

Summary

ProfESus Handbook



Professional Education for Sustainability

Content	Page
Chapter 1 Key themes for the ProfESus Course	4
Chapter 2 Eligible Educational Theories and Methods for ESD and ESC	6
Chapter 3 Development of the ProfESus Concept: Pathway to Discover a Sustainable Mindset	11
Chapter 4 Learning Activities for Sustainable Development	15
Chapter 5 Quality in the ProfESus Course	18
Imprint	21

References please find in the ProfESus Handbook
page 131 until page 135.

List of abbreviations

5Es	5 Es Model as a specific inquiry-based learning model: Engage, Explore, Explain, Elaborate, Evaluate
ECTS	European Credit Transfer and Accumulation System
ECVETS	European Credit System for Vocational Education and Training
ESC	Education for Sustainable Consumption
ESD	Education for Sustainable Development
LAP	Learning activity plan
PERL	PERL is a partnership of educators and researchers from over 140 institutions in more than 50 countries working to empower citizens to live responsible and sustainable lifestyles. Detailed information: https://www.perlprojects.org
ProfESus	Acronym of the Erasmus+ Project: Focus on Sustainability – Education for Professionals in household and guest-oriented businesses
SCP	Sustainable consumption and production
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme

Chapter 1

Key themes for the ProfESus Course

The handbook presents in the **first chapter** the current understanding of the key themes as the basis for the ProfESus course such as:

- The role and significance of education for sustainable development (ESD)
- The global challenge of sustainable development
- The importance of sustainable consumption and production (SCP)
- New approaches for education for sustainable development and education for sustainable consumption and production.

The UNESCO as the global lead organisation for Education as well as Education for sustainable Development ESD stated that based on the fact that “The world is changing – education must also change”. Education has to enable people to meet the global challenges such as greater justice, social equity and global solidarity. Education must be about learning to live on a planet under pressure. It must be about cultural literacy, on the basis of respect and equal dignity, helping to weave together the social, economic and environmental dimensions of sustainable development. The United Nations Sustainable Development Goals (SDGs) are globally acknowledged to achieve a better and more sustainable future for all. They focus on the global challenges such as poverty, inequality, climate, environmental degradation, prosperity, and peace and justice. The Goals should be achieved each by 2030.

The United Nations Sustainable Development goals (SDGs) can only be reached if all people around the world are educated to contribute to local and global solutions to transform the world.

UNESCO highlights that education for sustainable development (ESD) as the most important key for sustainable development has to implement new pedagogical approaches, methodologies and tools to reach the necessary innovative dimensions and to empower people to be able to contribute to the SGDs.

Regarding the importance of the three aspects social, economic and environment, the ProfESus-Teacher-Training Concept is based on the “Onion-Modell” of Shepherd **Urenje** and Wolfgang **Brunner**, Swedish International Centre of Education for Sustainable Development, Visby. The model demands that the environment must be the most important aspect – instead of economic - to consider so that future generations are able to live on earth.

From the scientific perspective Wolfgang Brunner & Shepherd Urunje present three innovative dimensions of ESD:

1. Relevant content
2. Effective methods
3. Desired competences

Also the difference between knowledge and competences is relevant.

“**Knowledge** is an awareness or understanding of something – such as facts, information, descriptions and skills, which is acquired through experience or education.

Competency is shown in action. To be competent you need to be able to interpret the situation in the context and to have a repertoire of possible actions to take.”
(Brunner and Urenje, p.7)

Wiek et al. defined the following **key-competences for ESD**:

- Systems thinking
- Anticipatory competence - Critical Thinking
- Normative competence - Value Thinking
- Strategic competence - Strategic Thinking
- Interpersonal competence – Cooperation

Empowered with these competences, learners of any age, in any education setting, will be able to contribute to **societal transformation**.

In the context of the United Nations Global Action Programme (GAP) on ESD, the focus of ESD has been directed to the agenda 2030 through two objectives:

- Reorienting education and learning so that everyone has the opportunity to acquire the knowledge, skills, values and attitudes that empower them to contribute to a sustainable future.
- Strengthening education and learning in all agendas, programmes and activities that promote sustainable development.” (UNESCO, Source: Retrived from: <https://en.unesco.org/gap>)

Beside Education also sustainable consumption and production (SCP) play an important role to achieve sustainable development. Especially United Nations Sustainable Development Goal 12 needs strong efforts on national levels. Special strategies are required for sustainable consumption and production which cover sustainable business practices and consumer behaviour, together with adherence to international norms on the management of hazardous chemicals and wastes (United nations, Webpage: <https://sustainabledevelopment.un.org/sdg12>)

Due to the importance of SCP Education for sustainable consumption and production (ESC) is one focal point of the United Nations Environmental Programme (UNEP). ESC is about providing citizens with the appropriate information and knowledge on the environmental and social impacts of their daily choices, as well as workable solutions and alternatives. ESC integrates fundamental rights and freedoms including consumers’ rights, and aims at empowering citizens for them to participate in the public debate and economy in an informed and ethical way.” (UNEP, 2010, p.13)

The ESC subject specific competencies from UNEP (2010) include development of attitudes, knowledge and skills.

Stanzsus et al. (2017) summarised there are four main potential mechanisms of change related to ESC:

1. Disruption of routines and switching off the autopilot
2. Reduction of the attitude-behaviour-gap to support more sustainable consumption patterns
3. Clarification of values and supporting the role of non-material values
4. Progression of pro-social behaviour and pro-ecological behaviour through empathy and collaboration (Stanzsus et al., 2017).

They say in general, that mindfulness is considered to bear the potential to bring together cognition and affection, thus extending and complementing dominating concepts of ESC.

Chapter 2

Eligible Educational Theories and Methods for ESD and ESC

Which pedagogical theories and which methods fulfil the requirements of ESD and ESC the best and which are suited for a successful education for sustainable consumption and production in vocational training will be described in chapter 2.

Summarised there are following key aspects for innovative education:

1. **The world is changing – education must also change!**
2. **We must re-vision education in a changing world!** (UNESCO, 2015, p.4ff)
3. **ESD pedagogy and learning environments:** Designing teaching and learning in an interactive, learner-centred way that enables exploratory, action oriented and transformative learning.
4. **Rethinking learning environments:**
 - physical as well as virtual and online
 - to inspire learners to act for sustainability.
5. **Learning outcomes:** Stimulating learning and promoting core competencies, such as critical and systemic thinking, collaborative decision-making, and taking responsibility for present and future generations.
6. **Education for Sustainable Consumption (ESC)** aims at providing knowledge, values and skills to enable individuals and social groups to become actors of change towards more sustainable consumption behaviours
7. **ESC integrates fundamental rights and freedoms** including consumers' rights and aims at empowering citizens for them to participate in the public debate and economy in an informed and ethical way. (UNEP, 2010)

1.1 Innovative Approaches to Improve Learning Processes in ESD

The ProfESus-Project checked different pedagogical theories and teaching approaches, which support innovative education and education for sustainable development. The following findings correspond to the needs and expectations for Education and Education for Sustainable Consumption:

Constructivism - different perspectives

Vygotsky's theory promotes learning contexts in which students play an active role in learning. Roles of the teacher and student are therefore shifted, as a teacher should collaborate with his or her students in order to help facilitate meaning construction in students. Learning therefore becomes a reciprocal experience for the students and teacher.

Discovery Learning according to Bruner is a method of inquiry-based instruction, discovery learning believes that it is best for learners to discover facts and relationships for themselves.

Constructivism as a paradigm or worldview posits that learning is an active, constructive process. The learner is an information constructor. New information is linked to prior knowledge, thus mental representations are subjective.

Methods and Approaches which support learning as an active constructive process

Situated Learning

In contrast with most classroom learning activities, Jean Lave argues that learning is situated; that is, as it normally occurs, learning is embedded within activity, context and culture (Lave, 1988).

Knowledge needs to be presented in authentic contexts — settings and situations that would normally involve that knowledge. Social interaction and collaboration are essential components of situated learning — learners become involved in a “community of practice” which embodies certain beliefs and behaviours to be acquired.

Innovative Forms of Teaching

Ten innovative forms of teaching, learning and assessment for an interactive world, that are already in currency and are having an increasing effect on education are presented in the Open University Innovation Report 4, in the year 2015 (Sharples et al, 2015).

The most relevant for ESD from the perspective of ProfESus are:

- Crossover learning
- Learning through argumentation
- Technologies to support learning through argumentation
- Context-based learning
- Computational thinking
- Adaptive teaching
- Analytics of emotions
- Stealth assessment

Methodologies to support innovative Education for ESD

The described pedagogical approaches and innovative aspects for future teaching point out that new methods should be used to support learning processes.

- **Provocation**
Provocation as a method is appropriate for example in the context of learning through argumentation.
- **Confrontation**
For adults and students to discharge that responsibility, they must learn and practice the art of caring confrontation.
- **Creative Teaching Skills**
Creative teaching skills are about working towards the genesis of something unique, both within and outside of the learner. This is what is taught in Solution Fluency, a practice through which anyone will benefit from defining a problem thoroughly

- **Case-Studies in the activity teaching**
As an instructional strategy, case studies have a number of virtues. They “bridge the gap between theory and practice and between the academy and the workplace” (
- **Scenarios in education and teaching**
Scenarios are carefully constructed imaginations of the future and the possible ways a sector might develop. Scenarios do not predict the future. Scenarios help focus thinking to implement transformations in different field.

Special Concepts for education for sustainable development and sustainable consumption and production

Education for responsible, sustainable consumption

Consumer Citizenship Education is a cross-curricular, interdisciplinary approach to promoting attitudes, transferring knowledge and developing skills that combine consumer education, environmental education and civic training.

The PERL (Partnership for Education and Research about Responsible Living) aims to educate individuals to recognise the influence they can have as stakeholders, citizens and fellow human beings; and to assist individuals in putting their principles into action through making more reflected responsible lifestyle choices.

ESC deals with how each person interacts with the marketplace, society and the environment. The consequences and impacts of individual choices and actions are essential elements of ESC.

The necessary learning outcomes of ESC can be defined as attitudes, knowledge, skills and behaviour leading to:

- Critical awareness
- Ecological responsibility
- Social responsibility
- Action and involvement
- Global solidarity

Additionally, ESC encompasses the following generic competencies:

- Appreciation of nature and human diversity and multiculturalism
- Concern for justice, peace and cooperation
- Self-awareness
- Concern for quality
- Appreciation of the interrelatedness of individuals and society
- Capacity for empathy/compassion
- Ability to make critical reflected decisions
- Ability to apply knowledge in practice
- Ability to cope with one's emotions
- Information management skills
- Capacity for generating new ideas
- Capacity to adapt to new situations
- Willingness and ability to be of service to others
- Ability to recognise global perspectives

Concepts and values

Responsible living includes:

- the readjustment of present priorities
- the redefining of human relationships
- the transformation of how societies deal with existing economic, social and ecological challenges
- the intensification of the dialogue between science and society.

Human development

The primary aim of development is to enlarge people's choices. In principle, these choices can be infinite and can change over time.

Social responsibility

Social responsibility is the responsibility of an organization for the impacts of its decisions and activities on the society and environment, through transparent and ethical behaviour that contributes to sustainable development, health and welfare of society, takes into account the expectations of stakeholders, is in compliance with applicable law and consistent with international norms of behaviour and is integrated throughout the organization and practiced in its relationships (ISO 26000 - Social responsibility, 2010).

Consumer citizenship

A consumer citizen is an individual who makes choices based on ethical, social, economic and ecological considerations. The consumer citizen actively contributes to the maintenance of just and sustainable development by caring and acting responsibly on family, national and global levels (Thoresen, 2005).

Education for responsible living

Education for responsible living provides opportunities for learning about the systems and processes connected to consumption. It involves re-learning and reorganising information in broader contexts.

Education for sustainable consumption

Education for sustainable consumption (ESC) aims at providing knowledge, values and skills to enable individuals and social groups to become actors of change towards more sustainable ways of living.

Education for sustainable consumption is an essential part of education for sustainable development.

Active Learning Methodologies

Sustainable development is a multi-disciplinary area requiring interactive, participative and reflective approaches. Learners need to be able to construct their understanding, meaning and values, as a step in the common search for a sustainable future.

Therefore, as a way of improving students learning, educators should where practicable, try to emphasise active, experiential learning and the use of real-world scenarios.

Images and Objects - Education for Sustainable Development

Objectives of the Images and Objects Toolkit for example to enhance the learning process and include alternative methods into the learning environment to meet the diverse needs and behaviour styles of learners

Storytelling

“Stories extend your imagination to see the world from perspectives other than your own. When you hear someone’s own story, your sympathy is engaged and you recognise that other person as a conscious being capable of suffering and joy” (Nanson, 2005, p. 34). Storytelling can help to make learning experiences, in relation to responsible and sustainable living, more interesting, engaging and meaningful (O’Donoghue et al, 2014, p.7).

Inquiry-based Learning

Inquiry-based learning actively engages learners by focusing learning on their questions and interests, and it is an effective method for developing the natural curiosity of learners.

Inquiry-based learning stimulates learners to discover how things work and contribute to the development of an investigative attitude, which is essential for students to become life-long learners.

5Es Model of the Inquiry-based Learning Cycle

The 5Es Model, from Bybee, et al (2006), as a specific inquiry-based learning model that has received wide application and recognised achievement.

Education for Sustainable Consumption through Mindfulness (PERL Toolkit 9)

What kind of consumption can do us and our planet good? To what extent are body, mind and heart involved in our consumption decisions? What are some alternatives to consumption in order to satisfy our needs in such a way that they can be satisfied just as well or even better?

The acquisition of specific consumer competences is at the forefront of the ESC-agenda; actors of all ages shall be empowered to actively and self-dependently determine more sustainable options for action (Fischer, 2016).

The combination of mindfulness and education for sustainable consumption can be a helpful approach to partially meet this challenge.

Green Pedagogy - Concept for Agrarian and Environmental Pedagogy

The constitution of Green Pedagogy aims to illustrate the didactic principles of the University College for Agrarian and Environmental Pedagogy, Vienna, Austria.

The readiness and ability “to learn one’s whole life, acquire new competencies, also to reconsider and revise convictions” (Achtenhagen and Lempert, 2000, p.7) must be developed. In the context of “sustainable” education, this fostering of the reflective dimension aims to help the application or supplementation of knowledge learned and the questioning of subjective patterns of interpretation and emotion (according to Arnold, 2007) from multiple perspectives.

Chapter 3

Development of the ProfESus Concept: Pathway to Discover a Sustainable Mindset

The aim of the ProfESus Project was to develop an innovative blended learning teacher training for educators and trainers in the professional field of home economics and guest-oriented businesses.

Creating the ProfESus Concept “Discovering a Sustainable Mindset”

The following five building blocks are the basis of the pedagogical ProfESus approach, which lead to the “ProfESus Pathway to Discover a Sustainable Mindset” and at finally to the ProfESus Course:

- The demands for education for sustainable development including the call for innovative education, published by UNESCO,
- the pedagogical principles and approaches of Green Pedagogy and the PERL concept in the area of education for sustainable development, which both are built on
- the education theory of constructivism
- the UNECE competences for educators and the
- the professional competences in the related professional field

This basis of the ProfESus approach was directed to answering the following question for designing the ProfESus Course: how should teachers with UNECE competences integrate the principles of the innovative pedagogical concepts with active learning methods and tools, the dimensions of education for sustainable development and the professional competences in a learning process?

Based on the findings during the ProfESus Project it must be taken into consideration, that a growing sustainable mindset can only be realized if the learning process includes a strengthening of professional competences accompanied by increasing sustainability competences. A separated approach of increasing professional competences without combining sustainability competences and vice versa, does not lead to the necessary links of knowledge, skills, values and collaboration.

Therefore the use of situated learning including learner centered methods is essential.

The ProfESus Learning-Activity-Plan (LAP)

The steps for the development of the ProfESus Learning-Activity-Plan (LAP) follow the action research cycle. It includes all relevant aspects and a table as supporting tool for educators and trainers.

The ProfESus LAP template (see chapter 4) can be adapted for all professional fields.

The starting point of all planning aspects for the Learning-Activity-Plan is the description of all relevant aspects for the learning process of the students. Based on the reflections the detailed description of the learning steps should be planned with observance of the learning steps presented in the Green Pedagogy or the 5 E´s-Model and the sustainable competences.

For the execution period it should be planned how to observe the learning processes of the students, which aspects, criteria are relevant?

How can results, outcomes be evaluated and be recorded?

A very important point for the planning is the assessment at the end of the learning process. Which methods, tools or tasks are suited to measure the competences the students developed and are able to demonstrate? The criteria for the assessment process are described in the ProfESus Assessment.

The ProfESus Assessment Tool for a Sustainable Mindset

To assess the process of discovering a sustainable mindset all dimensions of professional and sustainability competences have to be reflected.

A sustainable mindset is built on the following competences with a lower or higher degree of difficulty:

- Knowledge: Professionals are able to know ...
- Skills: Professionals are able to do ...
- Collaboration: Professionals are able to work with others ...
- Values: Professionals are someone who ...

These dimensions should also be a matter of the assessment process at the end of learning processes with the integrated sustainable competences which will lead to a sustainable mindset.

For discovering a sustainable mindset in professionals, all 4 dimensions of competences must be developed, so that they are able to plan, decide, act, discuss, transform and reflect on their professional work in a sustainable manner.

To assess a sustainable mindset in professionals, learners should work on tasks, activities, processes which enable them to demonstrate that they are able to ...

- use professional and sustainable knowledge, skills and values,
- collaborate with others,
- think systematically,
- think critically,
- think strategically,
- think future-oriented.

Such tasks or processes to demonstrate professional knowledge, skills, collaboration, values and a sustainable mindset should be based on existing business or embedded in real case studies, scenarios or stories, which reflect the real professional world.

The ProfESus Blended-Learning-Course

Based on the pedagogical ProfESus approach, the ProfESus pathway to discover a sustainable mindset, the ProfESus assessment tool and the curriculum for the ProfESus course was developed.

The **overall aim of this curriculum** is continuous pedagogical adjustment and improvement to promote the active sustainability mindset of learners in the workplace.

This ProfESus curriculum is general enough to cover the different vocational areas and specific enough to support learners in discovering their sustainable mindset.

The different elements of the *ProfESus Concept: Discover a Sustainable Mindset – Education for professionals in household and guest-oriented businesses* were brought together in the **ProfESus Course “Discovering a sustainable mindset for future-thinking professionals in household and guest-oriented businesses”**, consisting of four modules.

The concepts for these Modules consist of the following strategy:

- Each Module is based on special UNECE Competences for educators.
- Based on the selected UNECE-Competences and the elements of the ProfESus concept the contents were defined.
- Each Module follows the Green Pedagogy learning steps, which promote active and learner-centered methods.
- Learning activities were created, methods determined and
- Tools for the different learning activities were chosen or developed.
- Materials for the different learning activities prepared.
- Detailed Learning Activity Plans were developed.

Module grid of the ProfESus Curriculum – Discovering a sustainable Mindset for future-thinking professionals in household and guest-oriented businesses (8 ECTS/ECVETS)

The development of a curriculum corresponds to the amount of 8 ECVETs/ECTS and a blended-learning course with 4 modules (80 hours presence phase and 125 hours digital-learning including 70 hours tutorials for self-study and 55 hours online-learning).

Content of the 4 Modules of the blended-learning curriculum:

- **Module 1:** Take off on your road to a sustainable mindset (1.5 ECVET/40 hours) 5-day presence phase;
- **Module 2:** Education for sustainability – discovering appropriate pedagogies and strategies (3 ECVET/75 hours) online-learning activity in the first semester;
- **Module 3:** Teaching for sustainability – planning, conducting and evaluating learning activities (2 ECVET/50 hours) self-study and online-phase in the second semester;
- **Module 4:** Assess teaching processes and envisioning sustainable futures (1.5 ECVET/40 hours) 5-day presence phase.

Chapter 4

Learning Activities for Sustainable Development

During the construction of the ProfESus course the project team decided to prepare a Learning-Activity-Plan-Template to support international participants in their lesson preparation. During module 3 of the teacher training course participants had to plan and conduct such a learning activity.

To assure, that they follow the ProfESus-Pathway to discover a sustainable mindset in their students the learning activity plan can be seen as a tool for a guided lesson planning process.

In Module 3 it was also a task to give feedback to the learning activity plans from colleagues. In this step the template was very helpful to communicate the idea and the steps of the learning activity.

In chapter 3.4 the learning activity planning steps as a foundation for action research are described in detail.

Below you will find the Learning-Activity-Plan-Template including helpful planning tools (see 4.1), the ProfESus Learning Activity Example (see 4.2) and international best-practice-examples of learning activities in different home economics fields (see 4.3).

Planning learning activities to support sustainable development

This chapter presents the content of the learning activity plan template including different tools for planning lessons for sustainable development.

Teacher could use this template step-by-step to plan their lessons successfully. Detailed handling information is supplied in the joining brackets.

Learning-Activity-Plan-Template (LAP-Template)

(Title of the learning activity)

Author:	School/Business:	Country:
[Name of participant, e-mail address]	[Name of institution, short description]	

SUMMARY OF LEARNING ACTIVITY IDEA:

(not more than 5 lines)

PROFESSIONAL SUBJECT/TOPIC:

KIND OF THE COURSE

- Primary school
- Secondary school
- University
- Vocational training /education

KIND OF THE COURSE

- Compulsory
- Optional
- Interdisciplinary

- Cross discipline**
- Presence phase**
- Blended course**
- Online-learning activity**

SHORT CLASS PROFILE: *(please indicate also number of learners)*

CLASS LEVEL / AGE:

Pre conditions: *(starting point: competencies / knowledge / skills of learners)*

Which conditions are in the learning environment?

Learning environment: (e.g. class room, kitchen, garden, nature, forest, businesses...)

Technical equipment:

Material / lesson and presentation equipment:

TIMETABLE FIT:

Number and duration of lesson units

DATE OF SCHEDULED LESSON:

MAIN PROFESSIONAL SKILLS/COMPETENCES/ OUTCOMES:

(Description of the competences, related to the professional field, which should be reached to improve professional action)

SUSTAINABILITY RELATED AIMS (in the context of the learning activity topic based on the *sustainability competencies for learners in vocational training or professionals in guest-oriented work* (see ProfESus Handbook chapter 4.1)

DETAILED PROCEDURE OF LESSON STAGES

(Please indicate: preparation/ online/ offline/ group formations and any other relevant points;

The lesson phases should consider the learning steps of Green Pedagogy, see ProfESus Pathway to discover a sustainable Mindset; see ProfESus Handbook chapter 2.4.2.2 and chapter 3.3)

Phase of the lesson schedule	Professional competences	Sustainable competences	Tools and Methodology	Material (Comments of teachers)

SUBSIDIARY AIM(S)
PROCESS OF ASSESSMENT FOR LEARNERS MINDSET OUTCOME

Follow Ups / Variations:

Anticipated problems and suggested solutions:

OTHER RESOURCES / MATERIALS/LESSON OUTCOMES:

Sustainability competences for learners

The following competences for learners in vocational education and training are adapted from UNECE 2011.

The innovative approach of the education concept ProfESus Pathway of Discovering a Sustainable Mindset is built on Green Pedagogy and integrates/combines

- professional competences related to the professional curricula and
- sustainability competencies for learners in vocational training

Based on the findings of the ProfESus project it must be realised, that a growing sustainable mindset can only be supported if the learning process includes a strengthening of professional competences accompanied by increasing sustainability competences. A separated approach of increasing professional competences without combining sustainability competences and vice versa, does not lead to the necessary links of knowledge, skills, values and collaboration (see graphic).

Chapter 5 Quality in the ProfESus course

Ensuring quality in the ProfESus course involved tools to find out if the learning outcomes had been met but also to evaluate its unique features which is its marrying of the sustainability competencies described by UNECE, with the professional competencies in the home economics field. In addition to testing knowledge and skills, the main task was to discover whether mindset had changed in the direction of more sustainable professional behaviour. We favoured international and European standards and in using a range of tools, also aimed to triangulate the results rather than just relying on one main tool.

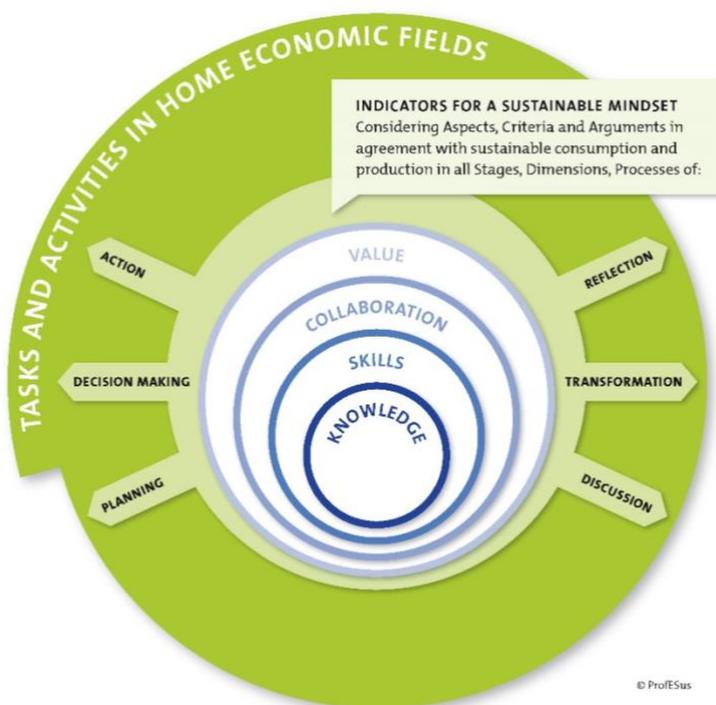
One big challenge was the need to find evidence of a sustainable mindset in the students of the teacher participants. The Learning Activity Plan (LAP) template was one way to find out, since one section of the LAP required the teacher participants to get feedback from their students that would reveal their mindset, as well as observing the behaviour of their students.

Since mindset is invisible, the team needed to find indicators for a sustainable mindset, which can mainly be inferred from a person's actions. Using the UNECE competencies for Education for Sustainable Development was helpful but we also developed indicators more strongly focused on our target group of home economics, as shown in the graphic below. The graphic was incorporated in the LAP template to prompt our teacher participants to monitor quality by identifying a sustainable mindset in their students.

Assessment of a Sustainable Mindset

Evaluation if relevant indicators are/were considered:

Aspects – effects on social, ecological and economic environment –,
Criteria and Arguments in Agreement with Sustainable Consumption and Production in all Stages, Dimensions, Processes of Responsibility in Home Economics Fields and Guest-Oriented Businesses



We know that behaviour change is easier with a good role model, therefore, it was logical that our teacher participants adopt a sustainable mindset too. It is much easier to directly observe the teacher participants than their students for evidence of increased sustainability.

We used three major international tools in the ProfESus project. The first was the UNECE ESD competency framework. The second was the European Checklist for Blended learning and the third was the ISO AA1000 Stakeholder Engagement standard from 2015 used to guide our management of the Quality Board.

The ECB check tool is free and monitors the quality of learning in any course that includes a substantial element of e-learning. The ECB check covers many aspects of the online learning experience and ProfESus scores well in most areas. It scored lower on the issue of learners choosing their own learning paths as the course was designed to be a shared learning experience as a cohort. The lack of tutor support was also noted for improvement. The final low-scoring area on the ECB check tool was that of grading and assessment. The project team rejected grading because it is problematic to grade mindset.

The Quality Board approach involved the project partners in suggesting external experts to examine various aspects of the course and give feedback as advocated by the AA1000 Stakeholder Engagement standard which should be part of any sustainability approach. The Quality Board examined the course both before and after the pilot regarding the type of tasks, the language used, the issues covered and so on, feedback which we used in our revision of the course after the pilot run.

The **blended learning** format allowed the participants from many different countries to meet each other and exchange experiences at the beginning and end of the course, while allowing them to focus on their own students at home during the two online modules. It was important that much of the learning should happen in the local context with the teacher participants' own students for meaningful change to happen. After the pilot experience, most participants agreed it was appropriate for Modules 2 and 3 to happen online with a few also noting that they could not imagine how they could have occurred face to face.

Transformation: It is a peculiarity of the sustainability field that the aim is not just additional knowledge and skills but transformation of the mindset. Note that the third column in the UNECE ESD competency framework matrix is also devoted to promoting transformational processes. So, it is relevant to ask whether the online learning part of the ProfESus course can support the transformation process. We could recognise this through the comments made in the learning diary, the types of learning activities proposed by our teacher participants in Module 3, the future plans they expressed in Module 4 and any continued activity once the course had ended.

Peer support: The project team considered whether peer feedback and assessment could fulfil the tutor function. It is well-established that the most engaging online learning is heavily supported by tutors, especially at the beginning of a course. We requested volunteers from the course participants to act as a peer moderator for a specific one-week unit as well as to divide the fifty or so participants into smaller groups of about 12 persons each.

There were two designated tutors from the project team for each unit whose role was to monitor activity. The tutors then gave evaluative feedback to the project team. The lack of tutor interaction was a weak point and we strongly recommend an enthusiastic and involved tutor presence in future iterations.

Learning diaries: Participants started their learning diary entries during the face to face Module 1 week and were required to continue making weekly entries throughout module 2. The course included prompts to guide each learning diary entry with the option to explore issues not covered in the prompts.

The learning diaries were a route into the minds of the teacher participants and were a major way in which we could tell how and how much the sustainability message had got through both to our teacher participants and in many cases to their students when they recounted anecdotes about what had happened in class. Reflective exercises such as a learning diary have been found to be extremely useful to help embed new pedagogic practice and we highly recommend this tool to learn more about the progress towards sustainability.

Learning Activity Plan: The main purpose of the LAP template was to guide teachers in the direction of a high-quality learning activity by making decisions about what to enter in each part of the template. The LAP template should be a prompt to changing behaviour and pedagogical approach rather than a perpetual professional necessity.

Google Forms: The ProfESus team made extensive use of Google forms for many aspects of the quality assurance processes. They were used for example to get feedback from the quality board and from the course participants at the end of each of the four modules. Google forms are free and automatically collate results.

MOODLE: Most learning management systems allow for short, rapid, frequent low-level feedback in some form or other. Having presented the course in the Moodle management system we were able to require participants to answer a short 3 – 6 question survey at the end of each unit of Module 2. This helped the team to understand if the participants thought they had achieved the specific milestones for that week and which UNECE competencies they tied these achievements to. The ProfESus project team has used approaches that reflect many of the sustainability perspectives which we are promoting within the course such as interdisciplinarity, stakeholder involvement, self-reflection as well as a future-oriented approach.

For a new product, a strategy such as establishing a quality board is very useful. For an institution adopting the course, the most useful quality assurance tools are the LAPs and learning diary coupled with completion of the ECB-check tool in order to get an overview of the different aspects of the course.

Using the suite of tools and strategies described above showed that the ProfESus course was largely a success as judged by the partners, the external quality board and the participants (and where possible, also their students).

IMPRINT

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