned many new approaches for developing her organization's marketing communication and branding. The main task reached 25 students of the core demographic. The students' orientation towards the volunteer operations generated experience about volunteer programs and positively changed their attitudes towards volunteer work. The outcome of the main task was successful. The volunteer programs received appropriate suggestions to develop their marketing communication and branding.

References

Kirsi Hyväri, coordinator of the Päijät-Hämeen vapaaehtoistoiminta ry, email 15.11.2019

DEVELOPMENT

of a user-friendly and reliable online reporting application for the Association of Hard of Hearing

*Minna Ulmala /
LAB University of Applied Sciences*

CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

Keski-Uudenmaan Kuulo ry – Association of Hard of Hearing in Central Uusimaa, Finland

TYPE OF SOCIETAL PROBLEM INVOLVED.

People who have bad hearing need to learn to use and maintain their hearing aids. Often, they are not able to do it by themselves. So, the problem is who can help people who are hard of hearing in using and maintaining their hearing aids. This problem belongs to the category “Health, demographic change and wellbeing” of the European Commission’s 2018 category of the great societal challenges.

DESCRIPTION OF PEOPLE INVOLVED.

People who are hard of hearing and who are using hearing aids are the primary stakeholders. The main stakeholder group is a volunteer organization, the Association of Hard of Hearing in Central Uusimaa which belongs to Kuuloliitto – The Finnish Federation of Hard of Hearing. The members of the Association of Hard of Hearing in Central Uusimaa are the people most closely related to providing solutions to the problem. The members are people who are hard of hearing, volunteers, and close relatives of those who are hard of hearing.

Story of the problem

ALL VARIABLES INVOLVED.

One needs to learn how to use, clean, and maintain a hearing aid. Otherwise, the hearing aid will not help those who are hard of hearing. If a hearing aid is operational and used correctly, but the person does not hear well, the user needs

to know whether they should contact a doctor, an audiologist or bring the hearing aid for a check so that it can be repaired. People who are using a hearing aid are often elderly people who are not able to use the hearing aid straight away or they are not able to clean or maintain it properly.

AVAILABLE RESOURCES.

The public health care system of Finland does not have the resources to help those who are hard of hearing to use and maintain their hearing aids. Nurses also lack the know-how and experience in using and maintaining different types of hearing aids.

TO BE ABLE TO SOLVE the problem there is a need for:

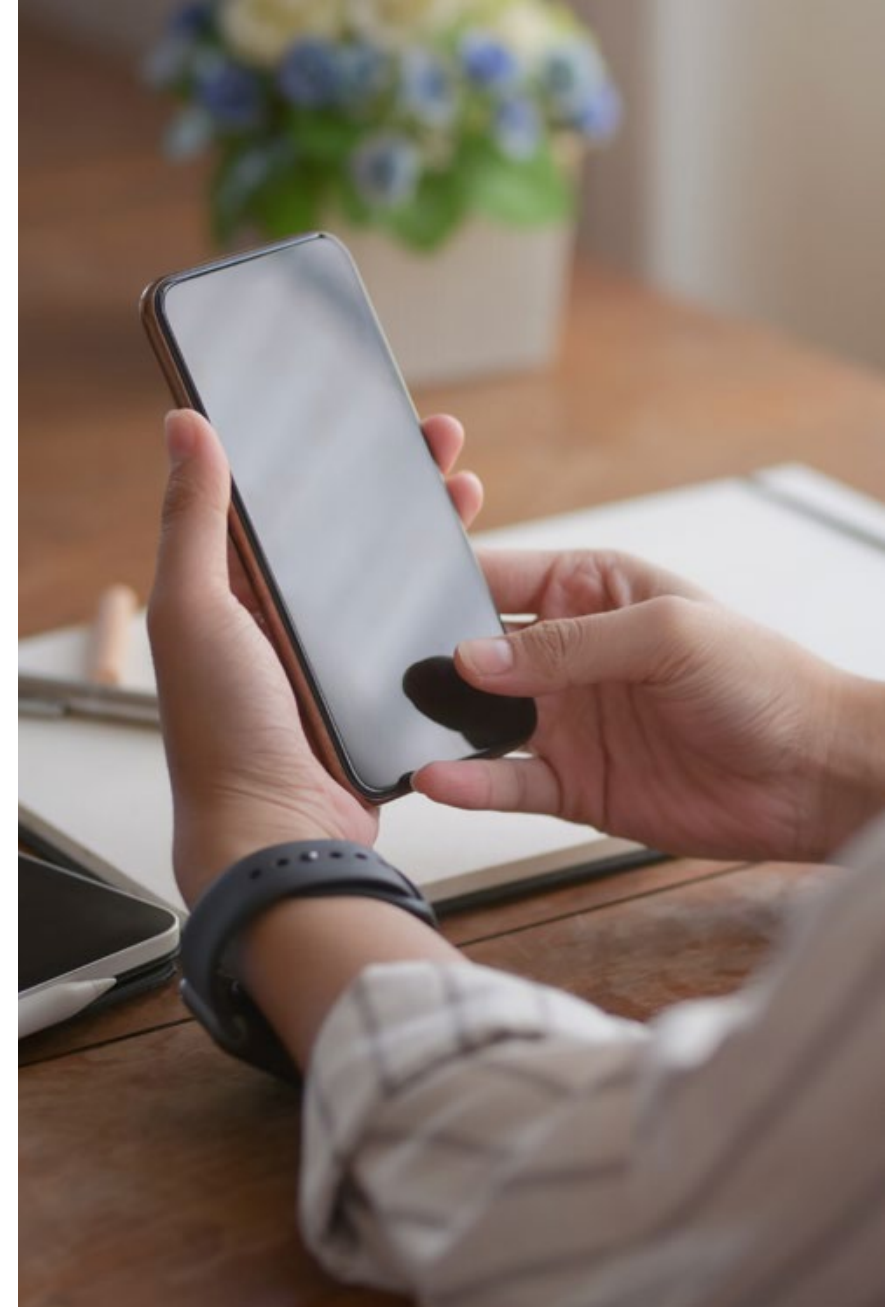
- ✦ volunteers who are trained to help those who are hard of hearing
- ✦ more young people who want to work as volunteers because current volunteers are ageing
- ✦ getting finance from municipalities in the region and the Finnish Federation of Hard of Hearing
- ✦ a local audition service (help them to learn how to use a hearing aid, do the cleaning and maintenance of a hearing aid, guidance for close relatives and health care personnel of those who

are hard of hearing, advise to contact a doctor, an audiologist or a hearing aid repairman)

- ✦ reporting the local audition service to municipalities in the region and improve reporting to the Finnish Federation of Hard of Hearing to ensure their financing in the future
- ✦ know-how on how to make the reporting easier and more modern

THE ASSOCIATION OF HARD OF HEARING in Central Uusimaa has over 900 members and it has ten trained volunteers who produce about 1000 customer visits in local audition services per year. The association receives financing from municipalities in the region and the Finnish Federation of Hard of Hearing, but the association does not currently report local audition services to municipalities and the members of the association do not have the know-how to make the reporting easier and more modern.

LECTURERS AT LAB University of Applied Sciences have experience about planning and running development projects together with different types of organizations and the students have know-how on how to make the reporting easier and more modern.



IDENTIFIED NEEDS.

The volunteer workers of the Association of Hard of Hearing in Central Uusimaa write down on a diary or on a piece of paper all information about the implemented local audition service. Once per year a report about the local audition service will be produced manually. This is time consuming work. Some information is missing because volunteers have not written down all the information about the implemented local audition service.

DEFINITION OF AN OBJECTIVE.

The main objective for a student team is to develop a user-friendly and reliable online reporting application for the Association of Hard of Hearing in Central Uusimaa.

Scientific framework

Lean Service Creation (LSC) is a systematic and adjustable way for multidisciplinary teams to create new services. It stands on the shoulders of a Lean Startup, Agile methods, and Design thinking. LSC is a service design process which guides the development team through all the phases of the project for creating services from early an idea to finishing the last lines of computer program code.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

A problem can be addressed by creating a multidisciplinary student team at LAB University of Applied Sciences which sets up a project and works following the Lean Service Creation (LSC)– process. The key activities of the process are:

- ✦ collecting background information
- ✦ conducting interviews
- ✦ coming up with creative ideas

- ✦ creating a concept of the solution
- ✦ building a prototype and validating it with end users
- ✦ finalizing a prototype based on feedback
- ✦ planning end users' engagement
- ✦ creating a business model

Social intervention**WHO SHOULD BE INVOLVED IN THE SOLUTION?**

A person who is responsible for the development work in the Association of Hard of Hearing in Central Uusimaa, a person who creates the annual report for the Finnish Federation of Hard of Hearing, and any volunteers who are running the local audition service.

WHICH STRATEGY WILL BE FOLLOWED?

A problem can be addressed by creating a multidisciplinary student team in the course “Innovation of Digital Solutions”. The student team sets up a project and works following the Lean Service Creation – process.

IMPLEMENTATION OF SOCIAL INTERVENTION.

The lecturer of the course “Innovation of Digital Solutions”, the person responsible for development in the Association of Hard of Hearing in Central Uusimaa, later a contact person, and a student team will have a project start up meeting. After that the student team will communicate with the contact person and agree on who will be interviewed and who will participate in the validation of the initial prototype. At the end of the project the results will be presented to the contact person and members of the Association of Hard of Hearing in Central Uusimaa.

Performance and results evaluation

SELF-EVALUATION OF THE LEADER OF THE STUDENT TEAM

The student team followed the LSC-process. They interviewed volunteers from the Association of Hard of Hearing in Central Uusimaa who report the implemented local audition service. The team found out that they need a user-friendly and reliable solution for reporting. Age and skills of volunteers must be taken into account when designing this solution.

THE STUDENT TEAM CREATED a prototype, which collects information on the number of customers and working hours of the volunteers. Two volunteers from the Association of Hard of Hearing in Central Uusimaa have validated the prototype.

BASED ON THIS the student team found out that:

- ✦ there is no need to report the working hours of the volunteers
- ✦ the calendar view must be improved
- ✦ the main functions of the solution must be minimized
- ✦ a log about previously entered information is needed to check that all the information is entered
- ✦ requirements for a layout of the log

THE STUDENT TEAM would also like to add other main functionalities to the application, but they understood that

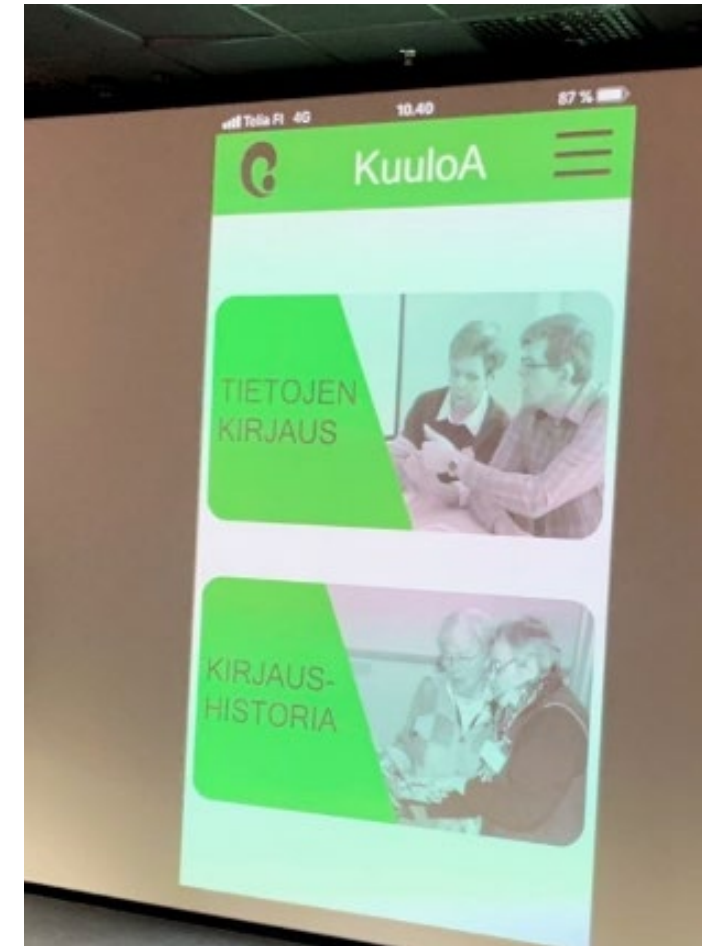
they must respect the users' wishes and needs. The team also received confirmation that they are designing the solution in a correct manner.

A MODEL OF THE REPORTING APPLICATION was presented to the contact person, the chairman, and three volunteers of the Association of Hard of Hearing in Central Uusimaa on the premises of Lahti UAS. Their feedback was positive. They were pleased with the model of the reporting application and they wanted to continue their co-operation with Lahti UAS to implement and to productize the model.

SELF-EVALUATION OF THE LECTURER AND THE STUDENT TEAM MENTOR

The lecturer of the course "Innovation of Digital Solutions" and the mentor of the student team found that it is important to have a multidisciplinary team which consists of four to five students including a design student. This way, the student team is able to focus on the functionality and layout of the prototype at the end of the project.

A LECTURE ON THE INTERACTIVE buttons of the user interface should be given in the beginning of the project. This way, the student team will be able to start designing the visual layout of the prototype earlier.



Picture 1 The layout model of the reporting application was presented to the contact person and members of the Association of Hard of Hearing in Central Uusimaa.

THE LENGTH OF THE COURSE AND THE PROTOTYPE DESIGN process was 8 weeks. The schedule was tight because the student team needed time to create the prototype and validate it with the end-users at the end of the LSC process. Weekly 20-minute guidance time was increased to 30 minutes to better support and guide the student team's progress and improvement of their knowledge and skills. The schedule was appropriate to guide the students to learn agile development methods. The student team acted in an agile way and made progress developing their working methods during the project.

THE RESULTS OF THE PROJECT WERE PRESENTED to five representatives of the Association of Hard of Hearing in Central Uusimaa on the premises of Lahti UAS. They were excited about the model of the reporting application and pleased with the co-operation and students' work.

SELF-EVALUATION OF THE CONTACT PERSON OF THE STAKEHOLDER

According to the contact person of the Association of Hard of Hearing in Central Uusimaa, the schedule for the project was tight. He wished that the schedule would have been more relaxed. However, he was able to have the required discussions with the student team and the team was quickly able to interview the required participants in the association. The meeting together with the lecturer and the student team was organized successfully. All in all, the co-operation was successful and efficient.

THE REPRESENTATIVES OF THE ASSOCIATION evaluated the model of the reporting application that resulted from this project as extremely good. The implementation of the reporting application can be based on that.

The result of the project is significant for the operations of the Finnish Federation of Hard of Hearing. If the model of the reporting application can be implemented and productized, it can serve all the 85 member associations of the Finnish Federation of Hard of Hearing. There is a wish that the co-operation between the Association of Hard of Hearing in Central Uusimaa and Lahti UAS continues with implementing and productizing the reporting application.

Theoretical and practical implications

The societal problem is who is able to help people who are hard of hearing to use and maintain their hearing aids. They can receive help from a local audition service run by a volunteer organization if its volunteers are able to report their service using a reliable and user-friendly online reporting application to municipalities in the region and the Finnish Federation of Hard of Hearing in order to receive financing from them in the future as well.

References:

<https://www.keskiuudenmaankuulo.fi/> 30.4.2019

<https://www.kuuloliitto.fi/kuuloliitto/> 30.4.2019

<https://leanservicecreation.com/> 3.5.2019

Ari Haapanen, Association of Hard Hearing in Central Uusimaa, Interviewed on 17.1.2019 and 28.5.2019

Heli Lehikoinen, a student team leader, interviewed on 17.5.2019

Harri Heikkilä, lecturer and the supervisor of the student team, interviewed 2.5.2019

CAMPGROUND

vacations for economically challenged families

*Pasi Tiihonen /
LAB University of Applied Sciences*
CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

Evangelical Lutheran Parish of Hollola

TYPE OF SOCIETAL PROBLEM INVOLVED.

Some families or individuals are economically challenged to go on a vacation, or they don't have the opportunity to rest in facilities near lakes in nature. The problem is, how to make these types of services and opportunities available to these people. This problem belongs to the category "Health, demographic change and wellbeing" of the European Commission's 2018 category of great societal challenges

DESCRIPTION OF PEOPLE INVOLVED.

People who have a need for reasonably priced opportunities to relax and have great experiences in nature. The main stakeholder in this case is the Evangelical Lutheran Parish of Hollola and their campground and training centers manager. A part of the solution is provided by the students of LAB University of Applied Sciences.

Story of the problem

ALL VARIABLES INVOLVED.

Relaxing and promoting one's wellbeing in Finland often takes place in nature. Some families are economically challenged to provide expensive holidays at lakeshore facilities for their children. This leads to inequality and might have a negative mental impact also on the parents. Elderly people with small pensions suffer from the same problem.

AVAILABLE RESOURCES.

There are several different organizations offering affordable services and opportunities for family vacations. Evangelical Lutheran Parish of Hollola has three campgrounds and training centers in Päijät-Häme area in Finland. Facilities do exist, but there is a lack of awareness about them and these organizations do not have the resources or knowledge to advertise their services properly. Lahti UAS lecturers are experienced in working with these types of organizations and carrying out development projects with students to tackle problems of the digital age.

IDENTIFIED NEEDS.

How to increase awareness, availability, and accessibility of these services so that people can find them more easily.

DEFINITION OF AN OBJECTIVE.

The main objective of the student team is to design and implement a modern website

with a reservation calendar to promote campground and training center facilities.

Scientific framework

Project based learning is a real-life oriented pedagogical method for students to learn via doing actual projects for actual clients. Project management and implementation is done by students while the LAB lecturer acts only as a supervisor and a member of the executive board.

STRATEGIES TO ACHIEVE THE OBJECTIVE.

The problem can be addressed by forming a student team comprised of Lahti University of Applied Sciences students and they will carry out the development project the client has ordered.

Project team will have meetings with the client to define project requirements.

DEVELOPMENT WORK IS DONE using agile methods and prototyping to ensure quality and client engagement during the process.



THE FINAL PRODUCT DELIVERED to the client should meet all technical and functional requirements, it should include SEO (Search Engine Optimization) capabilities, and it should be responsive.

Social intervention

WHO SHOULD BE INVOLVED IN THE SOLUTION?

Campground and training center manager at the Evangelical Lutheran Parish of Hollola

WHICH STRATEGY WILL BE FOLLOWED?

Strategy for achieving goals is to form a student team from international LAB students studying at the course “Real Life IT- project”.

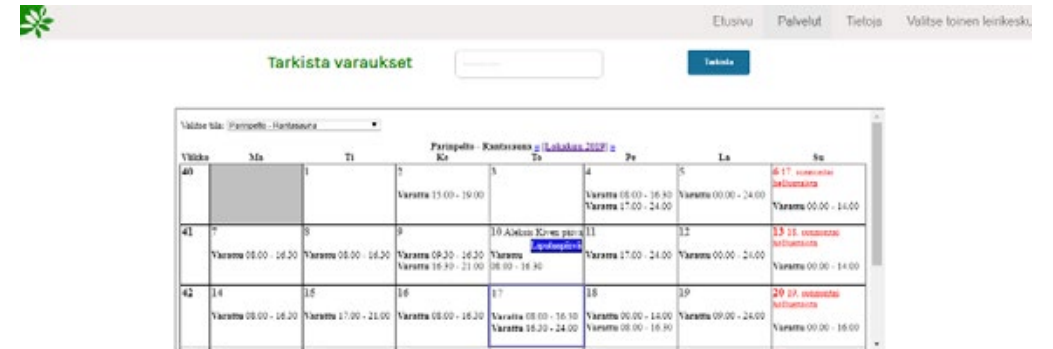
IMPLEMENTATION OF SOCIAL INTERVENTION.

The student team was formed, and a project kick off was held. The LAB lecturer and client were also participating.

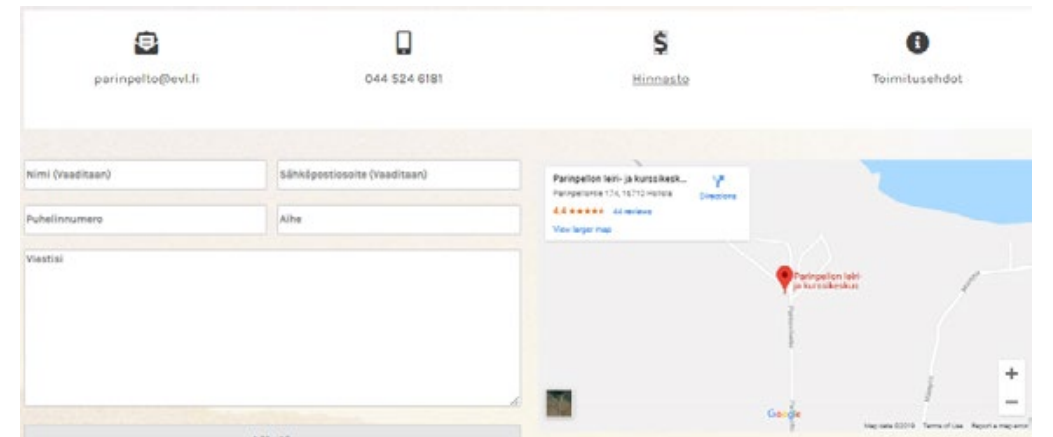
THE STUDENT TEAM WAS RESPONSIBLE for the project and they arranged several meetings with the client. The LAB lecturer participated in only a few project meetings but also had steering sessions with the team. The team also gathered information about accessibility and about ways to promote websites online.

Several prototypes were designed and shown to the client.

AFTER INITIAL TESTING OF THE CONCEPT, and the artifact produced by the client, the student team published the site on the Internet.



Picture 1 Reservation calendar of one of the facilities from the created website



Picture 2 Contact, pricing, and location information on the website

The EFFECTS of nature as part of rehabilitation and wellbeing

*Kati Ojala /
LAB University of Applied Sciences*
CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

Päijät-Häme Mental Health Support Association - Miete ry (<https://www.mietery.fi/>). Miete ry provides services for Päijät-Häme mental health rehabilitators. The purpose of the association is to give support to mental health rehabilitators as well as to their family and friends. The community works as a peer support organization and aims to improve its members' quality of life.

TYPE OF SOCIETAL PROBLEM INVOLVED.

The effects of nature have been used throughout the world as part of rehabilitation and wellbeing for a long time. In Finland, the positive effects of nature have been exploited as part of care and rehabilitation work since the turn of the 20th century with several target groups. Miete Association does not provide this kind of activity for its members. The aim is to develop nature excursions for the mental health rehabilitators of Miete Association. This problem belongs to the category "Health, demographic change and wellbeing" of the European Commission's 2018 category of great societal challenges.

DESCRIPTION OF PEOPLE INVOLVED.

Miete Association has 600 members, half of whom actively take part in the different activities organized by the association. Members have been diagnosed for different mental health problems, such as depression or anxiety disorder. Miete Association's low threshold services tend to reach people who, for various reasons, are excluded from the mental health service system. The association also supports inclusion and prevents exclusion of its members. The small group of members were included into the developmental process of nature activities.

Story of the problem

ALL VARIABLES INVOLVED.

Nature has many implications for human wellbeing and mental health. Many studies have concluded that nature contributes, among other things, to reducing stress, which in turn prevents mental health problems. For example, organizing nature outing activities gives people access to nature and thus enables them to experience improved wellbeing and mental health.

AVAILABLE RESOURCES.

The mental health rehabilitators must be included in the development process when planning meaningful nature activities/excursions for them. The association needs to organize the nature activities by providing for transportation to the nature sites and other possible expenditures. A leader is also required for group nature outings.

IDENTIFIED NEEDS.

How to organize nature activities/excursion

that support wellbeing and mental health. How to include the members in planning meaningful nature activities for mental health rehabilitators.

DEFINITION OF AN OBJECTIVE.

The aim of this case study was to plan and carry out nature excursions together with the Mietery and its members. The aim was to carry out four nature excursions to support mental health and wellbeing in the Päijät-Häme region in September 2019. The purpose was to improve wellbeing through nature activities and to strengthen a sense of inclusion.

Scientific framework

Participation and inclusion mean that everyone has the right to health, education, work, income, housing, and social relationships. Everyone should have the opportunity to participate and exert influence in matters that concern themselves and the development of society. Inclusion means taking control of your own life, opportunities, activities, services, and other things in common. Social inclusion promotes wellbeing and reduces exclusion and inequality. (Isola, A-M., Kaartinen, H., Leemann, L., Lääperi, R., Valtari, S. & Keto-Tokoi, A. 2017.) Clients' involvement in mental health work is a recognized value and goal, but research has



shown that there are shortcomings in its practical implementation (Laitila 2010). Opportunities for participation are influenced by the way mental health work and services are organized, perceptions of the client and their role, and the opportunities offered to mental health rehabilitators (Laitila & Pietilä 2012, 12).

STUDIES SHOW THAT NATURE HAS SEVERAL IMPACTS on holistic wellbeing (Salovuori 2014; Alcock 2019). The effects of nature have been used throughout the world as part of rehabilitation and wellbeing for a long time. In Finland, the positive effects of nature have been exploited as part of care and rehabilitation work since the turn of the 20th century with several target groups. Finnish nature offers an effective and affordable opportunity to exploit the wellbeing effects of nature year-round. Natural environment includes contents and factors that contribute to recovery. (Salovuori 2014.)

ACTION-BASED RESEARCH.

The development process was practice-based. The process included the involvement of the mental health rehabilitators as a starting point (ideas for the nature activities), implementation of four nature outings, feedback questionnaire, and reflection of results with the participants.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

Mental health rehabilitators' involvement in planning and implementing the nature activities. This will increase their motivation for action and their sense of ability and social inclusion.

Social intervention

WHO SHOULD BE INVOLVED IN THE SOLUTION?

Päijät-Häme Mental Health Support Association - Miete ry and the association's members. Co-operation with local networks.

WHICH STRATEGY WILL BE FOLLOWED?

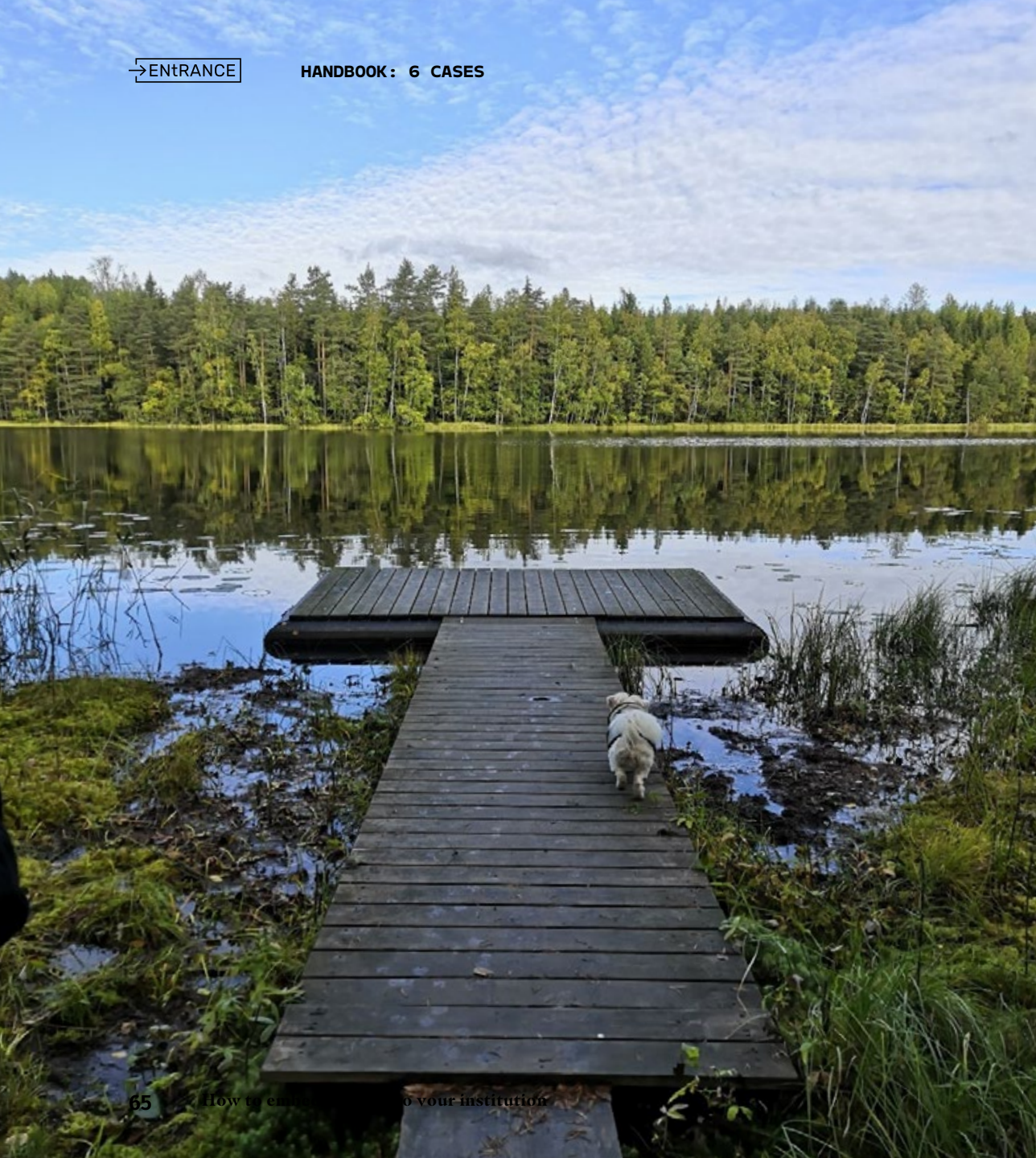
Suggestion for the Miete Association is to invest in nature activities since studies have shown that nature has several positive impacts on holistic wellbeing and the association members gave good feedback on these activities.

IMPLEMENTATION OF SOCIAL INTERVENTION.

The student team was responsible for the project and they arranged several meetings with Miete Association. The students team planned, carried out, and evaluated the nature excursions. The team gathered knowledge also about inclusion, mental health rehabilitation, and the effects of nature for wellbeing and mental health. A LAB lecturer supervised the development process regularly.

Performance and results evaluation

The development process and the case study were both successful. According to the stated aims, four nature excursions in the Päijät-Häme region were organized. According to the received feedback, the excursions strengthened the participation of the group members, as well as their wellbeing and mental health. The participants had positive experiences with the excursions and they felt that their wellbeing and mental health had improved. The members unanimously wished to continue the work.



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DEVELOPMENT

of an online litter reporting application for Clean Beach

- Keep the Archipelago Tidy Association

*Minna Ulmala /
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CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

Siisti Biitsi, Pidä Saaristo Siistinä ry – Clean Beach, Keep the Archipelago Tidy Association, Finland.

TYPE OF SOCIETAL PROBLEM INVOLVED.

Finland's beaches have a lot of litter. The problem is how to get people to tidy up the Finnish coastline. This problem belongs to the category "Climate action, environment, resource efficiency and raw materials" of the European Commission's 2018 category of great societal challenges.

DESCRIPTION OF PEOPLE INVOLVED.

People who use seaside beaches or lakeside beaches in Finland are most affected by this problem. The main stakeholder group is a volunteer organization, Keep the Archipelago Tidy Association and its Clean Beach program. The project coordinators of the Clean Beach program and members of the Keep the Archipelago Tidy Association are part of the solution to the problem.

Story of the problem

ALL VARIABLES INVOLVED.

People who spend their free time on seaside or lakeside beaches have noticed that there is a lot of litter on the beaches. They are worried about the condition of their environment.

AVAILABLE RESOURCES.

In order to solve the problem, there is a need for:

- ✦ raising awareness about littering on beaches

- ✦ volunteers who are willing to tidy up beaches
- ✦ volunteers who are willing to organize and facilitate clean-up events combining concrete environmental work and a fun day spent outdoors
- ✦ reporting the clean-up events by recording collected litter by number of individual items which is the method used internationally to monitor littering
- ✦ improving reporting to the association to ensure the comparison of results with other litter reports
- ✦ know-how on how to make reporting easier and more modern

THE ASSOCIATION DOES NOT have the resources to make reporting easier and more modern.

LECTURERS OF LAB University of Applied Sciences have experience about planning and running development projects together with different types of organizations and the students have know-how about how to make reporting easier and more modern.

IDENTIFIED NEEDS.

The volunteers who are organizing a clean-up event are asked to:

1. Print out litter collection forms for all volunteers participating in the event
2. Divide the volunteers into teams of 2–3 people
3. Advise one person on the team to keep a tally of collected litter on the form provided. The other members of the team state the type and number of collected litter
4. Advise to return the completed forms to the organizer
5. Deliver the forms to the Clean Beach coordinators either by filling out a summary form online or by mailing the collected litter collection forms or by sending the scanned litter collection forms by e-mail

DEFINITION OF AN OBJECTIVE.

The main objective for a student team is to develop an online litter reporting application for Clean Beach - Keep the Archipelago Tidy Association.

Scientific framework

Lean Service Creation (LSC) is a systematic and adjustable way for multidisciplinary teams to create new services. It stands on the shoulders of a Lean Startup, Agile methods, and design thinking. LSC is a service design process which guides the development team through all the phases of a project for creating services from an early idea to finishing the last lines of computer program code.



Picture 1 The student team presented a layout model of the litter reporting application to other students and student team mentors at the end of the project.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

The problem can be addressed by creating a multidisciplinary student team at LAB University of Applied Sciences which sets up a project and works following the Lean Service Creation (LSC) – process.

THE KEY ACTIVITIES OF THE PROCESS ARE:

- ✦ collecting background information
- ✦ conducting interviews
- ✦ coming up with creative ideas
- ✦ creating a concept of the solution
- ✦ building a prototype and validating it with end users
- ✦ finalizing a prototype based on feedback
- ✦ planning end users' engagement
- ✦ creating a business model

Social intervention**WHO SHOULD BE INVOLVED IN THE SOLUTION?**

People who are responsible for development work in Clean Beach, Keep the Archipelago Tidy Association and volunteers who are organizing and facilitating clean-up events.

WHICH STRATEGY WILL BE FOLLOWED?

Problems can be addressed by creating a multidisciplinary student team in the

course “Innovation of Digital Solutions”. The student team sets up a project and works following the Lean Service Creation – process.

IMPLEMENTATION OF SOCIAL INTERVENTION.

The lecturer of the course “Innovation of Digital Solutions”, who is responsible for development in the Clean Beach, Keep the Archipelago Tidy Association, later a contact person, and the student team will conduct a project start up meeting. After that, the student team will communicate with the contact person and agree on who will be interviewed and who will participate in the validation of the initial prototype. At the end of the project the results will be presented to the contact person of the Clean Beach, Keep the Archipelago Tidy Association.

Performance and results evaluation**SELF-EVALUATION OF THE LECTURER AND THE STUDENT TEAM MENTOR**

The lecturer of the course “Innovation of Digital Solutions” and the mentor of the student team found that it is important to have a multidisciplinary team which consists of four to five students including a design student. This way, the student team is able to focus on the functionality and layout of the prototype at the end of the project.

A LECTURE ON THE INTERACTIVE BUTTONS of the user interface should be given in the beginning of the project. This way, the student team will be able to start designing the visual layout of the prototype earlier.



THE LENGTH OF THE COURSE AND THE PROTOTYPE DESIGN process was 8 weeks. The schedule tight because the student team needed time to create the prototype and validate it with the end-users at the end of the LSC process. Weekly 20-minute guidance time was increased to 30 minutes to better support and guide the student team's progress and improvement of their knowledge and skills. The schedule was appropriate to guide the students to learn agile development methods. The student team acted in an agile way and made progress developing their working methods during the project.

THE RESULTS OF THE PROJECT WERE PRESENTED at the end of the course. The lecturer was very pleased about the model of the litter reporting application and was very satisfied with the students' work.

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Harri Heikkilä, lecturer and the supervisor of the student team, interviewed 2.5.2019

ISMAI / IPMAIA Portugal

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The IMPACT of nurseries on child development

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Maiêutica – Cooperativa de Ensino Superior CRL*
CASE STUDY

Introduction

Social changes and the integration of women into the labour market have made the state responsible for ensuring care in childhood. This care has ceased to be an exclusive function of the family – more specifically the mother – and other responses are taken on in the community, of which day-care centres are an example. These responses have gained greater prominence in recent years, both in terms of policies and in terms of the number of regulations and guidelines for intervention developed, which aim to create a high-quality service aimed at satisfying the child's interests. The following were identified as objectives to be implemented by different countries in terms of early childhood care and education: universality of services, reinforcement of the quality of equipment, coordination and consistency of services and policies, search for strategies for investment in this area, increased qualification and employment conditions, creation of a suitable pedagogy, and partnership between families and childcare facilities (OECD, 2011). In the light of the perspective of modernity, institutions dedicated to early childhood have been seen as a “technology” necessary for society's progress. Institutions have come to be seen not just as places to leave children while parents are at work, but also as places for the acquisition of fundamental learning and where social and psychological problems can be solved by carefully applying behavioural and social sciences. According to the European Commission (2018), high quality early childhood education and care is an efficient and effective investment in education and learning. Early childhood education and care means any regulated agreement that provides education and care for children from birth to mandatory primary school age. It includes day-care centres,

institutions funded by the public and private sectors, pre-school and pre-primary settings. Quality early childhood education and care can lay the foundations for future success in life in terms of education, well-being, employability and social integration, especially important for children from disadvantaged backgrounds. Thus, over the past few years there has been a greater focus on government policies, a constant concern with the quality of services, especially by researchers in the area and also by education professionals. The present study was developed according to the needs observed by the nursery at the Centro Social e Paroquial de Águas Santas, which when investing in early childhood education aims to show the importance of attending such contexts in the first moments of life. The specific objectives of the institution are related to caring for each child individually in an atmosphere of emotional and physical security, favouring their overall development; sharing the care and responsibilities in each child's development process with the family and detecting any inadequacy or deficiency

early, addressing situations detected in an appropriate way. By doing this, the institution aims to demonstrate its importance in developing skills favourable to children's well-being.

DESCRIPTION OF PEOPLE INVOLVED

This project aims to understand the impact of day-care attendance on children's development through the perception of parents and educators of children attending the day-care centre regarding its influence on children, and find the differences between children who attended day-care and those who did not.

Background of the problem

The quality of the day-care centre needed to be checked, namely regarding the development of motor skills, communication, social interaction and autonomy.

VARIABLES INVOLVED

The variables involved in the study deal with children's development: motor skills, communication, social interaction and autonomy and the quality of the day-care centre (activities, interaction, listening and conversation).



RESOURCES AVAILABLE

The following resources were available: physical (Águas Santas social centre – nursery rooms); materials (assessment tools); (children attending day-care; educators).

IDENTIFIED NEEDS

The needs deal with the importance of day-care attendance in the development of children's skills.

DEFINITION OF AN OBJECTIVE

The aim of this research is to understand the impact of day-care attendance on children's development. We will therefore try to understand (I) what the perception is of parents and educators of children attending the day-care centre regarding its influence on children, (II) and the differences between children who attended day-care and those who did not attend.

Scientific framework

Several authors have demonstrated that high-quality, responsive, stimulating and sensitive day-care is associated with a lower number of behavioural problems, including good long-term academic, social and personal performance (Linberg, Baeumer & Rossbach, 2013; McMullen & Apple, 2012; Ruzek, Burchinal, Farkas & Duncan, 2014). To support our study with national research, we used research already developed with promising results, among which we can highlight:

- ✦ Pinho, A. M. (2015). The nursing educational context as a promoter of child's psychological development

- ✦ Pereira, P. L. (2013). Quality in nursery: opinion of education chargers
- ✦ Ferreira, M. C. (2018). The nursery and child's development

FERREIRA (2018), BASED ON THE PERCEPTIONS of parents and kindergarten educators, concluded that attending these spaces has advantages in terms of socialisation, the acquisition of rules and the process of autonomy. Pinho (2015) revealed that the intervention programme carried out at the day-care centre provided gains in terms of the development of overall motor skills, fine motor skills, receptive language, expressive language, cognitive development and emotional development, in relation to the children in the control groups who experienced a natural educational intervention. Pereira (2013) found that guardians value all aspects that are directly related to the child, especially with regard to their care, and assign less importance to bureaucratic and organisational issues, physical conditions and services provided by the institution.

ACTION-BASED RESEARCH

We adopted a research-action study, with a quasi-experimental component, using an experimental group and a control group, and with qualitative and quantitative aspects, since the entire research process was developed in a participatory way and built involving all stakeholders in phases. In addition to involving the participants in this process, the method combines research with intervention and also has a reflexive character that is extremely relevant to our project.

STRATEGIES TO ACHIEVE THAT OBJECTIVE. WHICH STRATEGIES ARE AVAILABLE TO ADDRESS THIS PROBLEM? WHICH ARE THE KEY ACTIVITIES?

Regarding the qualitative perspective, the primary objective involves achieving



understanding and deep knowledge about a given social environment or phenomenon (Creswell, 2013; Silverman, 2011) in order to produce knowledge with public relevance, based on methodological rigour (Giacomini & Cook, 2000). With regard to the quantitative perspective, and taking into account Coutinho's line of thought (2013, p. 26), "from a conceptual point of view, the research focuses on the analysis of observable facts and phenomena and on the measurement / evaluation in behavioural and / or social-affective variables that can be measured, compared and / or related in the course of the empirical investigation process". Thus, we used observation instruments and interviews to obtain more detailed information.

WHO SHOULD BE INVOLVED IN THE SOLUTION?

All children, educators and parents take part in the research in order to gather as much information about the quality and impact of the day-care centre in the child's development. The researcher was in the field collecting information through observation and investigation.

WHICH STRATEGY WAS FOLLOWED?

The assessment consisted of an intervention group and a control group using the Child Development Skills – SGS assessment scale; a questionnaire for parents and guardians; and a semi-structured interview for educators.

IMPLEMENTATION OF SOCIAL INTERVENTION

The intervention was carried out in two moments of evaluation. The first at the day-care entrance, in October/November, and the second at the end of the school year, in June.

Theoretical and practical implications

This study has a set of potentialities that allow the educational intervention to be based on theories of the child's psychological development; it points out high-quality educational guidelines that contribute to children's psychological development in various domains; it envisages educational solutions that make it possible to overcome the day-care assistance vision of the day-care centre; it carries out rigorous observation of children, reflection, and evaluation of the entire intervention; it structures the educational intervention so that it can become better. From this scientific knowledge, it is expected that the question of the quality of services provided in terms of care and education in early childhood gains importance, since the way they are developed will influence the extent that the child's needs are met and development is achieved.

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Are EDUCATIONAL centres programs and responses adapted to gender differences?

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CASE STUDY

Introduction

This case was presented by Santa Clara Education Centre (CESC) of the Directorate-General for Reintegration and Prison Services (DGRSP). CESC is a custodial institution (called an education centre), a place designated for carrying out education measures (provided for in article 145 of the Juvenil Justice Law (LTE - Lei Tutelar Educativa) for young people who have committed a criminal offence between the ages of 12 and 16. This is a mixed education centre, which has boys and girls to fulfil the juvenile justice measures. This case study is included in this specific gender situation, promoting two of the main societal problems: 5 - Gender equality and 17 - Partnerships to implement the objectives.

THE PEOPLE INVOLVED IN THIS STUDY ARE: 1) Practitioners from the Education Centre – Directors, TSRS – Senior Social Reinsertion Technicians and TPRS – Social Reinsertion Professional Technicians of the OSC, and 2) Young people (boys and girls) placed under liberty-depriving measures at this custodial institution.

Background of the problem

Historically, justice systems have not provided programmes and services that meet girls' specific needs for two main reasons. On the one hand, the social, statistical, scientific and political invisibility of girls in the juvenile justice system (Gelsthorpe and Worrall, 2009; Zahn, 2009). And, on the other hand, because an androcentric view in explanations of crime and delinquency has sustained the belief that female delinquency can be explained and the object of intervention in the same way as male delinquency (Goodkind, 2005; Foley, 2008; Zahn, 2009). Juvenile justice systems have adopted gender-neutral intervention (Zahn et al., 2009), and when they intend to respond to gender specificities, they adopt responses based on maintaining traditional gender roles. Portugal is no exception (Duarte et al., 2015).

HOWEVER, WHILE THE SCARCITY OF GENDER-FOCUSED responses might have seemed acceptable in the past, today academics and practitioners agree that gender differences in intervention can no longer be ignored. And awareness of these differences should call into question institutional responses to prevention, intervention, and treatment, which continue to rely on procedures based on the knowledge gained from studies of boys for boys' problems, despite all the theoretical progress made with studies on female juvenile delinquency (Garcia and Lane, 2013).

THE FOLLOWING NEEDS WERE IDENTIFIED:

- ✦ Prevalence of this subject remains scarce on the national agenda;
- ✦ Intervention with young offenders is politically gender neutral;
- ✦ Institutionalised girls face a space designed for boys and intervention programmes built and evaluated from the male universe;
- ✦ Because of the small and statistically less representative number, girls do not enter evaluations of intervention programmes and instruments;
- ✦ New political challenge: the DGRSP has to integrate the National Strategy for Equality and Non-Discrimination 2018-2030 "More Equal Portugal" in all areas of its work.

THE OBJECTIVES OF THIS STUDY WERE DESIGNED based on these needs, and it aims to understand the importance of gender-based intervention in the juvenile justice system. The specific objectives are: 1) Identifying whether intervention practices at education Centres are gender responsive; 2) Understanding if the specific needs of boys and girls at an education centre are different; 3) Understanding the main critical areas of intervention with boys and girls.

VARIABLES INVOLVED:

- ✦ Gender-responsive interventions;
- ✦ juvenile justice intervention;
- ✦ Custodial institutions, called educational centres;
- ✦ Juvenile justice system.

RESOURCES AVAILABLE

- ✦ Human resources: managers, practitioners (TPRS and TSRS), teachers, volunteers and young people.
- ✦ Material resources: educational centre facilities and equipment.

Scientific framework

A theoretical interest in girls' involvement in delinquency appeared when Western countries started to notice the increasing presence of girls in the juvenile justice system, especially in the 1980s (Chesney-Lind & Shelden, 1992). It was during the 1990s that there was greater investment in research on gender-based intervention strategies in the juvenile justice system (Bloom & Covington, 1998, 2001; Zahn et al., 2009), along with the legal advancement of international policy responses that underline the importance of gender-responsive intervention (e.g. Beijing Rules, Riad Rules and, more recently, the Bangkok Rules).

CONCERNING THIS SUBJECT there are two major theories – *Gender-Responsive Theories* and *What Works*. Their theoretical and political agendas have been seen as substantially different in their basic principles and methodologies, with repercussion on responses and intervention methods towards young offenders. *What Works* literature aims to identify principles for effective intervention,

associated with prediction, risk assessment and recidivism defending a gender-neutral intervention (Duarte et al., 2015). Gender-responsive literature is born under the influence of feminist perspectives and asks other questions: “What works, for whom?” It argues that developing gender-responsive intervention involves assuming that the most promising solutions are based on creating an environment that reflects a situated understanding of the lives of girls (and boys), emphasising the importance of their experiences, psychosocial and idiosyncratic developmental needs (Bloom and Covington, 2001).

TO ACHIEVE THIS OBJECTIVE, WE SET OUT TO:

- ✦ Carry out semi-structured interviews with young people;
- ✦ Apply a Gender-Responsive Intervention Questionnaire (GIRQ) for professionals working in mixed education centres and at DGRSP central services.
- ✦ Provide training to professionals working in mixed education centres on the topic of gender-responsive intervention.

Social intervention

Considering the exploratory nature of this study, it was decided to use a mixed methodology that combined qualitative and quantitative techniques, in a methodological triangulation able to deepen the theme. We conducted semi-structured interviews with the young people at the educational centre. We administered the Gender-Responsive Intervention Questionnaire (GIRQ) for professionals at the DGRSP and mixed educational centres. All this was done while guaranteeing anonymity and confidentiality. In addition to the research, two training sessions were carried out for professionals from DGRSP to raise their awareness of the issues and challenges of gender-responsive intervention.

SO, WHO SHOULD BE INVOLVED IN THE SOLUTION?

- ✦ Practitioners from the educational centre and directors
- ✦ Young people (boys and girls) placed under liberty-depriving measures in custodial institutions
- ✦ Universities (training)
- ✦ Community involvement



Theoretical and practical implications

- ◇ **INCREASING KNOWLEDGE** about what it means to develop gender-responsive intervention (policies, services, programs and instruments) with young people in fulfilment of juvenile justice measures;
- ◇ **DEVELOPING MORE RESEARCH** that involves making more studies “from the inside” as well as concerted and integrating studies;
- ◇ **INTEGRATING SPECIALISED TRAINING** for professionals in the DGRSP’s Training Plan to deepen knowledge on gender issues in intervention.
- ◇ **CREATING GENDER-RESPONSIVE** tools, programmes and evaluation methodologies.

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How can SKATEBOARDING as artistic and sporting expression, be effective in encouraging personal and social skills that are important to prevent juvenile delinquency?

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CASE STUDY

Introduction

The case was presented by the “Bué d’Escolhas – E7G” project developed under the “Programa Escolhas”. This project is promoted by Maia City Council (Câmara Municipal da Maia) and managed by the Santa Casa da Misericórdia of Maia, and developed in partnership with a consortium of 21 institutions. Its overall goal is to develop personal, social, entrepreneurial, academic and vocational skills among children and young people and their families in particular situations of vulnerability and risk of social exclusion. [For further information: <https://www.cm-maia.pt/pages/1813>].

This study aims to address two of the societal problems, namely: 4 - Quality Education, and 17 - Partnerships for goal implementation. In this context, the people involved were children and young people (boys and girls), parents and guardians, and researchers.

Background of the problem

Studies on early prevention of juvenile delinquency through skateboarding are almost non-existent. Despite this lack of research at national and international level, existing organisations have shown positive results (Social Skateboarding, 2019; Skateistan, 2019). Literature has shown us that the prevention of delinquency is more effective than repression and punishment (Negreiros, 2015) and that intervention through art has presented itself as an engine of inclusion and social change because it has the power to unite people (Eça, 2010). Skateboarding activities are seen as art and sport and can be used as a vehicle to promote personal and social skills (e.g. self-esteem, concentration, relationship with others, conflict resolution, teamwork, among others).

THE FOLLOWING NEEDS WERE IDENTIFIED:

- ✦ Scarcity of studies on the subject;
- ✦ Promotion of personal and social skills;
- ✦ Importance of early intervention in the development of delinquent behaviour.

THE OBJECTIVES OF THIS STUDY were designed based on those needs. The present project looks at the importance of early prevention concerning juvenile delinquency by promoting personal and social skills and abilities, using *skateboarding* as a tool. As this is a study where the aim is not only to get to know the phenomenon but also to contribute to some social change, we chose to develop an action-research project.

OVERALL OBJECTIVE: to develop a set of practical activities around skateboarding with demonstrated effectiveness in promoting personal and social skills of young people in a perspective of early prevention of juvenile delinquency.

SPECIFIC GOALS:

- ✦ To identify the most relevant skills to be developed for skateboarding work;

- ✦ To understand how the skateboard can be used to work on the skills identified;
- ✦ To design a set of practical activities, anchored in skateboarding, to promote identified skills;
- ✦ To implement each of the practical activities planned;
- ✦ To evaluate the process of each of the practical activities;
- ✦ To evaluate the effectiveness of each of the practical activities.

VARIABLES INVOLVED

- ✦ Early prevention;
- ✦ Juvenile Delinquency;
- ✦ Risk and protective factors;
- ✦ Skateboarding.

RESOURCES AVAILABLE

- ✦ Human resources: children and young people (boys and girls); parents and guardians and other education agents;
- ✦ Material resources: project resources – skateboards, protection equipment – skatepark.

Scientific framework

In the 20th century, particularly in the 1980s, there was a predominant perception that no intervention was effective in reducing juvenile delinquency, celebrated by the expression *"Nothing Works"* (Welsh & Farrington, 2006). However, subsequent studies have sought to identify what works with juvenile delinquency (*"What Works"*) (Crawford, 2007; Welsh & Farrington,



2006), pointing to the importance of early prevention, which allows better long-term results (Carvalho, 2010; Negreiros, 2015). To this end, a need arises to bring formal (e.g. Public Security Police, Republican National Guard, Municipal Police) and informal (e.g. family, friends, school) social control bodies closer together, implementing the idea that “local problems need local solutions”.

IN ORDER TO PREVENT JUVENILE delinquency, there are several perspectives and programmes that focus on the development of social and personal skills in children and young people, seeking to increase protective factors and reduce risk factors (Sousa, 2003; Zamanian et al., 2012). In this context, several studies have emerged that seek to understand the potential of juvenile delinquency prevention through art and sports. Art, as a way of expressing ideas, emotions, perceptions and sensations (Santos, 2000), has proved important as it influences the way children and young people learn, communicate and interpret the context in which they are inserted (Sousa, 2003; Eça, 2010). As happens with art, sport can also be seen as a form of expression for children or young people, developing various skills. According to Neto (2001), through games, children acquire new forms of communication which are not developed in other contexts.

TO ACHIEVE THE OBJECTIVES, an action-research project was carried out over two distinct and sequential phases: a first one for planning and a second one for action (and evaluation of the activities developed). Eight parents participated in both phases, aged between 33 and 49, along with eight children/young people, aged between 10 and 12. Participations was all voluntary. To increase the richness of the results, the data were collected through a triangulation methodology, specifically: semi-structured interviews of parents, self-evaluation surveys for

young people, a focus groups with young people and participant observation. The ethical principles that should govern scientific research were guaranteed.

IN THE ACTION PHASE, the “Vida sobre Rodas” (Life on Wheels) project was implemented with an activity plan consisting of eight sessions, each lasting approximately one hour, in which several personal and social skills were worked on through skateboarding. The participant observation technique was used during the application of the project. All the observations made were noted in a field diary developed specifically for this purpose. The activities were carried out at Skateparque da Maia and were previously arranged with the parents.

Session name	Skills/competences promoted
(1) Presentation	Relationship with others and with the task / activity
(2) Help me and then I help you	Relationship with others and with the task / activity
(3) Role playing ¹	Communication styles Assertiveness
(4) “Pumba” (tumble)	Self esteem Relationship with others
(5) “Ollie” ²	Self esteem Relationship with others
(6) Walk backward	Assertiveness Relationship with others
(7) My line ³	Creativity
(8) Free skateboard	Relationship with the task / activity

¹ This technique consists of staging a problem or routine situation.

² Skateboarding manoeuvre – skater and skateboard jump into the air without using their hands

³ Each child/young person defines a sequence of different obstacles which are recorded on video by their fellow skaters

Social intervention

Given the lack of national projects at this level, a structured plan for preventing juvenile delinquency through skateboarding was created so that other researchers in this area can replicate and explore it (see 3.2). The aim is not to create skaters, but to enable the use of skateboarding as a tool for developing personal and social skills while preventing juvenile delinquency. In this study, positive results were obtained in the development of social and personal skills of young people, both in the evaluation of the process and in the evaluation of the effectiveness of the activities.

SO, WHO SHOULD BE INVOLVED IN THE SOLUTION?

- ✦ Children and young people (boys and girls);
- ✦ Parents and guardians;
- ✦ Researchers;
- ✦ Projects and NGO that work on risk and delinquent behaviour prevention;
- ✦ Surrounding community.

Theoretical and practical implications

Increasing knowledge on the topic of early prevention of juvenile delinquency by promoting personal and social skills, using skateboarding as a tool;

Replicating and evaluating the project presented;

Exploring the possibility of working with populations that represent different levels of risk (primary, secondary and tertiary prevention);

Ascertaining the need to adapt the project according to gender.

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FEASIBILITY

of tablet usage in group cognitive training for elderly people

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CASE STUDY

Introduction

Society is ageing and new conditions must be created to find specific needs adapted to the community. In terms of health, it would be important to remedy the changes caused by brain ageing and find a sustainable solution to the cognitive complaints presented by day centre and nursing homes users in the region to the city council's health department. Carrying out activities that promote mental activity using technology can be an interesting resource for this sector, which has little contact with these tools.

THE SOLUTION TO THIS PROBLEM is of interest not only to the elderly, who have ceased to have an active life because they have to adapt to a changing society, but also to institutions such as day centres and nursing homes. The elderly should therefore be encouraged to be independent and consequently enjoy better quality of life.

IN CASES WHERE THERE IS APATHY, a lack of motivation or a lack of economic or social resources, the situation gets worse and the solution may be to implement a group activity plan at nursing homes using technology for testing weaker cognitive functions using *serious games*.

Background of the problem

With the increase in life expectancy, the number of older people in our society has increased in recent decades (Mali & Grebenc, 2019), as have associated health problems. Ageing is generally associated with cognitive decline and, in several cases, Mild or Major Neurocognitive Disorder. In these cases, cognitive training plays an important role in preserving cognitive abilities and, consequently, an

independent life. There is therefore a need to create solutions to train people at risk of cognitive decline and, at the same time, monitor their progress.

ALTHOUGH THE ELDERLY REQUIRE cognitive activities to stimulate deteriorating brain areas, they also need to have the opportunity to have contact with the benefits that new technologies can offer. The objective of this project is to design and offer a set of *serious games* for tablets adapted to the needs of the elderly in residences in the Maia community.

Scientific framework

The responses offered through cognitive training to work on the changes produced by ageing involve a complex processing of verbal and visual stimuli. The elderly retain the ability to learn and manipulate this type of information (Chong et al, 2019), which is likely associated with brain plasticity (Knaepen et al., 2010).

COGNITIVE TRAINING PROGRAMS using verbal and visual material based on computer

resources can be easily used with the elderly (Kueider et al., 2012). The benefits offered by applying various technological tools on cognitive training programs are increasingly recognised (Buitenweg, 2012; Craik et al., 2007; Hertzog et al., 2009; Park & Bischof, 2013; Thompson & Foth, 2005). *Serious games* are presented as a low-cost, non-pharmacological tool that is easily accessible to the population (Kühn et al., 2014).

THE FACT OF HAVING A TOOL that can be used in groups and that offers immediate auditory and/or visual feedback offers an opportunity to maintain or improve the cognitive performance of the elderly, while arousing their interest in participating in a cognitive and social activity (Torres, 2008).

Social intervention

Cognitive training programs require a series of resources, which can be acquired through collaborative teams. In this case, the participation of the following were necessary: a psychologist to identify the cognitive functions needed to work on the elderly; video game design specialists to adapt the activities to the cognitive functions selected as goals; and, when conducting group intervention with 10 people, at least 2 people to provide support to the elderly with using the computer tool during the activities. It was essential to have the financial support of the city council, to sponsor technological tools such as tablets.





The psychology and multimedia department of higher education institutions helped with the necessary intellectual resources.

A SERIES OF SERIOUS GAMES on tablets was developed for cognitive training in ageing. We conducted an interventional study to assess the acceptability and feasibility of using *serious games* through tablets in an elderly population with heterogeneous cognitive abilities. The games were applied once a week, for an hour. A total of 12 sessions were defined (see figure 1). Each elderly person had a tablet to work with independently but in a room with other elderly people. The times for using the games were between 10:00 a.m. and 11:00 a.m. or between 2:00 p.m. and 3:00 p.m., depending on the nursing homes' availability.

TO OBTAIN POSITIVE ADHERENCE and participation results, we felt it important to maintain a good available for the team running the training sessions, as well as a positive attitude for the elderly participants.

Theoretical and practical implications

Regardless of the participants' sociodemographic characteristics, our results suggest 100% acceptance and adaptation to games. Users expressed their satisfaction with the activities presented through *serious games* on individual tablets. We saw an improvement in the handling the tablets and in performance of the games from the first sessions. Some activities that we consider to be key to the proper functioning of this project were accomplished to fulfil the goal defined

in this case. It was essential to carry out cognitive tracing and identify the sociodemographic characteristics of the elderly, who must have some ability to perceive and understand instructions. The cognitive functions to be worked on were then defined and, from this, the *serious games* were developed.

ANALYSING THE RESULTS of acceptance and participation in the sessions, it could be recommended for institutions to promote this type of cognitive function stimulation for the elderly using technological resources with *serious games*, in collaboration with young university students able to develop and meet the proposed goals.

A LONGITUDINAL STUDY would help measure the cognitive benefits that this type of intervention offers in the long term.

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Photo: Raisa Kanareva, (no date), Senior happy woman using ipad isolated on white background. Available at: <https://www.shutterstock.com/pt/image-photo/senior-happy-woman-using-ipad-isolated-221011336>

The IMPACT

of institutionalisation centres on the elderly

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Maiêutica – Cooperativa de Ensino Superior CRL

CASE STUDY

Introduction

The problem that supports this work was presented by Casa do Povo de Ermesinde and aims to understand how the day centres influences the lives of seniors. The following question was presented: “What is the impact of the day centre on the lives of the elderly?”

THE RESEARCH WAS COMPREHENSIVELY developed using Biblioteca Online (B-On.pt Library) and Google Scholar, and contacting the institution under study by email and also in person – which was essential to understand the reality of those whose routines are dedicated to the day centre.

FOLLOWING THIS, THE PRIMARY OBJECTIVES were to understand how the elderly experience a day centre and how the day centre can be improved by those who are part of the user`s routine.

Background of the problem

With the ageing of the population becoming more and more notable, the active participation of institutions like day centres is needed so as to respond to what the needs of the older generation are. They can thus be part of the solution to the problem. Since it is one of the most fragile sectors in society, it is important that they are helped and also that they feel supported and taken care of (Fields et al., 2014).

THUS, AND TAKING INTO ACCOUNT that in Portugal we are increasingly witnessing an ageing population, these institutions emerge as a way of promoting the elderly’s physical and mental balance, thus helping alleviate the various problems

to which many elderly people are exposed. The ageing population is a worldwide and everyday phenomenon, which means elderly people represent roughly 20% of the Portuguese population.

IN ORDER TO CONTRIBUTE TO A BETTER QUALITY OF LIFE for seniors, their attendance of these centres leads to greater emotional support, taking into account the needs presented by each member of the institution and, consequently, in professional help so that these elderly people feel welcomed, often alleviating the loneliness and isolation to which many were exposed. This is one of the problems that leads more and more elderly people to enter these centres (Zhou & Fu, 2019). All this is combined, in the end, with the intervention of the employees of this centre, through a questionnaire with the objective of sustaining the results obtained.

Scientific framework

In view of the research carried out, one of the reasons that makes the elderly feel a

need to attend the day centre is loneliness, mostly as a result of widowhood. Another very frequent cause is depression.

THEREFORE, AND BASED ON THE QUESTION launched by the civil society organisation – “What is the impact of the day centre on the lives of the elderly?” – the main objective of the project is to understand how the lives of the elderly are influenced by attending these institutions and how they experience it. Two other questions were also asked with a view to fostering what the purposes of this research are, namely: “How is the day centre experienced by the elderly?” and “How is the experience fostered by the day centre for the elderly?”

CONSIDERING THE COMPLEXITY OF THIS RESEARCH, we conducted a study to better understand the impact of the day centre on the lives of the elderly. In order to have a more solid theoretical basis, we started with a bibliographical review that relied on 12 references, among which we highlight:

- ◇ **RODRIGUES, S. I. (2011).** Satisfaction with the Life of Institutionalized Seniors.
- ◇ **FARINHA, M. M. S. (2015).** Quality of life of the elderly in day care: the influence of the institution from the perspective of the user.
- ◇ **MARTINS, E. (2018).** Sociocultural and Gerontology Animation Promoter Satisfaction with the Life of Elderly Regulars of Day Centers in the Interior Region of Portugal.



IN THE COURSE OF OUR RESEARCH, the work was divided into two parts. The first, qualitative part was an interview with a sample composed of eight elderly people. Some of the questions asked were: “What was the reason why you went to the day centre?”; “What activities do you usually do?”; “Since you’ve been at the day centre, what kind of changes have you felt in yourself?”. In the second, quantitative part, using a structured questionnaire targeted at a larger sample, we wanted to better understand the moments of leisure and activities to foster the happiness and well-being of the elderly, as well as the frequency with which they were performed.

Social intervention

The social intervention intended with this study is mainly concerned with improving the quality of life of the elderly. For this reason, it is a project based on a longitudinal study whose main tools are the application of an interview – a qualitative part – and a questionnaire – a quantitative part. In addition, it is used as a sample, not only for the perspectives of the elderly, but for the perspectives of employees, essential for promoting a happy life.

REACHING POSITIVE RESULTS at the end of this study, they will be used to improve the lives of the elderly with adaptations that they consider necessary to improve their quality of life. For example, more outdoor activities, if applicable.

Theoretical and practical implications

We can therefore see that it is the activities that provide greatest autonomy and self-esteem for the elderly who attend these centres, thus being the primary key to the well-being of the seniors at these institutions. Taking into account the fact that activities are the most important factor for the elderly, there must be people to guide

their implementation, which is where socio-cultural mediators come in as they seek appropriate activities, taking into account the implications of certain elderly issues.

IN SHORT, WE CAN SEE THAT THE ELEMENTS used in our research helped us to answer the central question, that is, “What is the impact of the day centre on the lives of the elderly”. We can therefore see that the impact of the presence of seniors at these institutions is seen very positively, since it is considered to promote the physical and mental well-being of the elderly who attend day centres on a daily basis.

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DESIGNING

of environmentally friendly education hub in Melkys village

*Dr. Andrius Gulbinas /
Vilnius College of Technologies and Design*
CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

Melkys School describes themselves as community of parents whose children attend Melkys School and Kindergarten. They are united by the idea of a sustainable lifestyle: a harmonious relationship with themselves, nature and those around them, the faith and courage to nurture a child through alternative systems while being in strong synergy with Nature. And at the same time accepting the requirements and programs of education in the community where we live. Basic Educational Thought: Equivalent development of physical, creative, mental and sensory qualities in children.

MELKYS SCHOOL AND KINDERGARTEN is a fun, creative, diverse, self-sustaining community characterized by harmony of body and mind, natural, leisurely pace of life, nationality, ethical approach to the surrounding environment, creative problem solving, traditional family values.

AT MELKYS SCHOOL STUDENTS WORKING IN MIXED AGE GROUPS reflects the natural, family environment, and develops mutual understanding, respect, willingness to help, and independence for children. Children constantly deepen and consolidate their knowledge by teaching each other. The agenda in school is based on general primary and basic curriculum and extracurricular activities. The location and duration of the lessons (indoors or outdoors) is determined by the teacher based on the theme of the day and general mood.

TYPE OF SOCIETAL PROBLEM INVOLVED.

Education buildings face varied challenges. Shifts in funding models, advances in technology and new teaching approaches are transforming expectations of

learning environments. Educators need high performance facilities that are cost-effective to build, run and maintain. It is also important that buildings are engaging, have pleasant indoor environments, equipped with quality systems and helping institutions to attract and retain students and staff.

FOLLOWING A GENERAL TREND across many building types, educational facilities are becoming increasingly specialized. Today, even the traditional idea of "classroom" as an instructor-focused learning space is changing. The growth of computer-based instruction, video projection, and other telecommunication requirements is causing us to rethink traditional educational patterns and spatial relationships.

FROM AN ENVIRONMENTAL PERSPECTIVE, concerns for the health and well-being of students – particularly young students – are increasing interest in the improved performance and fabric of school structures. Strategies including daylighting, the specification of sustainable and non-toxic building materials, and the use of renewable energy sources are gaining attention in school design. At the same time, resources for the construction, maintenance, and upkeep of educational facilities remain in short supply. Designing an institutional building to suit the needs and aspirations of a twenty-first century student population can be a daunting task.

DESCRIPTION OF PEOPLE INVOLVED.

Melkys School community. Parents are co-creators of the school. The Melkys School was founded by parents for their children. Collaboration between parents and the community remains a prerequisite for the school's existence. This saves

the school's finances and enables middle- and lower-income families to attend Melkys School, and the creative and conceptual contributions of all greatly diversify and enrich both the curriculum and other activities. Melkys school community emphasize that they do not sell the service but offer to build a school together. Most employees are also parents of children attending school. Community of Melkys village. People who live near the school are also interested in having space for leisure, active recreation and cultural activities.

Story of the problem

Representatives from the Melkys School approached the VTDK with a request for a design environmentally friendly education hub in Melkys (Melkys village, Maišiagala ward, Vilnius district). Their vision was the seamless, harmonious with man and nature community center that meets its needs and maintains itself.

DESIGN GOAL WAS THE COHESIVE, sustainable, interactive, viable, environmentally friendly educational hub must consist of such buildings or group of buildings and other objects: school buildings, a field class, a stadium, a kitchen / cafe building, craft workshops, mini-offices for parents working remotely, a sauna, a guest house, a pond, a permaculture garden, vegetable gardens, a greenhouse, car parking places, paths and any other fascinating object(s) for education, leisure or recreation for both school and village communities.

THE PLOT IS ABOUT 3HA CONSISTING of 3 smaller plots of land. The land is surrounded by forest, the terrain is slightly hilly and there is little pond. Currently the foundation of the main honeycomb type building was started, where a building of about 550 m² of wood, straw and clay was planned. The shape of the

building has been chosen as a universal sacral geometric honeycomb or "flower of life" figure symbolizing birth, life and permanent transformation.

ALL VARIABLES INVOLVED.

Proposed 10 design projects of an environmentally friendly education hub in Melkys were not limited financially, that's why some ideas were the futuristic - fantastic decisions which cannot be achieved under the current conditions.

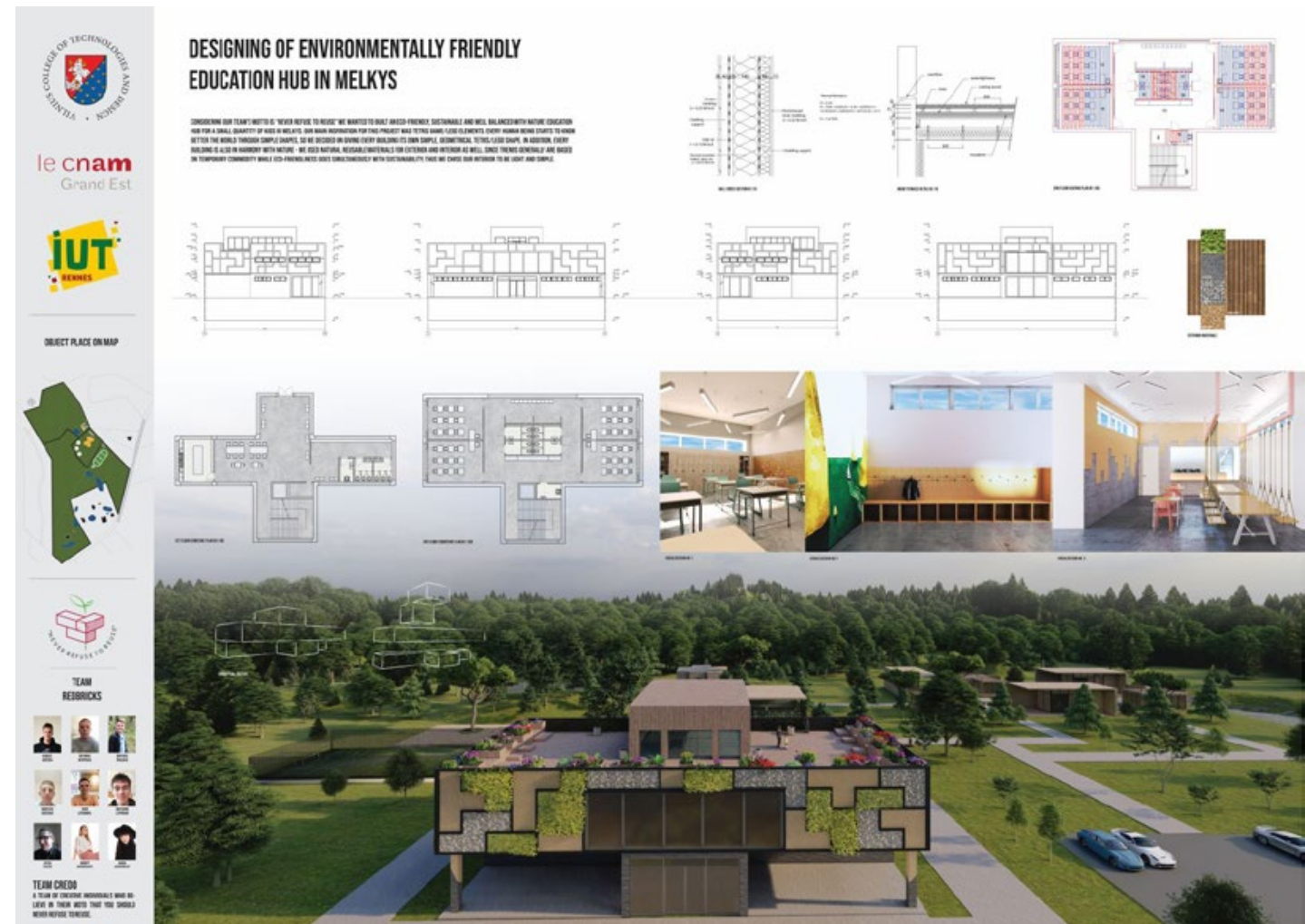
OTHER DESIGN SUGGESTIONS and design ideas can be implemented now or in the near future and have possibility to build in a communal way, have easy constructions and have possibility to build in parts starting and finishing a specific object.

AVAILABLE RESOURCES.

To solve these problem 10 groups of students was created. The groups were balanced with engineering and design minded students in the field of construction, interior design and building engineering systems. On design of projects students from VTDK, IUT Rennes (France) and Le Cnam Reims (France) was involved. Also, Erasmus students from Turkey. Counseling assistance was provided by the VTDK lecturers. Before the start of the workshop, methodological material was prepared.

IDENTIFIED NEEDS.

Several needs have been identified for designs of an environmentally friendly education hub in Melkys.



Picture 1. Solution proposed by the team „CREDO“. (Team „Credo“, 2020)

THE PROJECT MUST ADDRESS the scheme of the functioning of educational institutions in the light of the community's present and foreseeable future needs, using the local ethnographic elements for design decisions. If possible, project should use currently built foundations of the main honeycomb type building. It is important to maintain the stability of the individual functional elements in designed buildings and areas, but at the same time to render them versatile within the context of different levels of education, taking into account the content and peculiarities of the education methodologies and forms developed within the complex. The expected number of pupils and staff must be taken in the account. Public objects of sufficient size and capacity serving these individuals and meeting the daily needs of users of an educational facility must be created.

DESIGNED PROJECTS NEED TO PROVIDE the opportunities or probabilities for development, structures assuring operation of engineering systems, distribution of public

and private transport flows through setting up stops and parking lots, distribution of students and staff flows in the complex. Also, projects need to keep the existing environment as natural as possible. The building's design for educational hub has to be created by the concept of universal design (when the physical environment, products, communication, information technology and services become available and they can use as many different groups of members);

DESIGNED SPACES MUST BE ADOPTED for needs of the disabled (ramps, lighting, elevator and so on.) using Universal Design principles. Security of designed space must be ensured and must comply with fire regulations, provide escape routes and organize the free access and movement of persons with disabilities.

ENERGY EFFICIENCY of the designed spaces and whole building must be ensured and renewable energy sources for heating, hot water supply, electricity or other building services must be applied.

Local environmentally friendly ecological building materials and construction products must be used as well as water recycling and collection system must be implemented. According requirements and the latest fashion trends of interior design the functional connection of premises, lightening scheme(s), equipment and furniture in different zones must be applied. It is important to ensure access to natural light in premises as well as the ergonomic and environmentally friendly lighting according the zones and demands.

DEFINITION OF AN OBJECTIVE.

The main objectives were:

- ✦ To design an environmentally friendly education hub in Melkys (Melkys village, Maišiagala ward, Vilnius district).
- ✦ To create a cohesive, sustainable, interactive, viable, environmentally friendly structure of buildings and other objects.
- ✦ To bring functionality, modernity and stylistic unity regarding the existing environmental conditions.
- ✦ To use eco-friendly materials and constructions, innovative technologies and latest tendencies.
- ✦ To apply construction standards and requirements of building energy efficiency, microclimate conditions and heating, ventilation, and air conditioning (HVAC) systems.
- ✦ To implement renewable energy sources for electrical installation, ventilation, heating and hot water supply systems.

Scientific framework

In keeping with international moves to leverage economic advantage through mechanisms of education, schools across Organization for Economic Cooperation and Development's (OECD) countries have altered architecturally designed and spatial arrangements, sometimes quite significantly (OECD, 2013). Transformative shifts to develop new generation flexible learning spaces in schools (Imms, Cleveland & Fisher, 2016), coupled with notions of the active 21st century learner (Benade, 2015), have led to the application of new learning space design methods becoming a relevant aspect of education.

OVER THE LAST DECADE SPACE THEORISTS including Soja (1989), McGregor (2004), Massey (2005), and Lefebvre (1991), have argued that space is socially produced and therefore manifests through the interface of both physical and social elements in the environment (Charteris & Smardon, 2019). In schools a conjunction of various factors contributes to what is perceived to be 'new generation'; these influence evolving pedagogies in the socio-material spaces. Factors include: the innovations in classroom architectural designs (Imms, Cleveland & Fisher, 2016); the confluence of mobile technologies (Kim & Smith, 2017); an emphasis on the derivatization of teaching practice (Parr & Timperley, 2015); consideration given to 21st century learner capabilities where students are positioned as active decision makers (Mulcahy, 2015); and assessment for learning pedagogies that enhance learner autonomy (Willis, 2011) for differentiated, collaborative, authentic and personalized learning (Abbiss, 2015).

IN FLEXIBLE LEARNING SPACES IN SCHOOLS, typically there are both open and intimate spaces, with fewer walls and more glass than single cell classrooms. The spaces are "characterized by polycentric room designs, infused information and communication

technologies, flexibility brought about by moveable walls and other agile interior elements, a variety of 'student friendly furniture and ready access to resources" (Imms, Cleveland & Fisher, 2016). There may be a hub used as a central teaching and learning space that may be shared by several classes (Charteris & Smardon, 2019).

DESIGNING AN INSTITUTIONAL BUILDING to suit the needs and aspirations of a twenty-first century student population can be a daunting task (Medium, 2020). That is why is important to remember 4 key things when designing new educational buildings: identity, shared space and technology and eco-friendly design.

- ◇ **IDENTITY** - it is very important to establish the educational institution's identity and determine how the community at large views it.
- ◇ **SHARED SPACE** - in order to minimize construction costs and optimize spatial efficiency, spaces should be designed to accommodate a plurality of functions.
- ◇ **TECHNOLOGY** - with technology making deeper inroads into the learning process, it is becoming increasingly important to make sure that institutional buildings are designed to accommodate present as well as future technological applications.
- ◇ **ECO-FRIENDLY DESIGN** - today, the world needs buildings that are environmentally conscious in terms of resource and energy use and waste discharge. Educational institutions must, therefore, opt for the services of the best sustainable design. This choice represents initiative to make a positive impact on the environment and the community, while simultaneously allowing students to receive education in a healthy environment (Medium, 2020).

SOME OF THE OTHER DESIGN CONSIDERATIONS for an educational institutional building include proper heating, air-conditioning, and lighting facilities throughout the

building; safety and security measures such as CCTV surveillance, etc.; well-designed classrooms, sports complex and other premises; a variety of open and green spaces for student interaction and events. A well-designed educational space provides the perfect environment for the holistic growth and development of students.

ACTION-BASED RESEARCH.

The science workshop project was implemented in frame of 4-week Workshop. The science workshops for the students from VTDK Civil engineering, building engineering systems and Interior design study programs were implemented during the subject “Design practice”. The science workshops for the students from IUT Reims (France) and Le Cnam Rene (France) were implemented on an internship agreement basis.

DURING 4-WEEK WORKSHOP STUDENTS worked in 10 groups. Each group consists of 9 - 10 students; was balanced with engineering and design minded students in the field of construction, interior design and building engineering systems and had at least 3 students with high level of English (at least level B1). The different tasks of the project were divided within the group members according to their competence (or background). Each group was responsible for the completion of all the tasks.

AT THE END of science workshop 10 environmentally friendly Melkys School Education Center projects have been prepared. Plans and reports describing each project were prepared. Students attending the science workshop were assessed with 6 ETC credits.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

In order to offer Melkys School a practical solution to the problem students developed 10 rational design solutions. Each project solution has the concept of

environmentally friendly educational institution complex with further development opportunities. Each concept consists of:

- ◇ **CONSTRUCTION PART:** site plan(s); Roof plan(s), principal plan(s), the construction design scheme(s); Construction details; Façades (M1:100); The cross section of the building(s); The details of the external walls or roof(s) with heat transfer coefficient; Overlay slab plan(s); Floor plans; Marking of windows, doors, gates, and lintels and floor types; parking scheme and basic transport solutions.
- ◇ **ENGINEERING SYSTEM PART:** applied construction standards and requirements for building energy efficiency; designed renewable energy sources; Microclimate parameters, building indoor comfort conditions; Plans for engineering systems; Principal schemes of installation and technical characteristics of equipment for designed engineering systems.
- ◇ **INTERIOR DESIGN PART:** Sketches of idea; Interior concept; Functional movement and space schemes; Furniture plans for specified floor; Layouts with colors and materials suggestions for specified floor; Lighting layout for specified floor; Overall specified premises view (visualization).
- ◇ **EXTERIOR DESIGN PART:** Functional scheme of area; Façades design; Small architecture (part of visualization).

Social intervention

WHO SHOULD BE INVOLVED IN THE SOLUTION?

The context of a science workshop focuses on designing a cohesive, sustainable, interactive, viable, environmentally friendly structure of buildings and other objects. Main subjects that are involved in the solution are Melkys School and kindergarten community and Melkys Village community.



CHANGES AT DIFFERENT LEVELS, from changing thinking and attitudes to purposeful application of scientific, practical and other experiences, are needed to address an existing problematic issue. The decision should involve construction companies, city planners, investors, high-tech professionals, designers, manufacturers and processors, and other stakeholders, both governmental and non-governmental, who can initiate change through innovation. The latest scientific knowledge based on research results is also required.

WHICH STRATEGY WILL BE FOLLOWED?

In order to achieve the main goals of the project, and for the project proposal prepared by the students to be implemented in a real environment, special attention must be paid to additional research. Particular attention must be paid to eco-friendly construction trends, technologies and materials. More attention needs to be paid to strategies, that include day lighting, the specification of sustainable and non-toxic building materials, and the use of renewable energy sources in educational building designs.

IT IS ALSO DUE TO THE FACT THAT ALTHOUGH the students determine the short-term actions that can lead to long term interventions required by stakeholder provided information and enhances communication between the manufacturer-supplier-developer-builder formation.

IMPLEMENTATION OF SOCIAL INTERVENTION.

The results have not yet been implemented, but project suggestions and recommendations are being made to the Melkys School community.

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ECO NET

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CASE STUDY

Introduction

Baltic Scaffolders Association (BSA) is a non-profit organization that unites scaffolding producers, rental and sales companies; it promotes the safe use of scaffolding, provides qualified training for scaffolding installers, introduces the most advanced technological innovations, and advises members of the association on technical issues. The association is not only an active operator in the Baltics, it is also looking for solutions that are necessary for the efficient and safe use of scaffolding throughout Europe, combining the demand with additional benefits such as environmental protection, renewable energy sources or sustainable solutions at various levels.

TYPE OF SOCIETAL PROBLEM INVOLVED.

The problem is related to major social, environmental and economic societal challenges (European Commission, 2018), including efficient resource use and clean energy. Energy efficiency and the reduction of energy waste are strategic energy priorities for the EU. In this respect, the aim is to reduce annual energy consumption by up to 20%, to ensure sustainable energy supply, reduce greenhouse gases, ensure reduction of supply security and import costs, and promote EU competitiveness. As the EU Renewable Energy Directive sets out, 20% The EU's energy consumption should come from renewable energy. Construction sector is one of the areas where significant changes can take place.

DESCRIPTION OF PEOPLE INVOLVED.

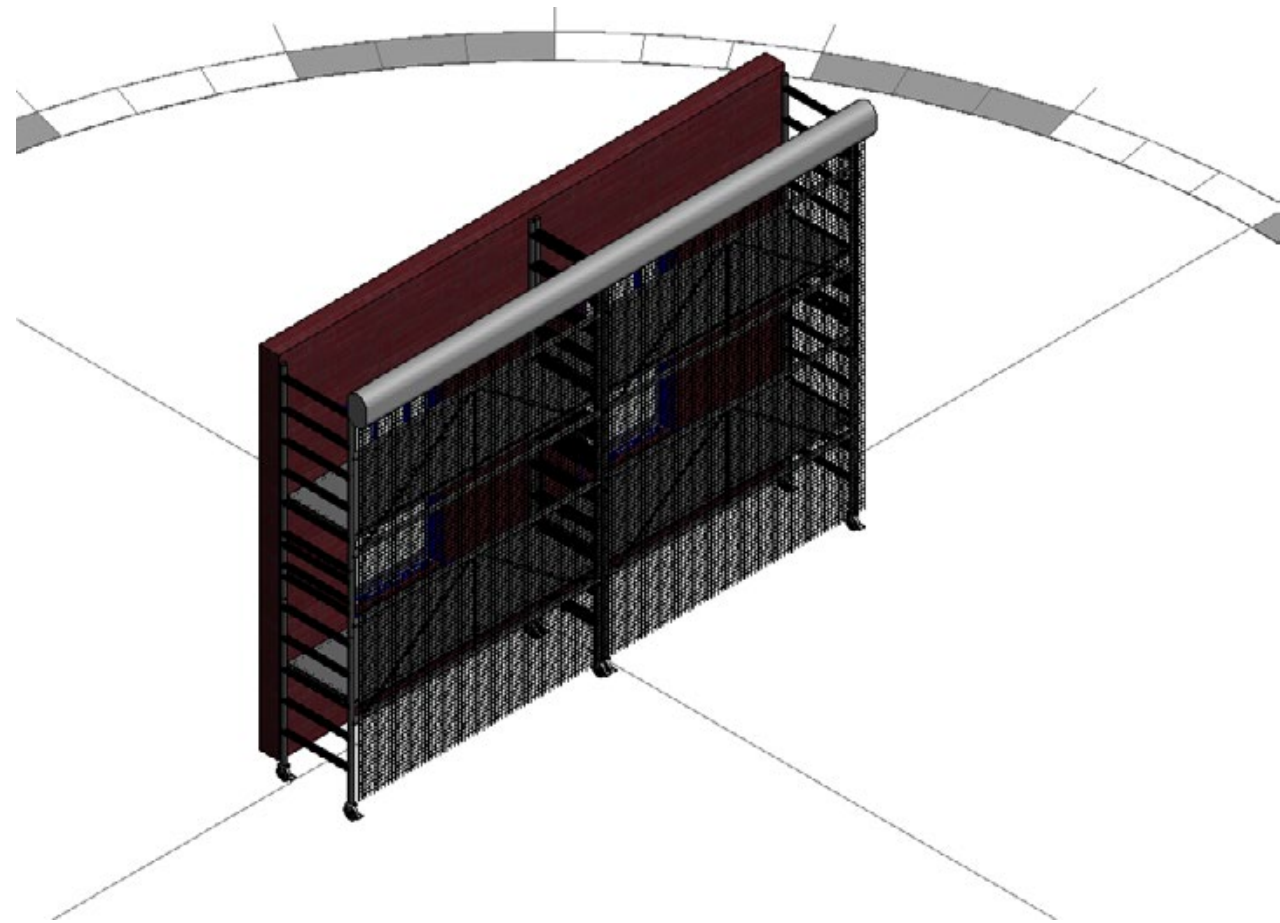
The whole society, communities and associations promoting clean energy or green (ecological) ideas, is interested in the solution of the problem and is considered to be a formal target group. After all, the wider use and diversification

of renewable energy sources contributes to mitigation of climate change, environmental sustainability, resource efficiency, etc. Construction companies and organisations are especially interested in finding the solution to the problem since they provide additional funds for the purchase of energy in their estimates, as well as members of associations that responsibly assess all stages of construction and seek to contribute to the reduction of environmental pollution and resource efficiency. Direct participants of the science shop project are students and a representative of Baltic Scaffolders Association, VTDK lecturers-researchers who have scientific-practical experience in this field.

Story of the problem

Since the construction sector is one of the main sectors of the economy and accounts for about 15% of country's GDP, wrong decisions in this area can have a particularly negative impact on other industries and the country's economy as a whole. Due to a

very high consumption of energy resources, construction sector has to comply not only with the requirements to upgrade occupational safety and health standards, but also with the obligation to increase the use of renewable energy sources, this way gradually increasing sustainability and the use of environmentally friendly raw materials in construction. Baltic Scaffolders Association unites more than 20 construction companies in the region, and its representative corroborates that construction sites in Lithuania lack sustainability, the use of renewable energy sources is very low, priority is sometimes given to unreasonable investments, profits, etc. Operating costs often soar because the territory of the construction site is irrationally used and therefore large electricity losses are incurred. Thus, the main question of the customer is how to develop a more rational use of the construction site, to reduce electricity costs and to contribute to environmental sustainability by using renewable energy sources, while complying with the



Picture 1. Safety eco-net that generates electricity. („Ecofriendly team“, 2020)

requirements of occupational safety and health, construction organization principles and safe use of equipment.

ALL VARIABLES INVOLVED.

Principles of sustainable development are gaining momentum in designing residential or public buildings, providing solutions that reduce the operating and maintenance costs of the building, as well as improve comfort and do not cause negative impact on the environment. All participants in the construction process have to make decisions that comply with the principles of sustainable construction, but, as the representatives of the association point out, the implementation of those projects still involves minimal or no significant impact on the final result. Thus, the BSA President and a group of VTDK students embarked on the search for innovations that unite the construction process and renewable energy sources. They were advised by College lecturers with scientific or practical experience in the field.

AVAILABLE RESOURCES.

The topics and issues of the science shop project were identified and the company, for which the solution of the problematic issue is especially relevant, was singled out in the first stage - the initiation of the science shop project. A non-profit organization was chosen as a socially responsible company, interested not only in ensuring safety, health and quality, but also in a new technological solution, which would contribute to the application of energy efficiency measures and the increase of renewable energy consumption in the

EU. The project preparation brought about a close collaboration in expressing expectations and providing insights, students interviewed representatives of the association to find out their expectations and their insights, exchanged relevant information and data. Students were not provided with financial support for the implementation of research results; a student team provided the president of the Association with a theoretical version of the project based on the study of scientific literature and the results of the analysis of analogues. There was no transition to the physical implementation of the prepared project proposal and product testing at this stage of the science shop project.

IDENTIFIED NEEDS.

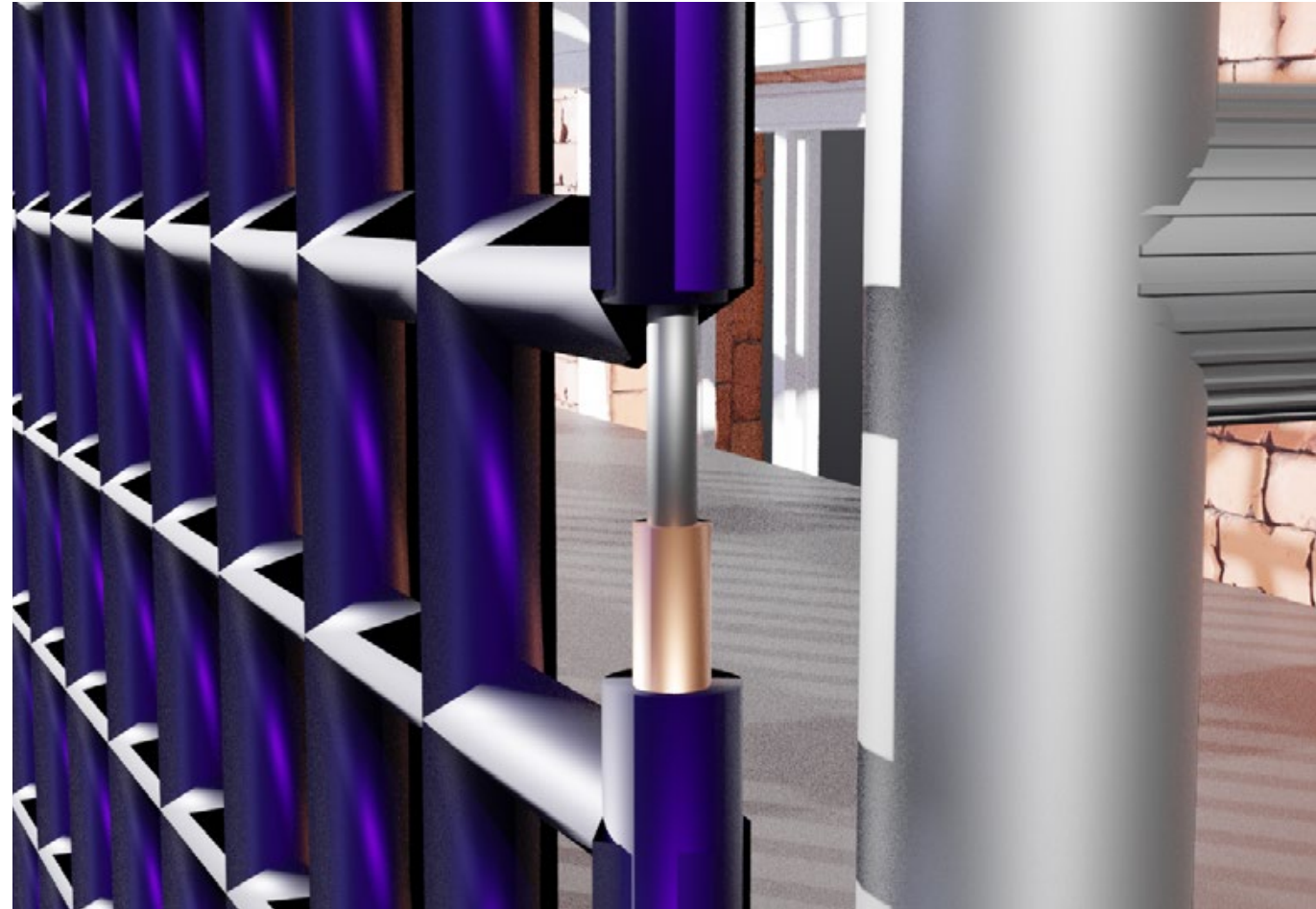
The main issue BSA is interested in is how to ensure safety, comfort and well-being of employees on the construction site, use efficient, renewable energy sources, and at the same time cut heat and energy losses, reduce waste and negative impact on the environment; in addition, the tangible financial benefits should also be expected. To make this happen, it is necessary to begin by examining all construction processes and objects on a construction site, re-assess the needs and capabilities, to change the attitudes, and so on. It is possible to make amendments in documents (rules, regulations), to organise educational activities, to develop a complex project of the whole sustainable construction site, to start with one technological innovation. The science shop project team, having consent of the researchers and after providing insights to the client, decided to work on one innovation related to safety and health, energy loss and negative environmental impact and cost reduction.

DEFINITION OF AN OBJECTIVE.

Since scaffolding is built at height on all construction sites for temporary work, the students proposed to improve the safety net used with it and to create an eco-net that generates electricity. This would not only permit maximum utilisation of the scaffolding and safety net used on each construction site, but would also further reduce costs and help avoid additional investment, as there would not be created any additional element. The idea has become the main goal and strategic activity of the science shop project, which includes the practical experience of VTDK lecturers-researchers working with renewable energy sources, research results and a long-standing practical experience of members of association. An application of widely used eco-net made of copper cladding and silicon crystals on the construction site would create an alternative to electricity generation. Additionally, it would create conditions for free charging of equipment and tools necessary for work, and would contribute to a more rational use of the construction site territory. Testing one successful module in a company of the association could set a good example not only for other companies of the association, but also to promote innovative changes in the model and the development of wider applicability.

Scientific framework

Apart from the performed social study and the analysis of the obtained data (interview with the president of the association) and the analysis of analogues, during the preparation for the science shop project a study of scientific articles and research results on selected topics was conducted. Due to the particular attention that has recently been given to the improvement of production of photovoltaic



Picture 2. Eco-net made of copper cladding and silicon crystals. („Ecofriendly team“, 2020)

devices, and because it was decided to suggest the companies of association to use eco-net made of copper coating and silicon crystals on construction sites, research of silicon wafers used in photovoltaic cell production (Žutautas, 2017) and research of properties of porous silicon on the effects of superhigh frequency electromagnetic technique (Stupakova, 2017) were analysed in the course of the project. The results of photoluminescence research confirm that samples with a higher level of photoluminescence achieve higher values of electrical resistance thus creating an advantage over other elements. In porous silicon structures with symmetrical volt-ampere characteristics, microwave-activated electric charge transfer occurs, and superhigh frequency electromagnetic radiation causes an electromotive response in porous silicon structures, the parameters and amplitude of which depend on the structure of the formation and on the microwave pulse. This also meets the expectations of the participants in the science shop project and can be used as an argument in choosing appropriate solutions.

ACTION-BASED RESEARCH

The science shop project is implemented during one semester in 4 stages: initiation, planning, implementation and presentation together with publicity. During the initiation stage, a group of 3 students analysed the official reports of various institutions, research data, and publications in the press, and this way identified areas that are relevant today. Under the supervision of the lecturer working in the project the students determined the direction and topics of the science shop project, NGO atlas helped them select and compile a list of potential “clients” for whom the solutions to the chosen problem were relevant.

Students themselves contacted representatives of the selected organizations and suggested innovations in their fields of activity. During the meeting with representatives of the organisations, students conducted interviews via a pre-prepared questionnaire, thus clarifying the real situation, the relevance of the problem and expectations. During the planning stage students prepared the initial solution. They took into account the wishes and expectations of the association’s representative, communicated with the representative, performed the analysis of scientific articles and of research results on selected topics, consulted with lecturers-researchers. During the implementation stage, they performed the analysis of analogues, prepared interim and final project proposals, visualizations, presented estimates, contacted the client, worked with consultants. Students also prepared a theoretical design proposal to be tested. During the last stage, a poster presentation of the science shop was prepared and the project was presented in front a public commission, to which a representative of the association was also invited.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

To offer the company a practical solution to the problem that was singled out at the beginning of the project, students performed analysis of the analogous. It aimed to determine the most suitable type of electrical modules for the scaffolding safety net, i.e. monocrystalline, polycrystalline and thin-film modules were analysed applying five criteria. On the grounds of the results and conclusions of the analysis of analogous, the companies and members of the association were suggested to use a net with thin-film electrical modules.

Such modules, as the findings of the study reveal, are the most suitable due to the flexibility and ease of application on the network, efficiency and lower cost compared to others. In addition, the thin-film modules are more powerful than monocrystalline or polycrystalline (up to 400W) and are non-polluting, as the SiO₂ released during production is collected by special filters and does not enter the environment. Even if the member companies of the association do not apply the proposal suggestions of the student science shop project in the future, this project proposal could still encourage a change on the construction sites, in the regulatory documents, and promote sustainability.

Social intervention

WHO SHOULD BE INVOLVED IN THE SOLUTION?

Students chose the context of a science shop project where the focus is on new technology. Addressing the current problematic issue calls for a change at various levels, starting with a change in thinking and attitudes and continuing with application of a variety of scientific, practical and other experiences. The decision making should involve companies united by the association, civil engineering unions, construction companies, manufacturers and other interested parties. Both governmental and non-governmental organizations should take an active role in the solution, as they can initiate change through innovation as well. Up-to-date scientific knowledge and more research is also necessary.

WHICH STRATEGY WILL BE FOLLOWED?

To achieve the main goals of the project and to successfully implement students'

project proposal in a real construction site, a special attention should be given to additional scientific research carried out in certified laboratories. It can also provide additional insights into actions that can be taken by stakeholders to contribute to environmental sustainability. Also, it is important to inform stakeholders and form close links between the individual subjects, as students set short-term goals, whereas some solution aspects may need long-term intervention. Moreover, the European Commission has submitted a proposal to Lithuania regarding financial perspectives for the period 2021–2027, allocating funds for innovation in energy reduction projects, renewable and smart energy, waste reduction and recycling projects.

IMPLEMENTATION OF SOCIAL INTERVENTION.

Suggestions developed by students during the science shop project have not been implemented in a real environment. There is no information on whether Association will take action to implement it.

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SMART

bus stop

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CASE STUDY

Introduction

The National Public Transport Passengers Association actively participates in the process of development and improvement of Lithuanian public transport system and takes interest in current and future transport and its users travel issues, unites passengers and those interested in public transport. The non-profit non-governmental organization operates on the principles of communication, discussion, cooperation; these principles help the institution in pursuing its main goals, i.e. to protect the interests of public transport passengers, to improve public transport in Lithuania, to promote its popularity. As well as that, it aims to change people's attitudes towards public transport, since urban public transport with all its infrastructure is an important tool for ensuring sustainable urban development and controlling air pollution in the city.

TYPE OF SOCIETAL PROBLEM INVOLVED.

The European Commission emphasizes that transport infrastructure impacts both economic growth and social cohesion. In light of social, environmental and regional development factors, the EU directives and regulations of the European Parliament and of the Council on public passenger transport services by rail and by road aim to ensure safe, efficient, transparent, high-quality public passenger transport services. Transport policy of Lithuania comply with the general EU transport policy, and a more balanced urban transport, more sustainable development of transport modes and public-private transport interaction as well as system modernization and innovation are sought by observing the development trends of advanced European urban transport systems. Ultimately, integrated energy, information and communication technology and transport infrastructure or processes shape sustainable urban mobility, passenger satisfaction, which in a modern city is often associated with smart technologies, energy efficiency and environmentally friendly solutions.

DESCRIPTION OF PEOPLE INVOLVED.

Public transport passengers, communities and societies promoting clean energy or green (ecological) ideas, activists and volunteers emphasizing the importance of emotional satisfaction and comfort, creators and innovators, state institutions, socially responsible companies that have implemented or are implementing sustainable policy principles - the whole society is interested in the solution of the problem and is considered to be a formal target group. More diverse and comprehensive use of smart technologies, of alternative energy sources, orientation of all innovation towards comfort and convenience, contribute to the mitigation of climate change, environmental sustainability, etc. The participants of the science shop project are students and a representative of the association, VTDK lecturers-researchers who have scientific-practical experience in this field.

STORY OF THE PROBLEM.

Urban growth poses additional challenges for both urban planners and urban transporters, passengers and environmentalists. An important task, and often a challenge, is the need to ensure that people can reach any area of the city quickly, conveniently and at the desired time, and at the same time to maintain comfort, technical and ecological solution. As a rule, public transport is given priority in the central areas of many European cities, which often restricts the movement of other transport, while public transport routes away from the centre are more likely to face other problems. Since stretches of the public transport routes connect the central part of the city with residential areas, medical institutions or industrial enterprises, due to the lower intensity of public transport the issues of bus stop layout and ease of installation, traffic information and additional services are becoming

more relevant. Ensuring the protection of passengers from atmospheric and other effects, hygiene or physiological comfort while waiting for public transport, the formation of access for the disabled, the elderly or parents with young children also become important. This is confirmed by numerous surveys conducted in Vilnius city municipality, interviews among city transport lovers and others, as well as scientific research on urban public transport results.

ALL VARIABLES INVOLVED.

When allocating funds for the management and modernization of public transport infrastructure, the most visible public transport stops, mostly used by both citizens and city guests, located in the central part of the city or in transport hubs receive the major investments. Public transport stops that are located further away from the centre or in the suburbs tend to get much less attention and in terms of innovations they usually are lagging behind. Very frequently only basic solutions that exclusively meet the minimum needs of passengers are implemented here. Thus, the National Public Transport Passengers Association is looking for alternatives to improve the solutions currently in place to ensure the comfort and safety of public transport passengers. A representative of the association -public transport worker and a group of students embarked on the search for innovation. They were consulted by VTDK lecturers-researchers with scientific or practical experience in this field.

AVAILABLE RESOURCES.

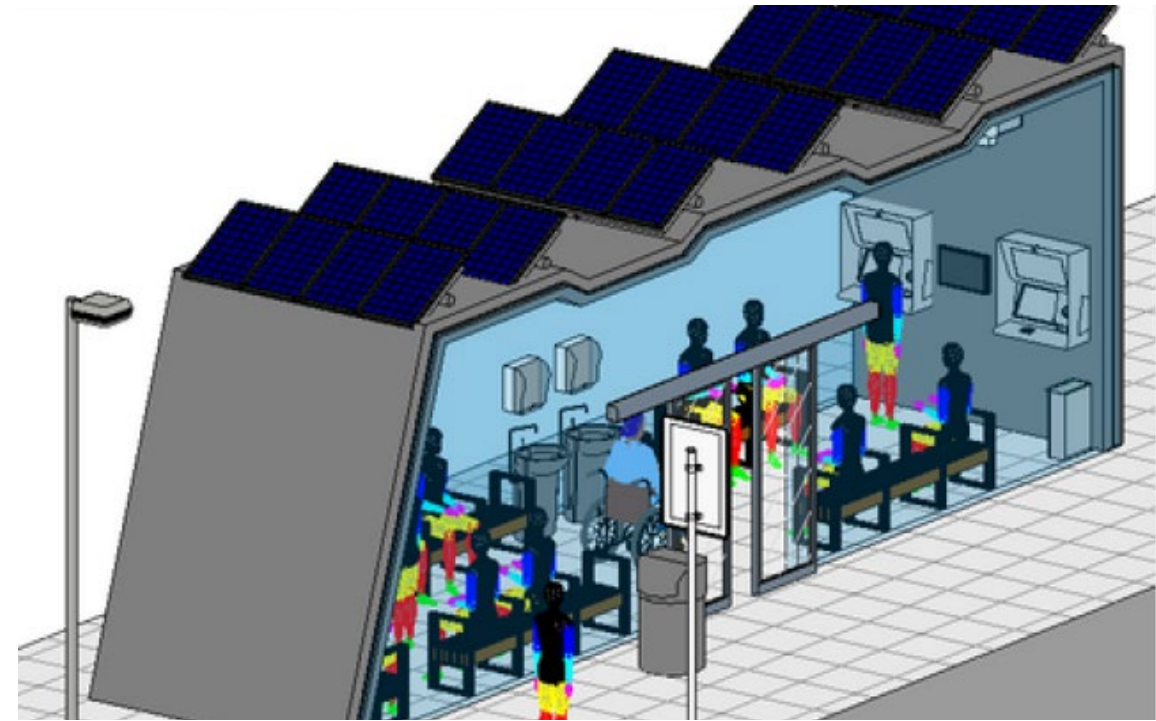
The topics and issues of the science shop project were identified in the first stage of the science workshop project (initiation). As special attention is paid to the well-being and comfort of public transport passengers, an association for which the solution of

the problematic issue is especially relevant has also been selected at this stage. Interviews with representatives of the association revealed their expectations and their insights, and they resulted in constructive cooperation and exchange of information and data. Financial support for the implementation of research results was not provided to students during the project preparation: a team of students submitted a theoretical project proposal to the association, which they prepared after analysing scientific literature and studying analogues. There was no transition to the realization of the prepared project proposal and product testing at this stage of the science shop project.

IDENTIFIED NEEDS.

The general need to implement innovative solutions and improve the quality of public transport is not the main problematic issue that the association concentrates on and seeks to address. Its focus is more directed to the specific inconveniences experienced by public transport passengers while waiting for a bus at remote public transport stops, especially at medical or

training facilities. Some public transport stops do not have waiting pavilions or covered areas for protection from atmospheric and other effects, and there are no ticket machines or places to top up electronic tickets nearby. In addition, such stops are generally not convenient for the disabled, the elderly, or parents with young children (e.g., there are no ramps or barriers from a busy street). Due to the relatively low flow of people and low traffic intensity, there are cases where not much care is taken to equip the stops with the constant lighting, not much attention is paid to the basic needs of passenger hygiene. To solve such problems, it is first necessary to assess the possibilities in light of the real needs, to change the attitude of urban designers and public transport infrastructure developers and employees, and so on. In the process, it is possible to amend documents (rules, regulations), to carry out educational activities, to submit a complex project of urban infrastructure transformation, to start with one technological innovation, and so on. Supported by the researchers and provided with insights of the representative of the association, the team of



Picture 1. Visualization of bus stop inside. (Team „Tarvelers“, 2019)

the science shop project decided to work on one technological innovation
– to develop a model of a smart bus stop.

DEFINITION OF AN OBJECTIVE.

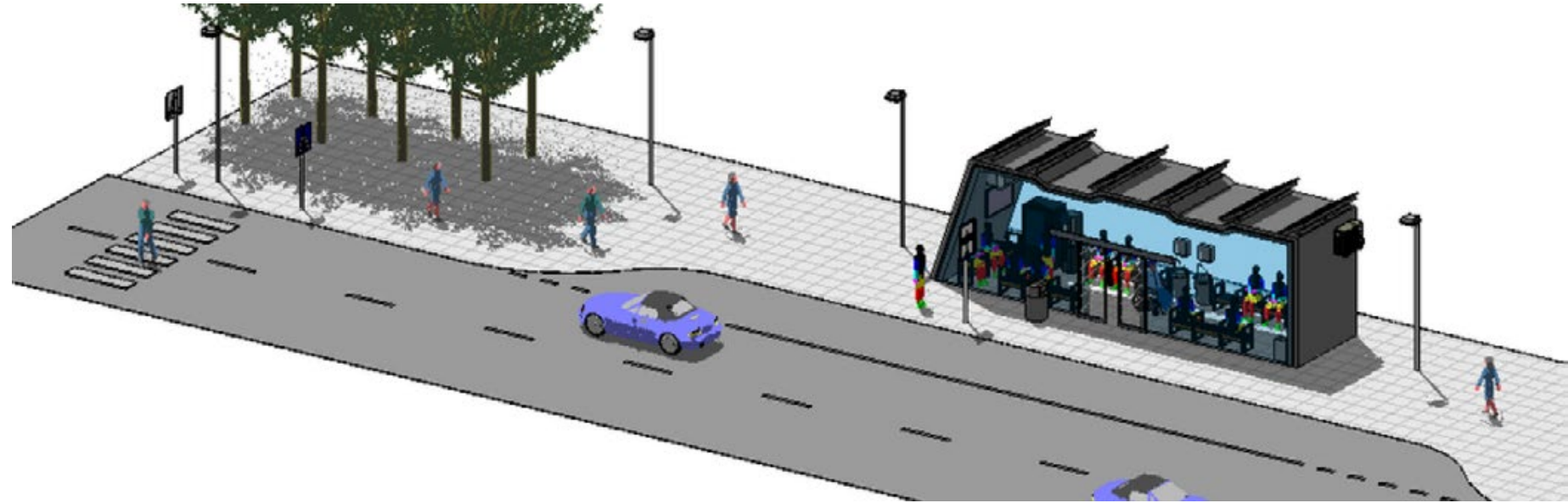
Data of various surveys reveals that the need to upgrade public transport stops and bring together separate public transport services in them is highly appreciated and relevant in peripheral areas. With this in mind, the students suggested focusing on the development of a single smart bus stop model at Vilnius University Hospital Santara Clinics, as this is the place where people are waiting for public transport after they accompany or visit patients in clinics, or after they have completed a course of treatment and come to clinics for examinations and regular procedures. These are often people with special needs, illnesses or injuries, older people with weakened immunity and often impaired coordination. Real implementation of the idea and suggestions generated by the students would not only result in direct positive impact on the level of comfort and consolidation of services for public transport passengers, but it would also reduce electricity costs, contribute to environmental sustainability through the use of recycled materials and renewable energy sources, etc. The idea of a smart bus stop model has become the main goal and strategic activity of the science shop project, which includes the practical experience of VTDK lecturers-researchers working with smart technologies, renewable energy sources, building structures and engineering systems, research results and a long-standing practical experience of transport workers. A successfully integrated functional smart bus stop model in a real environment can become an example of an innovative solution not only in Lithuania, but also in other countries that are faced with similar problems of public transport passengers.

Scientific framework

The preparation for science shops included not only a social survey, the analysis of the obtained data (interview with a representative of the association and the survey of public transport passengers) and the analysis of analogues, but also a study of scientific articles and research. Because of the particular attention currently directed at smart technologies, renewables, students analysed the impact of dynamic real-time information displays at the bus stop (Dziekan, 2007), the use of renewables in public transport sector (Bužinskienė, 2018; Lund, 2008), the solar radiation model, and research data on the use and prospects of solar thermal collectors and renewable sources in Lithuania (Vasarevičius, 2016). Research has confirmed that the use of dynamic real-time information displays at bus stops reduces passenger waiting times up to 20 percent, increases sense of security and reduces uncertainty, results in a more efficient use of passenger waiting times, creates higher customer satisfaction, and so on. Under recommendations, public transport stops should be equipped with medium-sized frosted glass screens, information should be presented in an easy-to-read font size, passengers should be able to plan routes themselves on additionally equipped touch screens for searching information about public transport congestion, etc.. Another aspect of research focuses on the use of renewable energy sources in the public transport sector. Solar energy is used the least in Lithuanian transport sector, despite being an inexhaustible renewable energy source which is partly dependent on natural phenomena and their changes. Solar collectors are mostly recommended in public transport stops, using the generated energy for lighting, equipment charging, water heating and ventilation, air conditioning and so on.

ACTION-BASED RESEARCH.

The science shop project is implemented during one semester in 4 stages: initiation, planning, implementation and presentation together with publicity. During the initiation stage, a group of 4 students analysed the official reports of various institutions, research data, and publications in the press, and this way identified areas that are relevant today. Under the supervision of the lecturer working in the project the students determined the direction and topics of the science shop project, NGO atlas helped them select and compile a list of potential “clients” for whom the solutions to the chosen problem were relevant. Students contacted representatives of the selected organizations and suggested innovations in their fields of activity. Since non-profit organizations operating in the field of engineering or technology did not show any particular initiative to cooperate, an association ensuring comfort and well-being of public transport passengers was chosen. During the meeting with representatives of



Picture 2. Visualization of bus stop outside. (Team „Tarvelers“, 2019)

the association students conducted interviews via a pre-prepared questionnaire, thus clarifying the real situation, the relevance of the problem and expectations. An additional survey among the passengers of public transport was conducted. During the planning stage students prepared the initial solution. They took into account the wishes and expectations of the company's representative, communicated with an employee of the public transport, performed the analysis of scientific articles and of research results on selected topics, consulted with lecturers-researchers. During the implementation stage, they performed the analysis of analogues, prepared interim and final project proposals, visualizations, presented estimates, contacted a representative of the association,

worked with consultants. Students also prepared a theoretical design proposal - a model of a smart public transport stop. During the last stage, a project poster presentation was prepared and the project was presented in front a public commission, to which a representative of the association was also invited.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

To offer National Public Transport Passenger Association a practical solution to the problem which is based on the results of the research, students performed analysis of the analogous. A team of the students analysed innovative bus stops that were either mobile or of temporary use in Lithuania, Italy and Germany; they also researched

aspects of passenger comfort. Based on the results and conclusions of the analysis, the representatives of the Association have been offered a closed stop option, in contrast to the traditional one. When building a public transport stop, it is recommended to implement the idea of Zero Waste, to use recycled materials, and to install solar collectors on the roof of the bus stop. Depending on the seasonal conditions, such a bus stop should be equipped with heating or cooling systems, with constant air filtration and cleaning systems, access to free WiFi internet should also be available, people should be able to supplement the public transport e-ticket, monitor and plan the route separately on screens, recharge portable devices. Passengers should be provided with the possibility to wash and disinfect hands, to use a drinking water source, to call emergency services while using a special button installed at the bus stop. The proposed student science shop project could serve as a model for planning the refurbishing public transport stops and changing attitudes towards their functional elements and benefits they bring.

Social intervention

WHO SHOULD BE INVOLVED IN THE SOLUTION?

Students chose the context of a science shop project where the focus is on smart and environmentally friendly technologies and solutions. Addressing the current problematic issue calls for a change at various levels, starting with a change in thinking and attitudes and continuing with application of a variety of scientific, practical and other experiences. The decision making should involve urban planners, transporters, investors, high-tech professionals, designers, manufacturers and processors, etc. Both governmental and non-governmental organizations should take an active role in the solution, as they can initiate change through innovation as well. Up-to-date scientific knowledge based on research results is also essential.

WHICH STRATEGY WILL BE FOLLOWED?

To achieve the main goals of the project and to successfully implement students' project proposal in the real environment, a special

attention should be given to additional scientific research. It can also provide additional insights into steps that can be taken by stakeholders to contribute to environmental sustainability. Also, it is important to inform stakeholders and form close links between the individual subjects, as students set short-term goals, whereas some solution aspects may need long-term intervention.

IMPLEMENTATION OF SOCIAL INTERVENTION.

A transport stop model developed by students during the science shop project has not been implemented in the real environment. There is no information on whether Association will take action to implement it.

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DESIGNING

safe pedestrian crossings in Olandai roundabout

*Jolanta Pileckienė /
Vilnius College of Technologies and Design*
CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

The Lithuanian Parents' Forum Association was established in 2004. Its main function is to represent parents and children and defend their interests in pursuit of quality education. All activities in the Lithuanian Parents' Forum are organized in compliance with the values and principles promoted by the organization, and everyone who takes part in the activities of the association knows what is important and what is achieved by working together. The vision of the Lithuanian Parents' Forum is an independent creative personality, determined to learn and improve, communicate and cooperate, able to set meaningful life goals, and has a deeply rooted system of humanistic values. The mission of the Lithuanian Parents' Forum is to seek the revival of the Lithuanian education system, to unite the parents (guardians) of Lithuanian children and students for joint activities that would influence the country's education policy; to raise public awareness and strive for the humanization of the education system; to represent the interests of children and young people, to defend their rights in all educational and scientific institutions.

TYPE OF SOCIETAL PROBLEM INVOLVED.

To bridge the gap between the desired and real progress made by the European Union in the field of road safety, it is necessary to show strong common political will and take urgent action to improve road safety in all Member States. Among the measures that can have a direct positive impact on road safety, emphasis is made on the importance of solutions regarding strengthening traffic supervision and restoring high-risk road sections, as well as improving infrastructure. The European Transport Safety Council report states that while the European Union's goal of reducing the number of road deaths by half between 2010 and 2020 is not likely to be achieved, this long-awaited impetus from the European Commission

could make a significant contribution to a positive change and progress over the next decade. Lithuania and six other PIN countries - Austria, Bulgaria, Cyprus, Spain, the Netherlands and Norway - have already started preparing national road safety strategies for the next decade, which will help to implement a plan of measures based on a safe systemic approach to road safety.

DESCRIPTION OF PEOPLE INVOLVED.

Members of the Lithuanian Parents' Forum, casual passers-by, VTDK students, and students of nearby educational institutions will directly participate in the project. Later, the local government (municipality) will be informed about the results of the survey.

Story of the problem

Members of the Lithuanian Parents' Forum addressed the VTDK students with the problem that children, schoolchildren, students feel insecure in an unregulated pedestrian crossing before entering Olandai roundabout. Pedestrians (mostly children and young people), before entering and leaving the busy roadway, often use mobile devices which distract them from observing the environment and the traffic situation on the road, which ultimately can lead to accidents.

ALL VARIABLES INVOLVED.

Members of the Lithuanian Parents' Forum asked the VTDK to design safe pedestrian crossings (or their elements) in Olandai roundabout, two lanes in each direction, at the pedestrian crossing where there is a safe traffic central reservation. Pedestrians are not attentive enough at the crossing; especially schoolchildren / students who disregard intense traffic and use mobile phones unsafely, ignore oncoming vehicles, use headphones, which also has a negative impact on their alertness, as ability to

hear is reduced while crossing the street. Thus, there is an increase of the likelihood of accidents, especially during the eastern and western peaks when there are many vehicles.

RESEARCHERS AND STUDENTS will analyse this issue together with Members of the Lithuanian Parents' Forum and with other interested parties.

AVAILABLE RESOURCES.

The topics and issues of the science shop project were identified and the association, for which the solution of the problematic issue is especially relevant, was singled out in the first stage - the initiation of the science shop project. Non-profit organization was chosen as a socially responsible company, interested in ensuring safety, health and quality. The science shop project team, having consent of the researchers and after being provided insights by a representative of the association, decided to work on designing road marking that would draw attention of all the pedestrians who cross the road. All partners want to cooperate in the process by giving interviews, exchanging data and contributing suggestions. Students were not provided with financial support for the implementation of research results; a student team provided the representative of the Lithuanian Parents' Forum Association with a theoretical version of the project based on the study of scientific literature and the results of the analysis of analogues. There was no transition to the physical implementation of the prepared project proposal and product testing at this stage of the science shop project.

IDENTIFIED NEEDS.

Pedestrian crossings in Vilnius must be as safe as possible for both pedestrians and drivers. As the problem is relevant to all traffic participants, it is necessary to conduct

a study on increasing pedestrian safety of unregulated pedestrian crossings, with a heightened focus on pedestrian crossing at Olandai roundabout, as it is surrounded by a numerous educational institution attended by students of all ages.

DEFINITION OF AN OBJECTIVE.

The main objective of the Lithuanian Parents' Forum research is to identify possibilities for increasing safety of pedestrians at unregulated pedestrian crossings. Pedestrian and driver errors and their impact on the safety of pedestrians will receive the main focus.

Scientific framework

Pedestrians comprise a diverse group of people with the largest age range. Some have limited mobility, reduced hearing and vision ability, and different perceptions and adherence to road traffic rules. All of these differences make pedestrians difficult to protect. Thus, in many cases, the protection of pedestrians is much more complex than that of motor vehicle passengers. From an

engineering point of view, the most important aspect of pedestrian behaviour is the speed and alertness of a pedestrian who is crossing the road. Unlike drivers, this speed is directly linked to the likelihood of an accident, and in the case of pedestrians, slowing down increases the likelihood of injuries or fatal accidents. The study analysed the environment, which also influences the speed of pedestrians crossing the road (Anisimov, 2016). Ultimately, pedestrians take a conscious risk and deliberately cross the road in front of oncoming vehicles in the hope that they will stop and pass, which is especially noticeable when they walk in a crowd. Thus, having assessed these aspects, during the project, students conducted observations at pedestrian crossings and identified the most frequent violations of traffic rules and other hazards, which often become the cause of traffic accidents with pedestrians. They also analysed traffic statistics. As a result, students provided solutions and recommendations to increase the safety of pedestrian crossings using both physical and social measures, which can be combined with other auxiliary safety measures: additional road signs, traffic lights, safety islands. In the last stage, they prepared a poster presentation of the science shop project, and presented the project to the public commission.

ACTION-BASED RESEARCH.

The problem was identified when the students communicated with the Lithuanian Parents' Forum on social networks, where a discussion on a relevant topic took place. Drawing on these



Picture 1. Roundabout intersection. (Jozwiak, 2019)

discussions, students submitted an application to the project manager, eventually developing the analysis of the problem into a research paper. In the application, students presented a project proposal and an implementation plan. The team consisted of 6 students from two study programs. During the meeting, the project manager discussed the progress of the research process with the team. Students began by researching the literature, then they conducted interviews with randomly chosen passers-by in the area of Olandai roundabout. target group discussion and questionnaires were also included in the students' research. The results of the research were publicly presented to the college community, the project recommendations and visualization were presented to the Lithuanian Parents' Forum, which further applied to Vilnius City Municipality for the implementation of the project.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

It is really difficult task to make pedestrians, especially younger ones (schoolchildren, students), to follow traffic safety rules because pedestrians are difficult elements to control in the road traffic system. Therefore, other means can be used, such as innovative dissemination of information, by designing a sign on the sidewalk, in front of the pedestrian crossing, warning pedestrians not to use mobile phones.

Social intervention

WHO SHOULD BE INVOLVED IN THE SOLUTION?

The main entities who should be involved in solving the problem are members of the Lithuanian Parents' Forum, schoolchildren and students who attend educational institutions near the Olandai roundabout, local residents, as well as employees of Vilnius City Municipality.

WHICH STRATEGY WILL BE FOLLOWED?

Students employed various research methods during the project, such as questionnaires, interviews, literature review. Observations were also made at a busy pedestrian crossing, and the most frequent recurrences of traffic rules violations and other hazards that often become the cause of pedestrian traffic were identified. The main datasets analysed by students, as well as recommendations and solutions are proposed for further use as they can grow into real measures to ensure pedestrian safety.

IMPLEMENTATION OF SOCIAL INTERVENTION.

The results have not been implemented yet, but the project proposal and recommendations have been submitted to Vilnius municipality city Maintenance and Transport Department.

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SELF - healing roads

*Airida Tylienė /
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CASE STUDY

Introduction

AB Panevėžio keliai specializes in Lithuanian road construction and seeks to ensure the quality of construction structures and manufactured construction products by constantly improving quality indicators, environmental protection and efficiency of occupational safety and health. To achieve this goal, the company applies an Integrated Quality, Environmental and Occupational Safety and Health Management System, which must be put into operation by every employee of the company. The company is actively looking for innovations and solutions in Europe, and relates them to the challenges it faces. Its research laboratories are accredited by the European Accreditation Organization, and the company carry out testing and sampling of road pavements and foundations, primers, aggregates, bitumen and bituminous binders, bituminous mixtures and coatings. The results achieved are recognized in the European Union and the company shares them with the general public, since it also faces various social, environmental and economic challenges. Despite being a for-profit organization, the company is socially responsible, and it puts environmental, health and sustainability aspects at the top of its priority list.

TYPE OF SOCIETAL PROBLEM INVOLVED.

In light of transport policy implementation in the European Union and seeking to create a European road safety area, Member States are encouraged at national level to focus not only on measures governing the technical condition of vehicles and the transportation of dangerous goods, but also on the safety of roads and of road infrastructure. This is related to the major social, environmental and economic challenges that society faces (European Commission, 2018). The European Commission emphasizes that transport infrastructure impacts both economic growth

and social cohesion. Therefore, the EU directives regarding road infrastructure safety management aim to ensure that road safety is taken into account at all stages of road construction, operation or major modification; the directives also oblige Member States to further improve the quality and safety of roads and their infrastructure in order to decrease the number of fatalities and serious injuries on EU roads. This is further confirmed in the proposal regarding the financial perspectives submitted to Lithuania by the European Commission for the next 2021–2027, where among other priorities, investment in the improvement of roads, their infrastructure and the development of the EU's trans-European transport network is emphasised.

DESCRIPTION OF PEOPLE INVOLVED.

The whole society of the country should be considered as an interested and formal target group in solving the problem, e.g. vehicle owners, pedestrians or other road users, socially responsible companies, laboratories or organizations, municipalities or other public authorities operating in the road sector. Students and a representative of a socially responsible company, VTDK lecturers-researchers advising the members of the science shop project group, who have scientific or practical experience in this field, are directly involved in the science shop project.

Story of the problem

Every year, Lithuanian Road Administration, Ministry of Transport and Communications, Lithuanian Transport Safety Administration and Lithuanian Road Police Service, as well as representatives of other institutions and services solve the problem of road safety. Damage to the road structure, its deformation is

among the main reasons of road accidents and often causes crashes or damage to the vehicle. This claim has also been confirmed by the results of the Lithuanian road survey conducted by Ministry of Transport and Communications. According to the survey results, the condition of half of the roads is rapidly deteriorating, causing additional threats and dangers to traffic participants. Fluctuations in air temperature pose a real threat for road surfaces. If the pavement structure is weak, the top layer is worn and the bottom layers are contaminated, and there is no proper drainage, then when the frost starts to melt, excess moisture is created and absorbed by the road structure and therefore weakens. In such case, the road structure cannot withstand heavy traffic loads, is crushed and begins to "break". This is how dumps, pits, bends and other deformations of the coating are formed. They are the main dangers to traffic and vehicles.

ALL VARIABLES INVOLVED.

The endless masking or patching of various types of road surface deformations and failure to apply new, innovative technological solutions does not solve the problem in the long run. Some of the proposed pavement maintenance solutions are not suitable for northern roads due to the individual physical or chemical properties of the materials used, i.e., coatings are not cold or heat resistant, they do not withstand long-term static or short-term, but often repetitive, loads. It is often the case when innovative pavement is only in the testing stage or frequently even too expensive for being used in massive road construction and so on. AB Panevėžio keliai is a socially responsible company that seeks to find an alternative answer to the currently applied solutions and to contribute to the reduction of accidents on the roads and to solve other problems arising in

them. The company's representative - project manager together with a group of students embarked on the search for innovation. They were advised by College lecturers with scientific or practical experience in the field.

AVAILABLE RESOURCES.

The topics and issues of the science shop project were identified and the company, for which the solution of the problematic issue is especially relevant, was singled out in the first stage - the initiation of the science shop project. Since non-profit organizations did not show any initiative to cooperate, a socially responsible company was chosen, interested not only in the search for a new technological solution, but also in ensuring quality in traffic and in saving lives. So, there was a close collaboration in expressing expectations and providing insights, giving interviews, exchanging data. Students were not provided with financial support for the implementation of research results; a student team provided the representative of the company with a theoretical version of the project based on the

study of scientific literature and the results of the analysis of analogues. There was no transition to the physical implementation of the prepared project proposal and product testing at this stage of the science shop project. If possible, specialists of the company will test it in their certified laboratory.

IDENTIFIED NEEDS.

With the rapid technological development of various activity fields across the world, roads remain one of the most important elements of civilization - the global road network is over 16 million kilometres. Nevertheless, the technologies used in road construction often lag behind overall progress and lack innovativeness and sustainability. Roads wear out, deteriorate, crack over time, forming cracks or potholes. Depending on the type of the road, on construction technology or operating conditions, roads serve from 20 to 40 years and then they require mass repairs. Thus, the main problematic issue that the company focuses on is the need to implement innovative technological solutions, to improve



Picture 1. Road. (Walker, 2018)

the condition of existing road surfaces, while reducing the amount of waste and negative environmental impact generated during construction work. To make this happen, it is necessary to begin by examining all construction processes, re-assess the needs and capabilities of stakeholders, to change the attitudes of road users and manufacturers or builders, and so on. It is possible to make amendments in documents (rules, regulations), to organise educational activities, to develop a complex system of project redesign, to start with one technological innovation, etc. The science shop project team, having consent of the researchers and after providing insights to a company representative, decided to work on one technological road pavement innovation and present it to the company as a solution to the problem.

DEFINITION OF AN OBJECTIVE.

Students suggested that instead of the State spending vast amounts of money on pavement repairs of increasingly aging roads, instead of focusing on road durability improvement and on ingenious ways to patch roads, efforts should be made to look for such technological solutions which would diminish necessity to worry about road repairs. Solutions, in case of which roads would not require maintenance or require significantly less of it, would result in lower road maintenance costs, reduced amounts of construction waste, and a drop in environmental pollution: self-healing road surfaces can improve traffic flow, reduce maintenance intensity and extend operation of a road up to 80 years. This idea grew into the main goal and strategic activity of the science shop project, the implementation of which also involved the practical experience of VTDK lecturers-researchers working with road construction technologies and

maintenance, the results of research conducted by researchers and many years of practical experience of the representatives of the company in road construction. Successful paving of one section of road when applying the new technology could become an example of good practice not only for other municipalities in the country, but also promote innovative changes throughout Europe.

Scientific framework

Apart from the performed social study and the analysis of the obtained data (interview with the project manager of the company) and the analysis of analogues, during the preparation for the science shop project the analysis of scientific articles and research results on selected topics was conducted. Since products, life cycle of which is maximised through the application of innovative technological solutions, have been in the focus for a short while now, research on asphalt pavements with “recovery” properties was analysed during the project (Tabakovic, Schlangen, 2016). The results of research confirm that the use of nanoparticles, induction heating or rejuvenation as key technologies in the 'recovery' of asphalt pavement design reduces unnecessary premature aging of asphalt pavements, pavement maintenance volumes and costs, CO2 emissions during the road maintenance process and increases road safety. Asphalt is one of the main constituents of the road, and it is a material that can naturally restore its stiffness and strength if it is additionally supplemented with 25 micron and 8-10 mm long steel fibres. Hot steel increases temperature of the asphalt and helps seal cracks. Another aspect of the research is the inductive heating of porous asphalt by sending an alternating current through a series of coils and creating an oscillating magnetic field that heats the molecules in the ferromagnetic metal.



ACTION-BASED RESEARCH.

The science shop project is implemented during one semester in 4 stages: initiation, planning, implementation and presentation together with publicity. During the initiation stage, a group of 3 students analysed the official reports of various institutions, research data, and publications in the press, and this way identified areas that are relevant today. Under the supervision of the lecturer working in the project the students determined the direction and topics of the science shop project, NGO atlas helped them select and compile a list of potential “clients” for whom the solutions to the chosen problem were relevant. Students themselves contacted representatives of the selected organizations and suggested innovations in their fields of activity. Since non-profit organizations did not show any particular initiative to cooperate, a socially responsible company was chosen. During the meeting with representatives of the company students conducted interviews via a pre-prepared questionnaire, thus clarifying the real situation, the relevance of the problem and expectations. During the planning stage students prepared the initial solution. They took into account the wishes and expectations of the company's representative, communicated with the representative, performed the analysis of scientific articles and of research results on selected topics, consulted with lecturers-researchers. During the implementation stage, they performed the analysis of analogues, prepared interim and final project proposals, visualizations, presented estimates, contacted the client, worked with consultants. Students also prepared a theoretical design proposal to be tested in a certified laboratory of the company. During the last stage, a poster presentation of the science shop was prepared and the project was presented in front a public commission, to which a representative of the company was also invited.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

To offer the company a practical solution to the problem that was singled out at the beginning of the project, students performed analysis of the analogous. Since the cost of self-healing asphalt technology with steel fibre is 25 percent higher than that of the conventional asphalt and technological tests have already been carried out and the final test results are expected, a team of students analysed the characteristics of several different materials, such as asphalt additives to determine an effective material suitable for asphalt “recovery”. On the grounds of the results and conclusions of the analysis, the company was advised to use mineral powder, which increases surfaces of particle contact, thermal resistance of bitumen and asphalt, density of mineral mixture and asphalt, reduces the thermal expansion and slip of the binder during vehicle braking. Also, rubble is recommended for formation of the main frame, which would help the asphalt to withstand the loads and form the required roughness of the pavement. Even if the company does not apply the proposal of the student science shop project in the future, this project proposal could still encourage a change of the existing road construction technologies and solutions.

Social intervention**WHO SHOULD BE INVOLVED IN THE SOLUTION?**

Students chose the context of a science shop project where the focus is on new technology. Addressing the current problematic issue calls for a change at various levels, starting with a change in thinking and attitudes and continuing with application of a variety scientific, practical and other experiences. The

decision making should involve companies in the road sector, producers and other interested parties. Both governmental and non-governmental organizations should take an active role in the solution, as they can initiate change through innovation as well. Up-to-date scientific knowledge and more research is also essential.

WHICH STRATEGY WILL BE FOLLOWED?

To achieve the main goals of the project and to successfully implement students’ project proposal in a real road section, a special attention should be given to additional scientific research in certified laboratories. This would provide additional insights regarding actions that could be taken by stakeholders to contribute to environmental sustainability. Also, it is important to inform stakeholders and form close links between the individual subjects, as students set short-term goals, whereas some solution aspects may need a long-term intervention.

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VUB Belgium

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CLIMATE

game for secondary education

Vrije Universiteit Brussel
CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

De Aanstokerij, a non-profit organisation that uses games to make social themes easy to talk about. It sells games, organises training and support, and creates customised games. www.aanstokerij.be

TYPE OF SOCIETAL PROBLEM INVOLVED

Climate change: education for sustainable development

DESCRIPTION OF PEOPLE INVOLVED

- ✦ The non-profit concerned, De Aanstokerij
- ✦ Secondary schools:
 - ✦ Teachers
 - ✦ Students

Story of the problem

ALL VARIABLES INVOLVED

The climate has been an integral part of lessons this year. In collaboration with De Aanstokerij, a handbook was developed to enhance existing climate-based games in terms of both pedagogy and content, and to redesign an existing game.

AVAILABLE RESOURCES

Interviews with serious game experts, educational experts, literature review, review of existing serious games on climate change.

IDENTIFIED NEEDS

How can De Aanstokerij methodically and substantively enhance existing games based on the climate so that they remain relevant to the first grade of secondary education?

DEFINITION OF AN OBJECTIVE

To develop a guide for game developers and a climate game concept based on that guide.

Scientific framework

Via interviews with experts, a literature review and renewed targets for the first grade, a guide was made for game developers to work on this subject in transition. This guide was used to develop a game concept in which students are 'lit up' to think about the climate. Preliminary research revealed a number of dos and don'ts, which were framed within scientific research.

VIA TWO BRAINSTORM SESSIONS and presentations, a game concept was created. Throughout the development process, interim evaluations were carried out with teachers and with game experts and designers.



Social intervention

The student's internship lasted four months. At the end of this period, the game was in a final phase of development and will be further evaluated and improved by staff at De Aanstokerij. In future, interviews with educators from the GO! schools network are planned. It will also be interesting to receive input from teachers who belong to a different education network.

IN THE COMING MONTHS, pupils will have more of a role in game development. The game will be tested three times, by various classes with various pupils, teachers and partners. It takes time to develop a good game that fulfils all the goals and expectations. A design process at De Aanstokerij also takes longer than four months. When the designers have a result that functions smoothly, and which takes into account all the goals and every target audience (speakers of other languages, diversity, learning problems etc), only then will they bring out the game.

EVEN AFTER THE GAME HAS BEEN PRODUCED, it will still be possible to monitor the playing experience. Game leaders will keep an eye out for necessary adaptations.

Theoretical and practical implications

Once the game is on the market and schools have played it with their pupils, an evaluation can be carried out to assess the game's impact.

Project team

STUDENT: Li Heyl

PROFESSOR: prof. dr. Jo Tondeur

Staff from the Aanstokerij, internship school teachers and VUB supervisors.

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For more information on this case study, please contact Wetenschapswinkel@vub.be

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INCLUSIVE

climate action

Vrije Universiteit Brussel

CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

Citizenne, a Brussels training organisation. <https://citizenne.be/over-citizenne>
Vzw Klimaatzaak, which complains that Belgium is not going to reach its international climate commitments and wants to change this via the courts, with a lawsuit brought by citizens. <https://www.klimaatzaak.eu/en>

TYPE OF SOCIETAL PROBLEM INVOLVED

People in Brussels with a migration background are not sufficiently engaged in actions relating to climate change.

DESCRIPTION OF PEOPLE INVOLVED

The CSOs Citizenne and vzw Klimaatzaak
People living in Brussels who have a migration background

Story of the problem

ALL VARIABLES INVOLVED

The urgency surrounding the climate crisis has to increase. Policymakers need to move to a higher gear to limit global warming to 1.5°C in line with the Paris Climate Agreement. The urgent calls today come primarily from citizens, as shown by the climate protests and initiatives such as vzw Klimaatzaak. While a large group of citizens is in favour of ambitious climate goals, it remains essential to create and increase public support for climate action by empowering citizens.

TO TRULY BE ABLE TO SPEAK OF CITIZEN PARTICIPATION, it is important that the group sitting at the table reflects the diverse layers of society. If combating climate change is not placed within the wider perspective of sustainable development, and

if citizens do not feel sufficiently engaged, there is more chance of protest (as seen with the Yellow Vests). However, those who have to deal with poverty, inequality and/or discrimination in their daily lives have a great interest in the transition to a climate-neutral society. Climate change affects the poorest and most vulnerable most of all, thus increasing inequality.

AVAILABLE RESOURCES

- ✦ Interdisciplinary student team and academic supervisors
- ✦ The teams of Citizenne and vzw Klimaatzaak
- ✦ VUB provides €100 budget for materials

IDENTIFIED NEEDS

Increasing engagement in climate actions among people with a migration background.

DEFINITION OF AN OBJECTIVE

The students came up with the following central research question: How can support for climate action be increased among people with a migration background?

THE RESEARCH RESULTS will be formulated into concrete recommendations for both CSOs.

Scientific framework

The central research question was divided into sub-questions:

- ◇ **IS THE PROPOSAL THAT PEOPLE** with a migration background display/feel less engagement with climate actions true?
- ◇ **WHAT BARRIERS AND FACTORS MEAN** that people with a migration background display/feel less engagement with climate actions?
- ◇ **WHAT INCENTIVES AND SOLUTIONS** could increase engagement with climate actions among people with a migration background?

ALONGSIDE A LITERATURE REVIEW, students carried out active fieldwork among the target group: street interviews and in-depth interviews. They also sought out existing good practices to engage people with a migration background in climate actions.



Social intervention

Based on the results of the literature review, the street interviews and in-depth interviews, the following recommendations were formulated for Citizenne and vzw Klimaatzaak:

1. **USE A BUDDY SYSTEM** to establish and maintain contact with people with a migration background relating to climate activities. A buddy is a person from the target group who acts as a support point.
2. **AS AN ORGANISATION**, focus on social media, including WhatsApp, as a primary means of communication.
3. **ORGANISE AN ACTIVITY** that is also accessible to children, and think in terms of families.
4. **COMMUNICATE CLEARLY** that the main activity is aimed at adults.
5. **ORGANISE ACTIVITIES** at the weekend.
6. **THINK LATERALLY** when choosing a location: meet in a neighbourhood square or park, or take participants to a wood or garden.
7. **FOCUS ATTENTION CLEARLY** on the inequality caused by climate change. This message appeals to people with a migration background more than talking about the effects of climate change that may appear to be far away.
8. **ENSURE THERE IS SPACE** for activity during the action and that participants feel safe in the group. People with a migration background also want to take part in something practical: learning to make something, debating, etc.
9. **BE AWARE OF REPRESENTATION** of diversity within the organisation itself and towards the outside world. Identification and group connections are very important to people with a migration background.

10. **EXPLOIT THE POTENTIAL** of schools. When information about climate actions comes via their children, adults also pay attention.

Theoretical and practical implications

In consultation with all parties, at the beginning of the project it was agreed that these recommendations would be put into practice and tested on the public during Citizenne's Hospitality Festival. Unfortunately, Covid-19 meant that the festival had to be cancelled.

Project team

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EDUCATION TEAM: prof. K. Verstrynge, prof. J. Bauwens, Linde Moriau
Brokers: Floor Keersmaekers, Goedele Nuyttens, Jozefien De Marrée, Catherine Morel

References

For more information on this project: contact Wetenschapswinkel@vub.be

Picture 1. SewCream, 2019. Gold-coast-qld-australia-september-20. [Cited 24 Jun 2020]. Available at: <https://www.shutterstock.com/nl/image-photo/gold-coast-qld-australia-september-20-1510092647>

TOWARDS

a green canteen

Vrije Universiteit Brussel
CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

The VUB Green Team is a student association at VUB that strives for a greener campus.

TYPE OF SOCIETAL PROBLEM INVOLVED

Food waste

DESCRIPTION OF PEOPLE INVOLVED

- ✦ VUB restaurant
- ✦ Resource suppliers
- ✦ Students, VUB staff and external visitors who use the canteen
- ✦ Biomethanation company

Story of the problem

The VUB Green Team approached students to obtain more data about food waste at the VUB restaurant. As an institute of research, the university is the best place to implement micro-scale practices into a larger system.

THE FOCUS AT THE BEGINNING of the project was to measure how much waste is produced by the restaurant. This would give an idea of the scale of the issue and therefore how to tackle it. As the students' investigation progressed, they realised that they wouldn't be able to measure food waste properly. They therefore switched the perspective to the handling of the waste as well as reducing it:

◇ **A) HOW DOES THE RESTAURANT FUNCTION AND HOW DO CONSUMERS BEHAVE?**

Who provides the food? (Structure of the supply chain)

How is the amount of food determined?

How many people eat there on a daily basis?

How do consumers behave in terms of (avoiding) food waste?

◇ **B) HOW CAN THE AMOUNT OF WASTE BE REDUCED?**

What do students think about this?

How is VUB supporting initiatives like this?

Could any initiatives be viable?

Scientific framework

The students focused in the restaurant and its stakeholders on the one hand and observed consumer behaviour on the spot on the other hand. Their observations were the means to learn about consumer behaviour. Furthermore, they conducted a survey to find out why people waste food and if there were any patterns in consumers' behaviour, and they met the person responsible for food quality to consolidate their results with information from the restaurant's side.



Social intervention

The results of their research left them with a shortlist of possible actions:

- ◇ **KEEPING CHICKENS** at VUB to illustrate a tangible circular system to students
- ◇ **RAISING AWARENESS** through posters about the amount of food waste and/or installing a transparent food waste bin
- ◇ **ESTABLISHING A SYSTEM** where people can buy leftover meals after the restaurant closes at reduced prices, for example through the app Too Good To Go
- ◇ **ENABLING STUDENTS** to buy smaller menus or separate main dishes

UNFORTUNATELY, THEIR MAIN IDEA of offering single dishes instead of whole menus was rejected by the restaurant staff, even though this, in their view, would be the easiest way to reduce wasted food. They therefore changed their objectives and focused on solutions a) and b). They created a guideline for keeping chickens at VUB and establishing a cooperation with Too Good To Go.

Theoretical and practical implications

The result the students achieved is the end product for this course, but it should not be the end product in reality. More feedback from students and the

restaurant is needed, to improve it through different iterations. As students make up the biggest part of the restaurant's clientele, they should be involved as much as possible.

Project team

STUDENT TEAM: Maria Ortega Álvarez, Kato Thibaut, Mia Emilia Löwener, Alina Olsson Martín, Quỳnh Anh Leová

EDUCATION TEAM: prof. dr. Cathy Macharis, dr. Waldo Galle, Bieke Abelshausen

References

For more info on this project: contact Wetenschapswinkel@vub.be

<https://student.vub.be/>, 'Sustainability measures: food waste'

<https://toogoodtogo.be/nl-be>

Picture 1. View Apart. Friends-group-drinking-cappuccino-coffee-bar. [Cited 24 Jun 2020]. Available at <https://www.shutterstock.com/nl/image-photo/friends-group-drinking-cappuccino-coffee-bar-768470422>

WAR

remembrance education

Vrije Universiteit Brussel

CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

The Royal Belgian Film Archive – CINEMATEK

<http://cinematek.be/>

TYPE OF SOCIETAL PROBLEM INVOLVED

Societal Challenge: “Secure societies – Protecting freedom and security of Europe and its citizens”

YOUNGER GENERATIONS ARE OFTEN UNAWARE of what the two world wars were about, and the changes they led to. Today we are bombarded with bad news and images of dreadful scenes of war that on the one hand can inform, but can also create hardness and desensitisation among viewers. More effective ways to educate people about remembrance are needed.

Story of the problem

To ensure the wars are not forgotten, it is important to nurture and maintain our collective memory. We must remember the war so that the victims are not forgotten, and so we can try to better understand the world and avoid falling into the same traps. For the younger generation in particular, war is something remote and abstract.

THE ROYAL BELGIAN FILM ARCHIVE – CINEMATEK has a unique collection of films about Brussels from the end of the 19th century to the beginning of the 1960s. It wants to bring these out and engage in a dialogue around them with the wider public.

IN THIS PROJECT, these two challenges will be brought together by exploring a method in which a (young) audience can be made aware of the world wars with the help of CINEMATEK's related audio-visual archive. However, people are flooded with information. How can the wars be brought to a wide audience in an audio-visual, long-lasting way?

THE FOLLOWING RESOURCES ARE AVAILABLE:

- ✦ Interdisciplinary student team (philosophy, arts, law, communication science, architecture student friend) and academic supervisors
- ✦ CINEMATEK team
- ✦ VUB provides €100 budget for materials



Picture 1. Look into the black box (De Marrée, 2019)



Scientific framework

The students began with a literature review (texts, photos, videos) on three sub-questions of the project:

- ◇ **WHAT WERE THE WORLD WARS ABOUT**, and what changes did they bring about in Brussels, in particular the area around the VUB campus?
- ◇ **WHAT IS YOUNG PEOPLE'S PERCEPTION** of the world wars? Do they consider them something abstract and remote or part of the recent past? How are young people informed about the wars today? Is this appropriate for the age group in the current context or is it necessary to adjust the approach?
- ◇ **HOW CAN WE REACH THE TARGET GROUP** en how can their awareness and understanding of the two wars be encouraged? Which approach is effective? Can art play a role here? How do we encourage reflection? How will we achieve a certain depth? How can we distinguish our project from other initiatives that cover the same topic?

THE STUDENTS WANTED TO APPROACH the theme in an innovative and artistic way, without shocking and without repetition (there are already many initiatives working on this subject). They wanted to offer CINEMATEK a product it can use in future to continue this awareness-raising.

Picture 2. The making of the black box (Eysermans, 2019)

THE TEAM DECIDED TO CONCEPTUALISE and design (with the help of an architecture student) a black box: a ‘viewing box’ with headphones for an immersive experience. A short film, *Traces of War and Peace in Brussels*, will be shown, a montage of images of bombings from 1943 interspersed with present-day photos of places of significance for VUB students. Alongside the film, a homemade soundscape will play in which a specially written poem is recited that clearly gives the message ‘we will not forget’. This black box will be installed on the university campus for several days.

Social intervention

WHO SHOULD BE INVOLVED IN THE SOLUTION?

- ✦ The student team, supplemented by an architecture student friend
- ✦ CINEMATEK, as the partner organisation that raised the question of support.
- ✦ Later, the black box can be integrated into its (educational) operations as a way of reaching new target groups
- ✦ VUB, given that the events of 1943 took place, among other locations, at the site where the university campus stands today
- ✦ VUB students: they come to the campus and its surroundings daily. Via the black box, they will get to know a piece of their campus’s history
- ✦ The municipalities of Elsene and Etterbeek. The events of 1943 took place on their territory, after all
- ✦ The Brussels press (Bruzz), to help publicise the black box
- ✦ The wider field of education (schools, higher education) and the general population of Brussels: the black box (with adjustments if necessary) can be installed in the city or in schools



Picture 3. The black box (Eysermans, 2019)



Picture 4. The black box event (Eysermans, 2019)

WHICH STRATEGY WILL BE FOLLOWED?

To begin with, the team will try to reach VUB students. The installation will go to the people (and not the other way round): the black box will be placed on campus in a spot where many students pass each day.

THE VARIOUS STAKEHOLDERS will be informed about the multi-day black box event and invited to visit it.

VIA THE [Mentimeter](#), the students will gauge the reactions of spectators. Using a short questionnaire that they will present after each visit, they will see if the box was effectively able to sensitise VUB students to this important and sensitive topic.

IMPLEMENTATION OF SOCIAL INTERVENTION.

The black box event took place over three days on the VUB campus and included various items.

- ✦ The black box itself
- ✦ The VUB cargo bike was placed on site, offering visitors a drink and a biscuit
- ✦ A corner where a computer was set up for the Mentimeter, where visitors could fill in the questionnaire via smartphone

THE ELSENE CITY COUNCILLOR RESPONSIBLE for culture visited the installation. The Brussels press also came and carried out an interview with the students.

VUB's Culture Service announced that the black box may be reused, and CINEMATEK would make it available for schools.

Theoretical and practical implications

Via the Mentimeter, the students gauged visitors' reactions. More than 200 visitors filled in the questionnaire via their smartphone. It was clear that the installation had an effect. The spectators were (often) not fully aware of the sad events that took place on the spot where they now have lessons.

Project team

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EDUCATION TEAM: prof. K. Verstrynghe, prof. J. Bauwens, Linde Moriau

BROKERS: Goedele Nuyttens, Jozefien De Marrée, Catherine Morel

References

For more information on references and this project: contact

Wetenschapswinkel@vub.be

PARENTAL

mobility

Vrije Universiteit Brussel

CASE STUDY

Introduction

WHICH CSO HAS PRESENTED THE CASE?

- ✦ VUB Strategy & Policy unit
- ✦ GO! school at Campus Jette
- ✦ Childcare at Campus Jette

TYPE OF SOCIETAL PROBLEM INVOLVED

Mobility/traffic problems

DESCRIPTION OF PEOPLE INVOLVED

- ✦ Children in childcare and school on campus
- ✦ Parents of children in childcare and school on campus
- ✦ Childcare and school on campus
- ✦ VUB Strategy & Policy unit
- ✦ Other similar campuses

Story of the problem

ALL VARIABLES INVOLVED

There are many cars on the VUB campus in Jette, which comprises the Universitair Ziekenhuis Brussel (UZ), the Faculty of Medicine and Pharmacy of the Vrije Universiteit Brussel (VUB), a primary school and childcare facility. The number of parking places on the campus will be reduced. By identifying the underlying motivations for existing mobility behaviour, habits could be changed.

AVAILABLE RESOURCES

- ✦ Scientific mobility experts/supervisor
- ✦ Contact person from childcare and school
- ✦ VUB Strategy & Policy staff
- ✦ Previous studies on campus mobility
- ✦ Literature (review)

IDENTIFIED NEEDS

Principal question: What explains the current mobility behaviour of parents of children at the GO! school and the childcare facility on campus Jette?

SUB-QUESTIONS:

Which mode of transport do parents primarily use?
What are the parents' motivations for their current mobility behaviour?

DEFINITION OF AN OBJECTIVE

For VUB it is important to know the mobility behaviour of these parents and to understand the motivation behind it. In this way, targeted solutions can be found for the current mobility problem: the presence of too many drivers on a campus that will in future be made car-free.



Scientific framework

In this study, qualitative methods – a literature study, interviews and questionnaires – were used to explore why the parents of children at the GO! school and the childcare facility do not travel to campus Jette using public transport, bicycle or on foot.

THE STARTING POINT WAS READING SIMILAR STUDIES of mobility behaviour using the snowball method. Then a survey was sent to all parents via the directors of the school and the childcare facility, which was distributed as a paper version. The response rate was 42.5%

PARENTS WHO HAD GIVEN their permission in the survey to be contacted, received an invitation via email to take part in an interview. Based on the answers given in the survey, semi-structured interviews were conducted with seven respondents.

Social intervention

Parents of the GO! school and childcare on campus Jette mainly use the car to transport their children. The reasons for this behaviour include the fact that approximately half live in a rural area and public transport connections are poor or take a long time. It is difficult to travel with small children on public transport; late working hours and having to travel elsewhere mean it is not easy to take other modes of transport. Finally, a car gives them a feeling of security.

BY COMPARING THESE RESULTS with the literature found, possible social interventions (which have not yet been tested or introduced in this study) arise. A choice of sustainable mobility could be influenced by safer, shorter routes, a more accessible public transport network, flexible travel hours and comfort.

DURING THE INTERVIEW, a better connection of the public transport network was mentioned as a motivation for switching to public transport.

Theoretical and practical implications

Meanwhile, there is a new tramline near campus Jette. Follow-up research could investigate if this has changed parents' mobility behaviour.

Project team

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SUPERVISOR: dr. Jesse Pappers

Helena Wittock (Strategy Office VUB), Rebecca Lefevere (Sustainability Manager VUB)

BROKERS: Jozefien De Marrée, Catherine Morel

References

For more information on this project, contact Wetenschapswinkel@vub.be
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BEYOND

Fair Trade

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CASE STUDY

Introduction

Africa In Motion (AIM) strives to accelerate the sustainable social economic development of Africa. The expertise on realizing the circular economy is worldwide available, but the bridge between solutions and challenges has not been made efficiently according to AIM. Africa In Motion actively searches for these solutions in Europe and connects them to the challenges faced by government, companies and knowledge institutions in Africa. AIM is specialized in developing programs to generate large scale sustainable employment in Africa.

TYPE OF SOCIETAL PROBLEM INVOLVED.

The AIM organization does this by enhancing the economic relationship between Europe and Africa besides empowering African diaspora in the Netherlands. AIMs work is related to the grand societal challenges (European Commission, 2018), namely: Europe in a changing world/ inclusive, innovative and reflective societies and food security.

DESCRIPTION OF PEOPLE INVOLVED.

Delegates of the AIM foundation, African diaspora, Wageningen University and Research (WUR) researchers and students were directly involved in this case study. Also an advisory committee was installed with researchers in the field of international development and diaspora as well as other stakeholders that have more practical experiences in this field of expertise.

Story of the problem

Fair trade is the known paradigm to paramount the negative impacts of the neoliberal system. Although there are still some question marks that can be

raised when we talk about fair trade, one of those issues is formulated by Sen (2014, 470-471) in the question: “Fair trade, as opposed to free trade, is seen as a new moral engagement that is better able to articulate Western consumers’ desire for justice promotion with Southern farmers’ empowerment needs. But does our well-meaning daily caffeine fix provide a meaningful empowerment fix in places of struggle?” In Sen’s study amongst female tea producers, the women criticize fair trade for window-dressing and for not visualizing their struggles (Sen, 2014). Critique on the low price of fair trade did encourage the creation of shorter food chains. Transnational companies would take away the middlemen, buying directly from farmers. Through this vertical integration a higher price could be paid to the farmers. Yet most added value is still created within the Euro-American transnational companies. Little is known about grassroots’ (African diaspora) attempts toward creating more added value within the cocoa and/or coffee producing countries and how issues of (co)ownership are resolved or not. So a crucial question is: How to move beyond ‘Fair Trade’?

ALL VARIABLES INVOLVED.

Science Shop WUR coordinator, WUR Researchers and students investigated this topic together with AIM, people of the advisory committee and other relevant stakeholders.

AVAILABLE RESOURCES.

The board of AIM organization addressed their cocoa chain issue to the WUR Science Shop in order to develop a research project with students and researchers of WUR. All associates were willing to collaborate by sharing

data and giving interviews and providing insights. The WUR Science Shop facilitated research and the development of an advise to support AIM with the first transition steps to move beyond “Fair Trade”. Financial support for implementation of research outcomes came from AIM or external subsidies that supported sustainable transitions in food production in African countries.

IDENTIFIED NEEDS.

For a more fair trade circular cocoa food chain in African countries there is a need for research and improved insights as well as a change in approach and attitude of actors in that particular food chain. The main question of AIM was what they can undertake to develop and support the transition to a fair share fair trade.

DEFINITION OF AN OBJECTIVE.

The research aimed to understand transnational entrepreneurship and transnational partnerships, especially with or facilitated by African Diaspora, that contribute to more equal transnational relationships and a resignification of ‘fair trade’.

Scientific framework

To understand and to support changes in the cocoa and/or coffee value chain systems theory in combination with transnational feminist literacy practices and commoning, was used to provide an overview of relevant problems, actors and institutions and their intertwinement. Fundamentally, systems theory and its approach stimulates or facilitates systemic change on a specific identified problem. This is mainly done by mapping problems and the network of actors and institutional frameworks, how these affect each other. To facilitate this change

process leverage points are sought (i.e. influential actors and interventions) that are defining to instigate this change. The inclusion of otherwise often excluded actors in a network is thus key for systemic change defining the choices of who and how to include these actors in a facilitated process. This process will aid to redefine network relationships and co-create new interventions with actors that can set the ball rolling into different directions. The latter stage therefore seeks interventions that build on opportunities and potentials for change.

ACTION-BASED RESEARCH.

The interaction with the commissioner Africa In Motion started off during an intake meeting where the issue addressed by the commissioner was discussed with the coordinator of the WUR Science Shop and a WUR project leader/expert. During this meeting the issue of fair trade in the cocoa chain, which in the eyes of AIM is not fair at all, was discussed and

clarified. Based on this meeting and the application, the project leader wrote a project proposal which described the research method and the process including a time schedule, and the members of the advisory committee. The advisory committee consisted of members with practical expertise in this particular field of knowledge. During the first advisory committee meeting the commissioner, Science Shop WUR coordinator, WUR project leader and as well as the advisory committee members agreed on the plan of approach which determined the start of this research project.. The first part was carried out by the group of master students of WUR. They started with a literature research, which they used to formulate interview guidelines. With those guidelines they interviewed active stakeholders and African diaspora.. The students included a focus group discussion (FGD) in their research as well. FGDs are useful to explore people's views grounded in their everyday experience (Macnaghten,



Picture 1. Cocoa beans and cocoa pod.



2017). At the end of their research the results were presented to almost all of the interviewees followed by a joint discussion. This interaction was also joined by members of the advisory committee. During this presentation it became evident that practice based experiences were of great additional value besides the academic insights shared by the WUR students.

AN ADDITIONAL STUDY WAS CARRIED OUT via action research in line with the definition of Reason and Bradbury (2008). They describe action research as a research with people enrolling in activities based on the context, creativity and desires of the involved people. In the research there was space for focus group meetings with the different actors in the cocoa and/or coffee sector and a spoken word/poetry workshop for data collection and to support resignification practices of fair trade.

THE FINAL RESEARCH OUTCOMES are not ready yet, but it will be a result of different building blocks composed by the different works of WUR students and researchers.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

The aim of the combination of these above described collaborative intervention actions was to come up with an useful strategy for change in the cocoa food chain. The iterative research process was providing a supporting boost by creating a network and mutual understanding of the transition.

Social intervention

WHO SHOULD BE INVOLVED IN THE SOLUTION?

Researchers, students and teachers brought scientific knowledge. In order to find cracks in the existing system where changes could seep through, one should be well-informed about the current state of the cocoa sector. Therefore the students chose a context setting with a focus on Ghana. The Cocoa production related trends and governance structures in Ghana were explained within the research output and inspiring actions for change were formulated. African Diaspora, AIM and other included stakeholders as cocoa farmers and governmental organizations need to provide their relevant daily experiences and skills to support those actions for change.

WHICH STRATEGY WILL BE FOLLOWED?

Possible pathways for the African Diaspora to get involved in the cocoa supply chain, are about gaining a role in knowledge transfer. To keep this task manageable the students recommend to choose a specific field of influence that coincides with African diasporas personal interest and skills, and to put a specific focus on transparency and accountability throughout the process. Within this role, it is also crucial to build bridges between the different actors throughout the chain. Development of a new certification standard, bean-to-bar enterprises, capacity building workshops are also tasks that can be undertaken by African Diaspora.

IMPLEMENTATION OF SOCIAL INTERVENTION.

Implementation of the outcomes has not taken place yet, but the AIM is willing to undertake some of the proposed actions together with the African Diaspora in the

Netherlands. Also, AIM wants to interact with policy makers to come up with new rules and regulations to make the value of the cocoa chain more fairly shared.

PERFORMANCE AND RESULTS EVALUATION.

The usual steps were undertaken by the Science Shop WUR. A first meeting was planned with the commissioner AIM, the coordinator of the WUR science shop and researcher to clarify the research question and introduce the WUR project leader. After this explorative meeting the plan of approach was written by the same project leader. Members of the advisory committee were selected, students recruited. Part of the research was carried out by an ACT student team and provided a first advise to AIM. The actors involved in this case study were interviewed as part of the study WUR Netherlands, assessment of training at HEIs. The results of this study are included in this handbook chapter 5.

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FUTURE farmers

*Lêneke Pfeiffer, Hanna Eppink, Valentina C. Tassone /
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CASE STUDY

Introduction

Toekomstboeren in English 'Future Farmers' is a foundation that advocates sustainable agriculture and an inclusive cost-benefit approach to better balance the costs and benefits of sustainable land use in the Netherlands (?). They strive for long-term novel arrangements regarding sustainable land use for farmers in general and new entrants in the farming business in particular. A range of such novel arrangements between stakeholders are being developed and put into practice by pioneers. The Future farmers asked to Wageningen University and Research (WUR) Science Shop to map and analyse these novel arrangements and to inform their members, other farmers, land owners and other stakeholders about the effectiveness and the pros and cons of these arrangements.

TYPE OF SOCIETAL PROBLEM INVOLVED.

Currently, a continuous decline is witnessed in the number of family farms and a lack of successors. On the other hand we see a growing number of, often, young people that want to become a farmer but do not descend from a farm family and are looking for other opportunities to get access to farm land. Buying and leasing land is expensive and does not balance well with the returns from producing food, resulting in an income squeeze. This issue is related to three of the grand societal challenges (European Commission, 2018), 1) Health, demographic change and wellbeing, 2) Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bio-economy, 3) Climate action, environment, resource efficiency and raw materials.

DESCRIPTION OF PEOPLE INVOLVED.

Future Farmers, land owners, land managers, municipality of the Dutch city Ede, Kadaster, Dutch federation of small holder farms, Schumacher Center's European

Land Commons, students, researchers and teachers of WUR. These people are also members of the advisory committee of the WUR Science Shop project.

STORY OF THE PROBLEM.

Generally it is hard to make a living in agriculture, and for new entrants it is even more difficult as they often have no property of their own. Besides that Dutch agricultural land is under increasing stress, there is a growing realisation that there is a need for more sustainable agricultural practices. However, this transition is partly hampered because sustainable farmers have great difficulty acquiring agricultural land on the expensive Dutch landmarket. Many of these farmers therefore engage in landlease arrangements with innovative agreements and alternative landowners.

ALL VARIABLES INVOLVED.

To Future Farmers foundation linked farmers, Via Campesina Network, landowners and land managers as well as the municipalities and even governmental organizations focused on landownership and plot borders need to know about this issue and the ambition of Future Farmers to do something about this. WUR students, teachers and researchers are involved to explore how this issue is dealt with in the Netherlands.

AVAILABLE RESOURCES.

The board of the Future Farmers foundation addressed their access to land issue to the WUR Science Shop in order to develop a research project with WUR students and researchers. All associates were willing to collaborate by

sharing data and giving interviews and providing insights. The WUR Science Shop facilitated the research and supported the development of scenarios for dealing with this problem. Financial support for implementation of the research outcomes needs to come from Future Farmers foundation or external subsidies that support sustainable transitions in food production.

IDENTIFIED NEEDS.

Next to buying and leasing land, novel arrangements are now made between land owners and farmers to make land accessible at a lower costs and considering payments for the wider benefits (ecosystems services) of sustainable land use, such as raising soil fertility and organic matter, increasing biodiversity and carbon sequestration to mitigate climate change often promoted under the header of ecosystems services. These arrangements entail a wider perspective on the visible and invisible costs and benefits of sustainable land use and in fact aim to rebalance the division of costs and benefits among the stakeholders beyond the owner and user of the land. Insights in these arrangements need to be developed by researchers and practitioners. The main aim of this research project was to provide Future Farmers insights in possibilities of long-term land use agreements in order to strengthen their position.

Scientific framework

At first a literature research was done which clarified how agriculture developed in the Netherlands after the second world war to avoid hunger in the future (Landbouw Economisch Instituut, 2006). This evolution in agriculture was meant to intensify the sector and make it more efficient (Oppedijk et al, 2018). This

liberalism in agriculture led to an increase of food production and export and a decrease of farmers income. Besides that it also had great impact on waterquality, biodiversity, climate and soil fertility. (Oppedijk et al, 2018, p.9). Climate actions caused new developments and resulting in an increased amount of sustainable and organic agriculture farmers (Oppedijk et al, 2018). Concepts for sustainable agriculture and soil management are explained and Dutch lease legislations clarified. Governments such as provinces and municipalities increasingly put the lease of land explicitly to sustainable farmers (Bruil, 2019; Oppedijk et al, 2018). Governments are indeed responsible for the spatial quality of the Dutch landscape and they have a special responsibility in achieving climate targets (Dolman et al 2016; VNG, 2018). Thus, municipalities have more interest to make such lease contracts on order to improve environmental sustainability (Bruil, 2019). Provinces such as North Holland, Gelderland and Friesland lease already (part of) their land exclusively to farmers with a sustainability certificate, or farmers who undertake certain measures in the field of biodiversity (Doorn, 2018). Different cases were examined to investigate landlease arrangements between sustainable farmers and Dutch municipalities and other landowners. It focuses on the strengths and weaknesses of the agreements and how these affect the (in) security of the sustainable farmers. The results are based on semi-structured interviews with farmers and municipalities, as well as an investigation of the corresponding formal land lease contracts.



Picture 1. Photoagriculture. Normandy, France, 2015. Organic market gardening.

ACTION-BASED RESEARCH.

The interaction with the commissioner, the board of Future Farmers started during an intake meeting where the issue was addressed by the commissioner and discussed with the coordinator of the Science Shop of WUR and a WUR project leader which was a rural development expert. During this meeting, the issue of access to land for new farmers was discussed and clarified. Based on this meeting and the application by the commissioner the WUR project leader wrote a project proposal, which described the research methods and the process including a time schedule and the members of the advisory committee. The members of this advisory committee had practical expertise in this particular field of knowledge. When the commissioner and WUR Science Shop coordinator as well as the advisory committee members agreed on the plan of approach during the first advisory committee meeting, the research started. The research process and the approach with an active involvement of the Future Farmers Foundations (participative, action oriented research), was perceived as equal important as the actual outcomes of the research. The research took place in phases and between these phases adjustments were made if perceived as necessary. At the end of the single phases there was a presentation of findings and an advisory committee meeting in which next steps were discussed and established. The first part of the research was carried out by a multidisciplinary group of Academic Consultancy Training (ACT) master students of WUR. The group was asked to carry out the research in collaboration with the commissioner and participants within the foundation guided by an expert in this field of knowledge. This student research project investigated landlease arrangements between sustainable farmers and Dutch municipalities. It focused on the strengths and weaknesses of the agreements and how these

affect the (in)security of the sustainable farmers. The results were based on semi-structured interviews with farmers and municipalities, as well as an investigation of the corresponding formal land lease contracts. At the end of their research the results were presented to almost all of the interviewees, followed by a joint lively discussion. The presentation and moment of interaction was also joined by members of the advisory committee. Their practice based experiences were of great additional value for the commissioner, besides the insights shared by the students.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

The students findings showed that the farmers and municipalities should be encouraged to learn more about each other's needs and how landlease arrangements can be of mutual benefit. Having a clear plan on paper with a sound legal basis can help farmers in convincing municipalities of these benefits. Such plans can assist in getting a better picture of the implications for the farmer's (financial) security, which in turn can help the farmer to actually adhere to the agreements. From the side of the municipality it can be beneficial to communicate clearly about the municipalities' policies and motivation concerning sustainable agriculture. Possibly the task of communicating with sustainable farmers and interested initiatives should be assigned to one responsible functionary within the municipality.

Social intervention**WHO SHOULD BE INVOLVED IN THE SOLUTION?**

Future Farmers Foundation and the individual farmers connected to the foundation as well as municipalities and other landowners should be involved in the solution.

WHICH STRATEGY WILL BE FOLLOWED?

The student research gives insights in possible actions that can be undertaken by the commissioner or municipalities involved to reduce the complications in land lease constructions. The short term actions that can contribute and also long term interventions are identified by the students. A possible short term action can be to investigate which municipality has a policy on making land available for sustainable agriculture or advise this to newcomers in the sector. Also short term legal organisational advice is given by the students. Other advises include to collaborate with an intermediair (foundation), to find supporters for the sustainable agriculture businesses, and in the long term to develop new policy in collaboration with municipalities.

IMPLEMENTATION OF SOCIAL INTERVENTION.

Implementation of the outcomes has not taken place yet but the Future Farmers Foundation is willing to undertake some of the proposed actions together with the farmers. In the meantime the policy department of the ministry of Agriculture (Dutch: LNV) developed new rules and regulations according to this topic that matches partly with the advice of the students.

PERFORMANCE AND RESULTS EVALUATION.

The commissioner is pleased with the results of the research so far. The students were happy with the opportunity to contribute to this complex first step in a transition to get access to land for sustainable agriculture. The different roles of commissioner, project leader and first contact must be clear from the beginning so students know whom to approach for what. The actors involved in this case

study were interviewed as part of the study WUR Netherlands, assessment of training at HEIs. The results of this study are included in this handbook chapter 5.

Theoretical and practical implications.

If we have results of the intervention, we can conclude to contribute to theoretical and practical knowledge about the societal problem that was addressed.

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FAIRBNB

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CASE STUDY

Introduction

FairBnB is a community or cooperation of activists, coders, researchers and designers that aim to address the negative impacts of tourism locally. Most people of this FairBnB-community are based in Italy, Spain and the Netherlands. The Fairbnb.coop is a web-based meeting place that allows hosts and guests to connect, facilitating meaningful travel and socially beneficial exchange.

TYPE OF SOCIETAL PROBLEM INVOLVED.

Amsterdam and Barcelona as well as other European popular cities are experiencing an overload of tourists and other temporary visitors. These attractive tourist sides have to deal with negative effects of mass tourism such as gentrification or an increase of cities expenses on infrastructure and waste management. FairBnB engages in consultancy work for local governments in Europe on sustainable tourism, for the cities and its inhabitants. This connects to three of the grand societal challenges identified by the European Commission in 2018: Health, demographic change and wellbeing; Europe in a changing world - inclusive, innovative and reflective societies; Secure societies - protecting freedom and security of Europe and its citizens.

DESCRIPTION OF PEOPLE INVOLVED.

Besides Fairbnb.coop community members, residents of the city of Amsterdam, municipality, expats, hosts and tourists are involved as well as Wageningen University and Research (WUR) students, teachers and researchers and the WUR Science Shop manager.

Story of the problem

In many tourist destinations, tourists are welcomed by local residents with arms wide open. Arriving tourists contribute directly to the tourist industry as well as indirectly in other markets and in a range of externalities outside of economies altogether (Bentham, Fijnje, Koopmans, Tieben, 2017a). Increase in income of the government and tourism industry are some of the incontrovertible impacts of tourism. However, along with those positive effects that tourism can have, some negative effects can also arise and affect the socio-economic as well as the physical environment of urban areas (Peeters et al., 2018; Bentham et al., 2017a). Often, many of those aforementioned effects of tourism are highly intertwined with different industries, whereas negative feedback loops can arise from positive effects as well (Fyall & Garrod, 1998). One of the most recent trends in the tourism sector is the rise of collaborative economy accommodation platforms, such as AirBnB. Proponents of these platforms argue that these kind of economies have enabled much of the vacant spaces in cities to be used, adding value to the income of local residents and allowing tourists to experience a different feel of the city they visit, being able to “live like a local” (Gurran & Phibbs, 2016). However, there are those who believe that this kind of accommodation is related with the spread of negative effects of tourism in a way that can damage residential areas within cities. Mass tourism, sometimes referred to as ‘overtourism’ (Goodwin, H. 2017) is the situation in which the impact of tourism, at certain times and in certain locations, exceeds physical, ecological, social, economic, psychological, and/or political capacity thresholds.

ALL VARIABLES INVOLVED.

Municipalities, tourists and guesthouses all play a role in this issue besides the

inhabitants of the city of course. They deal with most of the negative side effects of the exploded amount of tourists in their home city. Tourism industry and the way how cities are presented worldwide cannot be ignored as a major actor in this context.

AVAILABLE RESOURCES.

The founders of the FairBnB cooperative addressed their transformation issue to the WUR Science Shop in order to develop a research project with WUR students and researchers. A lot of the associated partners of FairBnB are willing to collaborate by sharing data and giving interviews and providing insights. The WUR Science Shop provided the research and advise to support the mission of FairBnB. Financial support for the implementation of the research outcomes needs to come from FairBnB or subsidies that support sustainable transitions in tourism.

IDENTIFIED NEEDS.

FairBnB is in need for more sustainable tourism practices in the city of Amsterdam to be an example for other overcrowded European Capitals and cities. Therefore tourism data must be made available for analysis as well as other insights on this topic gained with research. Experiences of inhabitants and effects on wellbeing of inhabitants of the city were included in this research too.

DEFINITION OF AN OBJECTIVE.

The main aim of this FairBnB research project was to explore possibilities for encouragement of more sustainable tourism in cities. With a focus on tourism-related actor perspectives on the effects of tourism on liveability in two neighborhoods in Amsterdam with varying degrees of sharing accommodation rentals.

Scientific framework

It is widely known that the development of tourism in urban areas can lead to both negative and positive effects, where some of those can be highly interrelated. In recent years, the academic discourse as well as the tourism industry has shifted from emphasizing only to the negative effects of tourism, to the exploitation of all the potentials that tourism can offer. Bearing in mind international examples, such as Barcelona, the realization of this shift is evident, along with the possible redirection of the tourism industry to more sustainable forms. The result of this redirection is the remarkable decrease of negative effects of tourism considering all the ecological, social and economic impacts. However, in order to be able to provide those desirable, more sustainable, forms of tourism, a holistic approach should be adopted by the related actors, aiming to include both negative and positive effects of tourism without excluding any aspect or perspective that might be proved useful for the framework. In addition,

given the fact that tourism as a phenomenon is multi-dimensional, there is a range of the involved actors, each one with their own perspectives and perceptions of the effects of tourism. Thus, all perspectives should also be included in this intended holistic approach, ensuring the desired transparency of their current state.

TWO GROUPS OF STUDENTS in the masterphase of their study were involved in this research project; One multidisciplinary Academic Consultancy (ACT) Team and another GIS (Geographical Information System) Academic Consultancy Team. The students carried out a literature research, a Cost Benefit Analyses, and semi structured interviews where taken and analysed using a critical discourses analysis. The ACT group determined the liveability of two neighborhoods with the Quality of Life (QOL) measuring method, defined including the living standards, health, comfortness and feelings of happiness according to individuals and communities (Aluri, 2017).



Picture 1. Melanie Lemahieu. Map of Amsterdam city center.

ACTION-BASED RESEARCH.

The interaction with the commissioner, the founders of FairBnB started off during an intake meeting where the issue addressed by the commissioner was discussed with the coordinator of the WUR Science Shop and a WUR project leader. During this meeting the issue of 'over tourism' was discussed and clarified. Based on this meeting and the application by the commissioner the project leader wrote a project proposal which described the research methods and the process including a time schedule and the composition of the advisory committee. The advisory committee consists of members whom have practical expertise in this particular field of knowledge. At the moment that the commissioner and WUR Science Shop coordinator as well as the advisory committee members agreed on this plan of approach during the first advisory committee meeting, the research started. The first part was carried out by two groups of master students of WUR, in close contact with the commissioner and participants within the cooperation, and guided by experts in this field of knowledge. The students groups carried out a literature research, held interviews with inhabitants and tourists as well as partners of the cooperation. They collaborated with the board of the coop and visited two neighborhoods in the west and north of Amsterdam. Also the municipality was included for an interview. During the period of research, several skype meetings with FairBnB coop founders took place to make adjustments which contributed to the relevance of the research outcomes. At the end of their research the results were presented to the FairBnB coop founders followed by a joint discussion. WUR teachers also joined this interaction. Their scientific knowledge was of great added value for the FairBnB people besides the insights shared by the WUR students.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

The aim of the data platform analyses is to investigate how data can be used to assess the dissimilarities in sentiment towards tourism in the city. Various online data sources and frameworks that provide insights on the impact of tourism in Amsterdam were explored and evaluated.

THE AIM OF THE COMBINATION of skype meetings, interviews with people on the streets of Amsterdam and the by the students developed "seven step" approach was chosen to come up with an useful strategy for the FairBnB cooperation, to be used in policy debates with the municipality of Amsterdam and other capital cities in Europe. The gathered online data and the livability? research enriched the discussion with FairBnB and municipality of Amsterdam on future tourism policy development. At the same time those research methods can be applied in other areas as well.

Social intervention**WHO SHOULD BE INVOLVED IN THE SOLUTION?**

Key actors to be involved in the solution of the issue are the FairBnB partners, hosts, local residents, expats, tourists and municipality policy makers as well as hospitality organizations. Also social projects that benefit from tourism via the FairBnB cooperation can be included. Data availability issues need to be solved and data need to be monitored.

WHICH STRATEGY WILL BE FOLLOWED?

The framework the students provided to FairBnB in this consultative report can be of use for multiple actor groups such as political actors that are confronted with the

effects of tourism of today. The method, to analyse the tourism data, contributes to enrichment of the tourism policy debate. Urban planners can also benefit from this developed knowledge and insights. The key datasets that were found by the students in combination with the potential datasets are recommended for further use due to their ability to provide insights on tourism impacts in neighbourhoods. There are concerns which FairBnB must take into account when it comes to the validity of the datasets as there are ethical considerations and data policy issues. A factor of importance is the ability to distinguish patterns in data relating solemnly to tourists and their behaviour. Recommendations reflect the need for this phenomenon but with the emphasis on keeping in line with data mining policies and ethical aspects. Furthermore, extensive data guidelines and workflows make it possible to reproduce many of the analyses with data from other regions.

THE RESULTS OF THE LIVABILITY ANALYSIS showed that in Amsterdam North and Old-West there is an economic impact of tourism on a regional scale mostly. The neighborhoods differ more in terms of social impacts whereas Amsterdam Old-West is stated to be more gentrified and (local) actor groups are more used to tourists. The study carried out by the students yielded tangible recommendations on indicators on tourism for use in Amsterdam, including but not limited to, for example tourist attraction concentration and tourism intensity. Considering the broader application of this framework outside of Amsterdam, this report gave additional instructions on how to apply the framework in other contexts. Following the seven steps described by the students yet focusing only on those fundamental aspects that were considered as applicable and adaptable in other

European cities, the students intended to shift the occurring limitation of the place-dependency to an opportunity for future research elsewhere. Applying the framework at a different area or a city, a different set of indicators may occur, due to local aspects and emerging trends related to tourism. Different indicators could be found based on the operationalization of the framework in different cities. Therefore the students highly recommended the further use of this framework to reveal the different actor perspectives on tourism in different cities in order to truly understand the impacts of tourism as well as its potential.

IMPLEMENTATION OF SOCIAL INTERVENTION.

The commissioners vision is to transfer the gained knowledge for more sustainable tourism throughout Europe. Therefore, aiming to contribute to this vision and realizing a framework for the tourism management nowadays in urban areas, the students chose to outline a (best possible) fits-all framework for future use elsewhere. In particular, the results of the conducted liveability research and the designed framework lead to the forecast of a broader framework, able to be applied and adapted in other cities as well. Providing both frameworks – one local and one broader – the students aspired to provide to FairBnB the basis for the creation of a practical tool – hereto the dashboard of tourism – that can be used to have a clear overview of tourism effects and potentials in urban areas. The data base tool that is developed by the other student group is complementary to this and adds a substantial amount of tourism related data for further actions taken by the FairBnB cooperation. The actual implementation of the recommendations will follow as soon as possible.



Performance and results evaluation.

The usual steps were undertaken by the WUR Science Shop. A first meeting with the commissioner of FairBnB coop took place in order to clarify the research question and the introduction of the project leader. After this successful meeting two ACT student teams conducted the research and provided an advise to FairBnB. The actors involved in this case study were interviewed as part of the study WUR Netherlands, assessment of training at HEIs. The results of this study are included in this handbook chapter 5.

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CLIMATE

neutral food chain in the region of Arnhem and Nijmegen

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CASE STUDY

Introduction

Oregional is a cooperative of farmers in Nijmegen and Arnhem region situated in the east part of the Netherlands. Oregional sells the produce of its members directly to customers within the region. They not only supply the hospitality industry and care institutions, but also corporate caterers. The main tasks includes the agricultural production, processing and wholesale and distribution processes. Oregional has a wide range of fresh and long-life products with its own brand. They want to become even more sustainable and therefore reached out to the Wageningen University and Research(WUR) Science Shop for research and advise.

TYPE OF SOCIETAL PROBLEM INVOLVED.

The current food system, characterised by linear chains and causing a lot of CO2 emission, must change into a system with reuse and minimal losses and limited transportation. Agriculture and horticulture then become part of a circular food system. The farmers united in Oregional have in recent years successfully taken a number of steps towards shortening the food chain and they now want to develop further, keeping in mind one of the grand societal challenges namely food security and sustainable agriculture.

DESCRIPTION OF PEOPLE INVOLVED.

Farmers, hospitality industry, care institutions, corporate caterers consumers, Oregional participants, students, teachers and researchers, WUR Science Shop and project advisory committee members.

Story of the problem

The current food system in the Netherlands is reaching its limits. According to Minister of Agriculture, Nature and Food Quality, Schouten: "The earth can

no longer bear the burden of current production methods and consumer behaviour" (Dutch Ministry of Agriculture, Nature and Food Quality, 2018). One of the major problems is that the agricultural and food system is not sustainable, particularly due to the emission of greenhouse gases (CO₂, methane and nitrous oxide).

THE CURRENT FOOD SYSTEM CONTRIBUTES to climate change (25 - 30% of global greenhouse gas emissions) and is highly dependent on fossil fuels. Today, it takes about ten to fifteen calories to produce one calorie of food, whereas some 70 years ago a single calorie input produced two calories of food (i.e. 'energy productivity' has worsened by a factor of about 25). In fact, we 'eat' energy. So things will have to change; from a continuous reduction in the cost price to a continuous reduction in the input of energy and raw materials through efficient use in cycles (Dutch Ministry of Agriculture, Nature and Food Quality, 2018). Oregional wants to play a role in the transition towards a reduction on climate

impact and contribute with a regional food production association that makes their whole food chain more sustainable.

THE AMBITION OF OREGIONAL is to become waste free and climate neutral in 2025.

ALL VARIABLES INVOLVED.

The Oregional linked farms and greenhouses food producers, transportation companies, purchasers and consumers are involved and need to be aware of the ambition. A change in production methods, attitude and a more direct contact between the actors in the chain is important. WUR Students, teachers and researchers are involved to explore causes of the problem and consequences for actors to reach the shared ambition.

AVAILABLE RESOURCES.

The board of the Oregional cooperative addressed their transformation issue to the WUR Science Shop in order to develop a research project with WUR students and researchers. All associates are willing to



Picture 1. Arina P Habich. Fresh local produce.

collaborate by sharing data and giving interviews and providing insights. The WUR Science Shop is facilitating the research and advise to support the transition of Oregional. Financial support for implementation of research outcomes if needed has to come from Oregional or external subsidies that support sustainable transitions in food production and transportation.

IDENTIFIED NEEDS.

For a climate neutral circular food chain in 2025 at Oregional in the region Arnhem-Nijmegen there was a need for research and more insights as well as a change in approach and attitude of actors in that regional food chain. The main question of Oregional was what first actions can be undertaken to become more sustainable and climate neutral, and in which part of the chain is the transition to fully climate neutral achievable.

DEFINITION OF AN OBJECTIVE.

Oregional focuses on the transition of the food system with the aim of achieving a sustainable, circular food system in the Nijmegen-Arnhem region based on regional short chains and recycled agriculture. WUR researchers and students were challenged to facilitate Oregional with research and an advise on activities which can be implemented by Oregional in the nearby future. The WUR project leader guided an Academic Consultance Team (ACT) group of students. This multidisciplinary ACT group of master students with different backgrounds included six students. Based on their first explorative interviews, the main research question formulated by the students was to identify feasible ways and arrangements that can be undertaken by the agri-food entrepreneurs of Oregional to decrease the impact on climate change. Three sub questions go into which actions can be

undertaken by the individual actors in the food production chain to reduce CO₂-eq and what activates the actors to implement the actions besides a life-cycle assessment (LCA) for one of the produce groups can be established.

Scientific framework

The theoretical framework used by the student group focussed on the difference between climate neutral and circularity. These two concepts are complementary but can also be adversary. Not every climate neutrality stimulating action is also contributing to a circular economy (Rood, Mulwijk & Westhoek, 2016).

WITHIN THE CONCEPT OF CLIMATE NEUTRALITY the emission of CO₂ must be reduced to a maximum (Faaij, Jager & Kok, 2013). Essentially this means to decrease greenhouse emission in the atmosphere. Options to reduce the emission are regulations or changes towards renewable energie resources (IPCC, 2011). The understanding of the concept climate neutral is diverse because of the absence of consensus about it.

AGRICULTURAL FARMERS VALIDLY indicate that a climate neutral cow is not realistic (Topsector Agri & Food, 2017). Therefore it is impossible to come to a complete climate neutral agriculture sector. However climate neutrality is according to the students a situation where CO₂ emission is zero. This is achievable by a combination of reduction and compensation (in the long term).

BESIDES THIS THE STUDENTS mentioned that. systemic change within the complex social-technological agricultural system is necessary, but difficult. Social technological systems are developed and maintained by active social networks.



Actors that are part of the system are driven by different standards, values and interest (Geels, 2006).

ACTION-BASED RESEARCH.

The interaction with the commissioner (i.e. the board of Oregional) started off during an intake meeting where the issue addressed by the commissioner was discussed with the coordinator of the WUR Science Shop and a WUR project leader/expert. During this meeting the development of a more climate neutral regional food chain was discussed and clarified. Based on this meeting and the written application by the commissioner the project leader wrote a project proposal which described the research method and process including a time schedule and members of the advisory committee. At the moment that the commissioner and the Science Shop coordinator as well as the the members of the advisory committee agreed on this plan of approach the research started. The first part was carried out by the group of master students of WUR. The group was asked to carry out the research in collaboration with the commissioner and participants within the cooperation , guided by an expert in this field of knowledge. They started with a literature research followed-up by a number of interviews with active farmers of the cooperation. They collaborated with the board of the Oregional cooperation and visited a dairy farmer for a single issue life-cycle assessment (LCA). At the end of their research the results were presented to almost all of the interviewees followed by a workshop and discussion. This interaction was also joined by members of the advisory committee. Their practice based experiences are of great additional value besides the insights shared by the students.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

The aim of the combination of these collaborative intervention actions was to come up with a useful handling perspective for the involved (individual) farmers and the cooperation to reduce CO₂ emissions of production and transport of produce.

Social intervention**WHO SHOULD BE INVOLVED IN THE SOLUTION?**

Oregional cooperation and the individual farmers connected to the co-op, as well as the community of purchasers and consumers should be involved in the solution. Also, more research needs to be done.

WHICH STRATEGY WILL BE FOLLOWED?

The research gave insights in possible actions that can be undertaken by the actors involved to reduce the impact on climate change. The short term actions and the long term interventions were identified by the students. Possible short term adjustments can be made in the soil management and animal feed; while in the long term manure and energy adjustments can be made.

IMPLEMENTATION OF SOCIAL INTERVENTION.

Implementation of the outcomes has not taken place yet but the Oregional cooperation is willing to undertake some of the proposed actions together with the farmers. In the meantime the policy department of the ministry of Agriculture (in Dutch: LNV) developed new rules and regulations according to this topic that underlines the advice of the students.

Performance and results evaluation

The commissioner is pleased with the results of the research so far. The dairy farmers gained a lot of insights on how to improve the climate actions on his farm. The students were happy with the opportunity to contribute to this complex first step in a transition to become climate neutral. The different roles of commissioner, project leader and first contact must be clear from the beginning so students know whom to approach for what. The actors involved in this case study were interviewed as part of the study WUR Netherlands, assessment of training at HEIs. The results of this study are included in this handbook chapter 5.

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NGO SIMBA

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CASE STUDY

Introduction

Simba Nature Protection and Education Foundation, also known as NGO Simba (www.ngosimba.nl), is a Dutch certified NGO, which is working on several nature and wildlife protection issues and nature education projects in Iran. The gathered farmers of a village in Iran approached NGO Simba with questions about sustainable medicinal herb production around Bourzakan in Iran.

TYPE OF SOCIETAL PROBLEM INVOLVED.

Due to a high variation in climate zones, there are various biotopes in the Fars region in Iran. As a result, a wide range of medical plants from different families can be found in the wild. This contributed to the province being the largest supplier of medicinal plants of the country. In the past, medicinal plants were collected by experts at the right time and place and in a sustainable way. However, the increase in medicinal plant trade has put the species at risk due to overharvesting. This issue connects to at least one of the grand societal challenges identified by the European Commission in 2018: Health, demographic change and wellbeing.

DESCRIPTION OF PEOPLE INVOLVED.

Directly involved are Bourzakan village members, farmers, NGO Simba and local government. Trade actors will be informed in a later phase as well as other areas with the same production conditions and interest in the research outcomes. NGO Simba will take care of that.

Story of the problem

For the Bourzakan village and especially its village members, which are of the Qashqai tribe, producing medicinal herbs in a more agricultural setting could be

a viable option instead of picking in the wild and jeopardise the existence of the medicinal herbs. The Qashqai tribe are from origin a traditional nomadic tribe which travelled with their flocks of sheep, producing milk and cheese along the way, and are known for their pile carpets and other woven wool products. Due to years of droughts in some regions of Iran leading to conflicts over grazing, members of these tribes were forced to settle down in villages and to give up their nomadic life. For the village the development of production and utilization of medicinal plants is one of the most important ways to create jobs for local people. Because of the current situation in the province, there are options of expanding production of medicinal plants and their products more than before. There are many supporting and incentive regulations, as well as plans to invest in Iran's medical herbs field. However, this development should take place in a sustainable way. That brings profit to locals while at the same time it does not do harm to the environment or even improves the environment for wildlife.

ALL VARIABLES INVOLVED.

The with NGO Simba linked farmers and Bourzakan inhabitants, as well as local authorities whom are involved need to be aware of the ambition of NGO Simba. The change to production methods instead of picking in the wild can be achieved if all actors are aware of the necessity of this change. A change in attitude and a more direct contact between the actors in the value chain is important. Wageningen University and Research (WUR) students, teachers and researchers are involved to explore causes of the problem and consequences for actors to reach the shared sustainable ambition.

AVAILABLE RESOURCES.

NGO Simba addressed the farmers concern about the medicinal herb production to the WUR Science Shop. New insights may help to tackle the problem and preserve the herbs for the future. All the above mentioned involved people are willing to collaborate by sharing data and giving interviews. The WUR Science Shop is facilitating the research to support NGO Simba and the farmers with an alternative for the wild picking practices. Financial support for implementation of research outcomes if needed must come from NGO Simba or external subsidies that support sustainable transitions in botany production.

IDENTIFIED NEEDS.

For a sustainable medicinal herb cultivation in Bourzakan area there is a need for research to explore sustainable alternatives for wild picking. A change in approach and attitude of actors in that business is invincible.

DEFINITION OF AN OBJECTIVE.

The main question of NGO Simba is what actions can be undertaken by the farmers and authorities to develop a medicinal herb production method in the surroundings of Bourzakan village. WUR researchers and students were involved to facilitate NGO Simba with research and an advise on the type of activities that can be implemented by NGO Simba in collaboration with the farmers of Bourzakan village. A multidisciplinary Academic Consultancy Team (ACT) investigated the research needs by the involved participants in the eight weeks period available for this course. The group of master students with different backgrounds was made up

of six students. The student research was focused on a selection of medical herbs and sustainable production system that are grown in the area of Bourzakan village. Also, economic empowerment related activities and designing a sustainable business case was part of this research.

Scientific framework

To come up with a plan for sustainable production of medicinal herbs the research consisted out of three parts: Firstly the selection of herbs, secondly a draw up of the best production system and thirdly, an exploration of possible business cases. Furthermore, a small market study introducing possible customers and calculation or research on export prices was conducted.

THE ACT RESEARCH WAS CARRIED OUT in

Wageningen. First, a selection of medicinal plants was made using a combination of extensive literature research, the advice of experts and local community and predetermined selection criteria. By doing so, there was a focus on the familiarity of the Qashqai tribe with the medicinal plants. Subsequently, the selected medicinal

plants were categorized into various groups depending on certain key characteristics. With this information, an advice was made about the cultivation and agricultural methods, including a broad agricultural planning. Finally, processing opportunities of these medicinal plants were explored to examine which secondary products could be feasible for the Qashqai people to commercialize on local and international markets.

ACTION-BASED RESEARCH.

The interaction with the commissioner, the founder of NGO Simba, started off with an intake meeting on the Campus in Wageningen. The issue addressed by the commissioner was discussed with the coordinator of the WUR Science Shop and the members of the ACT studentteam. This multidisciplinary group of students is at the end of their masters education and learn in a real-life setting how to be a professional consultancy team. During this meeting the issue of medicinal herb production and -trade was discussed and clarified. Based on this meeting a project

Photo: Serhii Ivashchuk. Shiraz, Iran 2019. Spice store on the Eastern Bazaar.



proposal was written by the students. The group of students was asked to carry out the research in collaboration with the commissioner and local contacts in Iran. They started with a literature research and after that interviews with active stakeholders were taken.

IN TOTAL, THREE EXPERTS IN THE FIELD of expertise have been contacted. One of the experts was an ethnobotanist working at Natural Biodiversity Centre and Leiden University. Another expert was an expert in systemic biology, who is specialised in medicinal plant trade and sustainability in Iran. Furthermore an engineer was contacted as well as the contact person of the Qashqai tribe and treasurer of NGO Simba. In addition, valuable insights were gathered by visiting an Iranian shop based in Utrecht and interviewing the shop owner. Furthermore, insights in the Qashqai familiarity with the medicinal plants were obtained by contacting the Bourzakan people. At the end of their research the results and advice were presented to NGO Simba and the Science Shop WUR.

STRATEGIES TO ACHIEVE THAT OBJECTIVE.

This advice and recommendations for sustainable production of medicinal herbs can be implemented by NGO Simba in close collaboration with the farmers in the Bourzakan region.

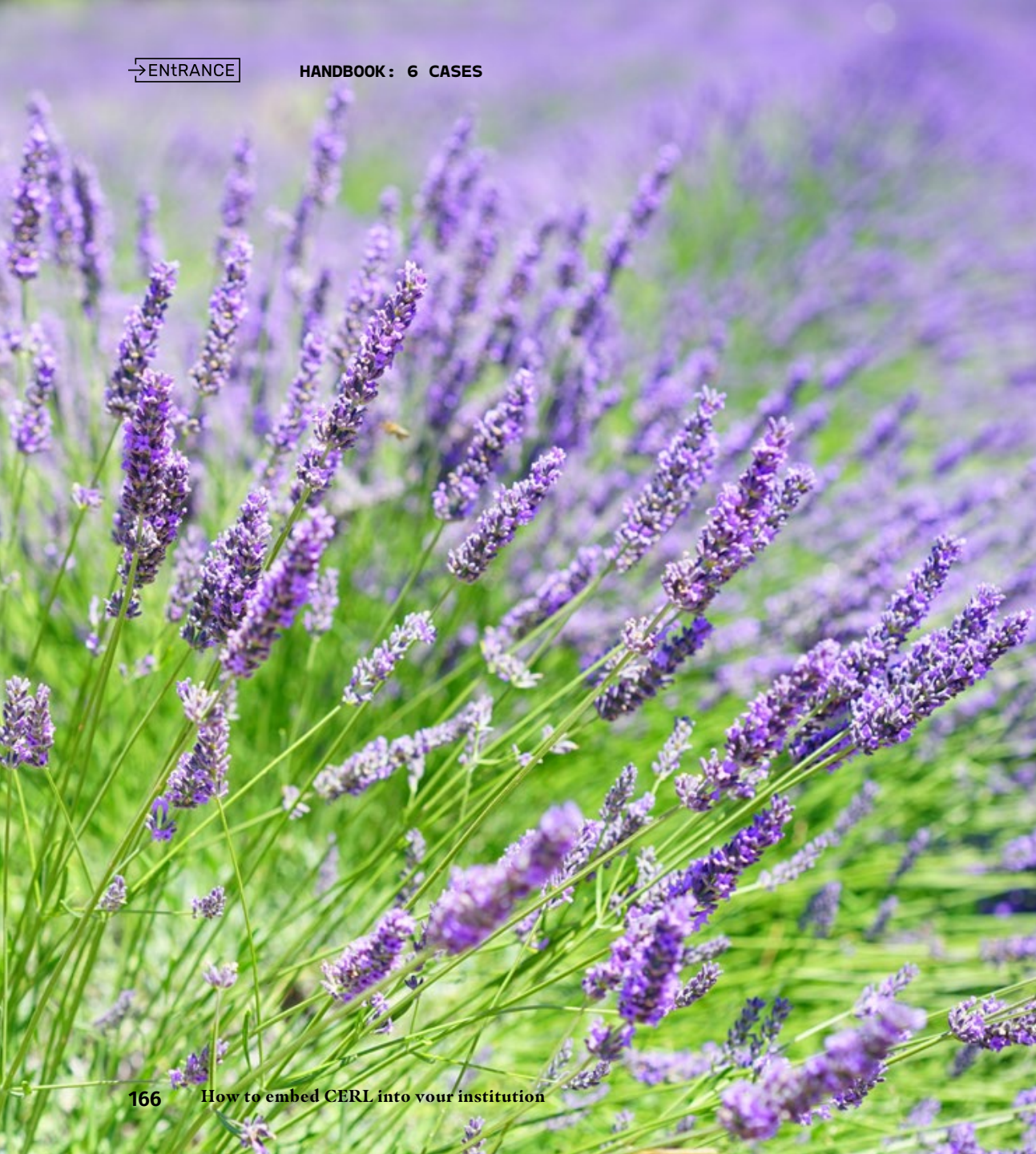
THE STUDENTS CONSULT CONSISTS of suggestions for landscaping such as suggesting preliminary suitable vegetation and agricultural strategies for production. In addition, an advice on long-term business ideas was put forward,

based on further processing ideas and the commercial value of medicinal plants. Methods which were used for coming up with this advice can be applied elsewhere. These methods had a special focus on familiarity with native plants, feasibility and environmental conditions of the specific area.

BASED ON THE SELECTION CRITERIA, literature, and recommendations from experts and local inhabitants their advice contained 17 medicinal plants with a commercial value which are already growing in the Bourzakan region. These medicinal plants are suitable for sustainable cultivation. They proposed certain cultivation methods including herb cropping, manure application and natural hedging. These methods may improve soil quality. For instance, agroforestry could provide biomass, and trees can make the land more fertile and hold water as well. On the local market, the plants may generate income for the Bourzakan villagers. All together, this could enhance the economic empowerment and independence of the Bourzakan people.

LONG-TERM BUSINESS IDEAS for the include the production of dried foods, tea, jam, essential oils, herbal water and honey.

IN THE FUTURE, a market analysis on-site would be beneficial to provide valuable insights into the economic value of secondary products as well as suitable and feasible processing methods. Additionally, it would be beneficial to look into potential subsidies regarding the production of sustainable agriculture, e.g. medicinal plants.



Social intervention

WHO SHOULD BE INVOLVED IN THE SOLUTION?

Local authorities, policy makers, farmers and inhabitants of Bourzakan, land owners, NGO Simba and trade, consumer and funding partners should be involved in this sustainable development of cultivating medicinal herbs in Bourzakan region.

WHICH STRATEGY WILL BE FOLLOWED?

NGO Simba has the know-how and the network to implement the outcomes of the research however more research on the spot to gain insights on soil fertility, water availability and other cultivation conditions needs to be done. Implementation of social intervention.

IMPLEMENTATION OF THE OUTCOMES has not taken place yet, but NGO Simba changed their project implementation schedule based on the outcomes of this research. This project has now become priority because of the practical and ready to use advice of the students. Together with the local community, actions to come to a sustainable medicinal herb cultivation will be undertaken as soon as possible.

Performance and results evaluation

The commissioner is pleased with the results of the research so far. The students were happy with the opportunity to contribute to this challenging transition to develop a sustainable medicinal herb production. The actors involved in this case study were interviewed as part of the study WUR Netherlands, assessment of training at HEIs. The results of this study are included in this handbook chapter 5.

Collaborative platform

Concluding remarks

A TRELLO BOARD (TRELLO.COM) was created in order to stimulate the collaboration between all interested parties, either CSOs, researchers from the different partners or students. This board was separated by 7 lists (associated to EU's 7 societal challenges), each of which included cards that described the on-going projects. If anyone would wish to add a new project he/she should copy the Template card on top of each list and change its title.

THEN HE/SHE MIGHT ADD SHORT DETAILS in the card description and further information in the CaseStudy.docx attached document which followed the main sections:

- ✦ Introduction
- ✦ Story of the problem
- ✦ Scientific framework
- ✦ Social intervention
- ✦ Theoretical and/or practical implications

THE CASE STUDY RESULTS HAVE several theoretical implications, but the practical knowledge about each societal problem and mainly the potential improvements in the CSO's daily activities are the most relevant and quickly usable contributions. Therefore the collaborative process described in the handbook is adapted to the different societal areas and may be used for HEIs to provide CERL services to and with civil society.

→ ENTRANCE



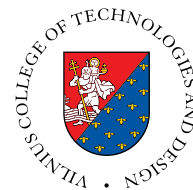
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