RESEARCH REPORT

Sustainable Learning — Bridging the Gap between Formal and Non-Formal Learning Ecosystems

30 April 2025

THIS REPORT COVERS

- Qualitative and quantitative research material
- Discussion of analyses
- Sharing of results
- Conclusions

PROJECT IDENTITY

WHY — Purpose

Challenging the status quo in education – by thinking differently and innovatively in creating an inclusive and diverse learning system adapted to young people's potentials, capacities and motivation, including knowledge of sustainability and green skills.

HOW — Mission

Building bridges between formal (scholastic) and non-formal (non-scholastic) learning actions to make learning interesting, challenging and intriguing for students, which also includes sustainable learning and green skill activities.

WHAT — Objective

We educate excellent students who are using all their capacities and potentials to explore and exploit their talents.

Project: 2023-2-NL02-KA220-YOU-000179682 | **Partners:** ROC Mondriaan · Bloom Foundation · Associazione Kora · CFP Como · FREM Bodø · Dag Kompetansemegleren

Co-funded by the Erasmus+ Programme of the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

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Summary

This report shows results from the research processes in the Sustainable Learning - Erasmus+ project; KA220-YOU - Cooperation Partnerships in Youth 2023 – 2026

The purpose of *the project* is to:
Create an inclusive and diverse learning system that is adapted to the young people's potentials, capacities and motivation that also includes knowledge of sustainability and green skills. The project started in February 2024 – and will be completed in May 2026.

WP Research in Sustainable Learning, have and will throughout the process be aiming at following outcomes:

- Creating an overview of good practices of non-formal learning methods/projects, sustainable projects, non-formal learning in different fields.
- Creating an overview of educator skills needed for implementing non-formal learning methods
- Creating an overview of sustainability/ Green skills and knowledge needed in daily and working life for youth
- Writing a Research paper (article): «Bridging the gap.
  How can we introduce non-formal, informal learning methods as a vital important supplement of formal learning for developing a holistic educational system? This includes theories, best practice descriptions and recommendations for the future on working elements of informal and non-formal learning methods within the topic of sustainability and the bridging of non-formal and formal learning.
- Research reports:
  - Report 1 - Summarizing and analysing the Work Package 2 process including the qualitative and quantitative research material and discussing the analyses.
  - Report 2 – A final report summarizing all the Work-packages and results.

The Sustainable Learning Project have the following partners:
1. Stichting Bloom, the Netherlands (E10108832), Project Coordinators
2. ROC Mondriaan Netherlands (E10146846)
3. Agency for Training, Orientation and Employment of the Province of Como Italy (E10146791)
4. SOCIAL PROMOTION ASSOCIATION KORA Italy (E10074285)
5. Dag Ofstad Kompetansemegleren, Norway (E10321039)
6. Frem Bodø AS Norway (E10328535)

RESEARCH TEAM - Responsible for the research process (Work Package 2):
- **Research Team Manager: Dag Ofstad KOMPETANSEMEGLEREN, Norway.**
- **Research Team Member: Nathalie Feitsma, Bloom Foundation, Netherlands.**
- **Research Team Member: Bart van der Geest, Bloom Foundation, Netherlands.**

Purpose of *the study*:
Challenge *the status quo* in education and training by thinking new and innovative to create an inclusive and diverse education system that is based on stimulating young people's potentials, capacities and motivation that also includes knowledge of sustainable development and green skills.

The project is created for giving recognition and tribute to learning outcomes gained via informal and non-formal learning methods and bridge this to formal education – and also to
make a more sustainable, greener way of living for the next generation. We do this by developing a formal and non-formal experience-based learning model and Toolbox for educators and youth in different fields to educate Green / Sustainable Skills to youngsters.

***The expected outcome of the study*:**

Bridging the gap between formal[1] and informal[2]non-formal[3] education by promoting knowledge about environmental sustainability and green skills, to contribute to a more inclusive and diverse system of meaningful learning for all young people that are adapted to their potentials, capacities and motivation.

This is to gain insight into and provide an overview of:

1. Different pedagogical learning approaches educators[4] need to acquire in order to help bridging the gap between **formal, informal and non-formal learning methods** in today's learning landscape.
2. Examples of good practice approach to informal and non-formal learning methods/projects
3. Examples of environmentally sustainable education and green skills development that bridge the gap between formal, informal and non-formal education that can contribute to a more inclusive and diverse system of meaningful learning for young people.
4. Examples of sustainability/green skills and knowledge needed in daily life and working life.
5. To create a common concept for validating knowledge that shows a broader, more differentiated competence profile than the traditional grading system we find in today's school as a measure (with reference to "How to Implement – SHARE - Open Badges Manual, Final Version 2021/Erasmus+)

    1. Social and civic competence (including democracy competence/new)
    2. Entrepreneurial competence
    3. Digital competence
    4. Communication skills
    5. Environmental Sustainability/Green Skills (New)

The study's research design has been structured as an exploratory, descriptive and interpretive “mixed-method´s” study with qualitative and quantitative methods in a paradigmatic case approach consisting of the main case (phenomenon) and part cases (Focus Interviews, single interviews, desktop studies and a survey) The interviews and survey of this report was conducted in the spring/autumn of 2024 in the respective partnerships. The partners have been responsible for the data collection themselves and together; *8 Focus Group Dialogues, 14 Single Interviews, 53 Completed surveys* and 60 *Good Practice descriptions* from different environments in the three partner countries. The focus interviews included academic communities at schools, companies (educators) and young people (school students in upper secondary schools and in work/work training) aged 18 – 36 years. In the single interviews, educators, educational leaders and young

[1] **Formal Learning** is following a curriculum and is intentional in the sense that learning is the goal of all activities in which students participate. Learning outcomes are measured by tests and other forms of assessment (https://www.coe.int/en/web/lang-migrants/formal-non-formal-and-informal-learning)

[2] **Informal Learning** is learning through participation in everyday life, work, spear time activities, relational contact an experience-based practice. The learning is necessarily not planned, structured or formally organized.

[3] **Non-Formal Learning** takes place outside formal learning environments, but within some form of organizational framework. It arises from the learner's conscious decision to master a particular activity, skill, or area of knowledge and is thus the result of intentional effort. However, it does not have to follow a formal curriculum or be governed by external accreditation and assessment. Non-formal learning usually takes place in community settings (https://www.coe.int/en/web/lang-migrants/formal-non-formal-and-informal-learning)

[4] **Educators** – professionally qualified personnel who can contribute to training and teaching in school – and education

people participated, while in the survey, a wide range of stakeholders and young people participated in education or employment. Topics highlighted in the report are broad-spectrum topics around training/education, sustainability factors and green skills.

1. Clarification of concepts (sustainability, green skills – as well as formal, informal[5] – and non-formal (holistic) learning)
2. Experience with adapted training, experience-based practice, sustainability/green knowledge experiences
3. Premises for Well-being at home/school
4. Learning interests/difficulties
5. Mastery and self-efficacy premises
6. Dreams of the future
7. Health – quality of life
8. Leisure and areas of interest

1. Introduction

Erasmus+, which is the EU's program for education, training, youth and sport, facilitates the EU and EEA nations together to develop the education sector and to strengthen international education cooperation at all levels in the respective countries that can participate in the program. Erasmus+ supports mobility and various types of collaborative projects throughout the educational pathway.

We believe that all young people have the potential to grow to become a valuable citizen who is part of the society of the future and will recognize that there are different ways to achieve the goals they set for themselves. We are addressing the challenge of developing a diverse and inclusive learning system where all people have the chance to learn and grow.

Our project aims to equip educators with effective tools to inspire and empower young people. We strive to raise awareness, motivate them, and provide practical ideas, solutions, and resources to help them contribute to a sustainable society. To make a real impact, we bring education to where the young people are—at school, in their social environments, at work, and during leisure activities.

We aim to bridge the gap between formal, informal and non-formal learning by incorporating practical, hands-on experiences. Our goal is to develop a toolbox for educators and youngsters that promotes green and sustainable skills, empowering the next generation to build a more sustainable future.

Our learning tools must be designed in a way that motivates young people to actively use the knowledge they have acquired.

2. Background

[5] **In a holistic learning perspective** INFORMAL learning would be present as the third of the learning concepts, but in this project the main issue is to build bridge between FORMAL (the Traditional Theory related/educator ruled Scholastic learning perspective) and NON-FORMAL (The practical/experience based non-Scholastic learning perspective).

2.1. Sustainable learning – objectives & expected strategic outcomes.

Sustainable Learning is an Erasmus+ project that is about preventing dropout, promoting inclusion and addressing today's environmental challenges by creating sustainable learning methods where practical learning has an increased value. Many skills are acquired through work, volunteering, or other inclusive activities, and a significant amount of these take place outside of traditional educational institutions. The project aims to give "green and practical skills" a greater value and has had a clear ambition to be a good bridge builder to education and working life.

Partners will work (directly or indirectly) with young people and will seek to motivate them to place an emphasis on living sustainable lives and to embrace recognition for skills gained. We want to differentiate the learning context for the young people, so that they can develop their own way of learning, extract their potentials and capacities – and through that gain familiarity with the learning process.
We believe that all young people have the potential to grow to become valuable citizens who are parts of the society of the future and will recognize that there are different ways to achieve the goals they set for themselves. We are addressing the challenge of developing a diverse and inclusive learning system where all people have the chance to learn and grow.

Our project aims to facilitate the educators' getting tools that make it easier to raise awareness among young people, motivate them and give them ideas, solutions and tools for how they can help create a sustainable society. We must convey the message and offer them education where they are – at school, in the youth environment, at work, and in some leisure activities.

We want to create a learning bridge between formal and non-formal; more practical, experiential knowledge experiences – and develop a toolbox for educators and young people that reflects the green/sustainable skills we want to stimulate young people to build.

Our learning tools must be designed in a way that motivates young people to actively use the knowledge they have acquired.

By recognizing the skills they have achieved, they strengthen their position in the labour market. We focus especially on young people who are at risk of losing motivation in the formal structure of the education system, dropping out or are already in a NEET[6] situation. We want concrete and measurable results in this project to be:

- Research thesis(s) on green/sustainable skills, use of informal and non-formal learning methods in different fields of education and how to give recognition to this.
- Descriptions of good practices and work elements
- A validation system in which green/sustainable skills acquired by Non-Formal Learning methods can be validated in both Formal, Informal and Non-Formal Learning environments.
- An online Toolkit for educators and young people with informal and non-formal learning
- Methods on sustainability and how to set up a validation system in an

[5]**NEET** - is an abbreviation for the English expression "not in education, employment, or training",
The term covers young people aged 15–24 who are **neither in education, employment, or training**.
.

organization.

- Hybrid training for coaches/educators.
- A wide dissemination strategy to involve and inform a wide network of relevant stakeholders.

By contributing to a more inclusive and diverse learning system and by creating a validation system for skills gained from informal and non-formal learning, we aim to increase the quality, degree of innovation and recognition of youth work and education. We also aim to develop a validation system and a toolbox that can be offered for training where educators in upper secondary schools and VETS, as well as educators in youth environments, can learn how to implement the developed material in their own organization. A common thread in this training will be the topic of sustainability and green skills.

2.2. Partnerships and project capacities.

Netherlands:

1. **Bloom Foundation:** Leading partner in WP project management and WP recognition. Expert in the organization of non-formal learning projects for young people (ESC and MDT) and open recognition. Stichting Ondergrond as an associate partner with expertise in permaculture and creating food forests. Stichting Open Recognition with a large network in the Netherlands that is interested in and uses Open Badges and other forms of recognition.
2. **ROC Mondriaan**: Formal education partner with expertise in the use of non-formal learning methods in the formal sector. ROC Mondrian is the largest trainer for secondary vocational education in the Haaglanden region. Mondriaan offers approximately 240 MBO courses. In addition, Mondriaan provides education and training for adults. Mondriaan organizes education on a small scale at 26 schools in The Hague, Delft, Leiden and Naaldwijk. Mondriaan trains his students to become skilled professionals: well-prepared for further education and developments in the labour market. In addition, Mondrian contributes to the development of his students into responsible citizens. In this way, our students find a valuable place in society and contribute to the economic and social development of the region.

Italy:

1. **Associazione Kora**: Leading partner in WP dissemination and expert in hosting E+ mobility's and ESC volunteering in a sustainable environment. Kora has expertise in organic farming, permaculture and green farming practices (in collaboration with the education farm) and has experience in developing and implementing training on youth work, non-formal learning and sustainability in an international context.

2. **CFP Como**: Lead Partner of WP Toolbox. VET education with expertise in sustainable catering, formal training, and recognition of non-formal learning in the region of Lombardy.

Norway:

3. **DAG OFSTAD KOMPETANSEMEGLEREN:** Leading partner in WP 2 Research. Researching different learning and how to bridge the gap between non-formal learning methods and formal education. Since *Kompetansemegleren* is a research organization, but does not carry out projects with young people, they have a different role in the project. Apart from the leading role in the work package research, they will not be active developers of the second work package, but **counter-readers** (reading a text in a critical or oppositional way). With the knowledge developed from the research, they will support the other partners in how the results of the research can be translated into usable materials for the toolbox.

4. **FREM BODØ AS:** Monitoring coordinator for sustainable learning. Organization for people who distance themselves from the labour market that they offer access to through sustainable projects to guide them to work. FREM has also been a co-founder of the first sustainable shopping centre in Bodø (EGNA) where recycling, reuse and repair/refurbishment create the premises for new sales of the products and services offered.

3. Operational model

Inspired by the Danish philosopher Steen Wackerhausen, we have adopted his sociocultural "multisystem model" as a theoretical frame of reference for knowledge and professional practice (Wackerhausen 2008/2015). The Multisystem model is a 4-step context division, making it easier to make an overview of a comprehensive context framework that describes the different challenges we face within this project. This model is adapted to the context of ***Sustainable Learning***.

3.1. Multi-contextual perspective model

In this dynamic field of tension, a continuous dialectical interaction takes place through four asymmetric interactions.
The Giga-perspective are clarified, which are under constant influence of supranational currents and policy-making epistemic social formations (e.g. EU, UN, OECD), which after political processing are offered and made available to national authorities as contributions to political strategies, such as related to the topic of rights for children, young people and adults with disabilities (global level).
Then follows ***the mega-perspective***; national state level, where society is ruled by political adopted strategic plans. Learning and educational dynamics are here rooted and systematized in societal and state guidelines.

At the level beneath, we´ll find ***the macro-perspective,*** with institutional factors we encounter in our everyday lives, in *family*, *local community* (municipality) and *regional level* (county).
Finally, planning processes that take place on ***the micro-perspective*** is the world of our immediate life and practice; the basis for our self-development (personal level).
(Wackerhausen 2008/2015, Ofstad 2016, p. 4)

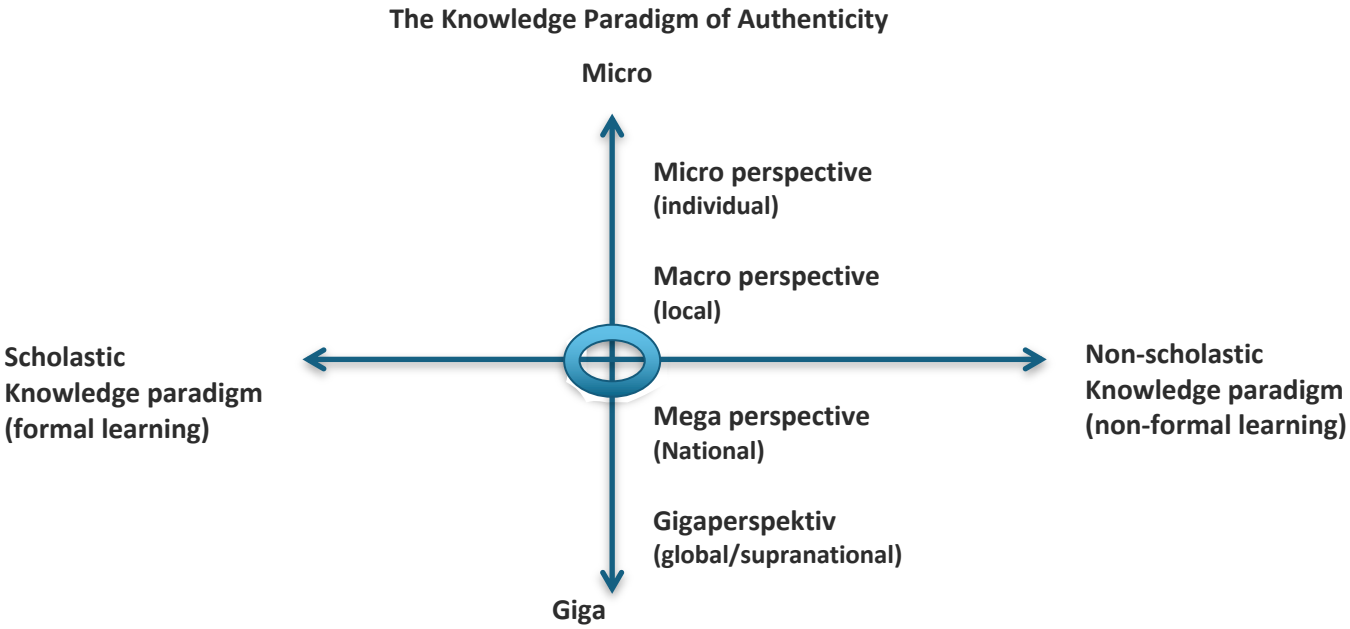

Figure 2. Multi-contextual perspective model

3.1.1. Giga-perspective (supranational level; EU, UN, WTO)

The European Commission[7] has pointed out that there are major challenges related to education and skills among young people in today's EU and EEA countries. The following trends are highlighted as critical for how young people can improve their basic skills development.

- Urgent efforts are needed to tackle the alarming decline in the development of basic skills among young people. Underachievement in literacy, maths and science is alarmingly high among disadvantaged learners (e.g. 48% in maths), and the socioeconomic gap continues to widen, including in digital skills. Pupils with an immigrant background or with disabilities are particularly vulnerable.

- Acute shortages of teachers and educators, especially in science, have a negative impact on learning outcomes. The educator workforce is ageing, as fewer educators enter the profession. The profession is unattractive in most EU/EEA countries and across disadvantaged territories.

[7] **European Commission's Directorate-General for Education, Youth, Sport and Culture:**
Harnessing the potential of Non--Formal Education for Sustainability: Analytical Report No. 03/2023

- Declining parental involvement in recent years poses a significant risk to student success, especially among disadvantaged students. PISA shows that supportive home environments are essential for promoting positive student attitudes towards school.

- Digital distraction appears to be a major threat to academic performance. The pervasive influence of social media is particularly worrying: around 30% of students in OECD countries are often distracted by digital devices during maths lessons, significantly affecting both academic performance and well-being. While effectively integrating technology through the moderate use of digital resources for learning purposes can improve a student's performance, overuse can have detrimental effects and digital distraction should be minimized.

- Prioritising basic skills development often clashes with overloaded curricula. In many systems, curricula have been regularly expanded in response to new societal demands, leading to neglected basic skills. Finding a better balance between the curriculum's breadth and focus on basic skills is therefore of the utmost importance for improving educational outcomes.

- Gender differences affect learning outcomes. Girls do better than boys in reading and are more likely to be among the best in all EU countries. However, boys tend to be the best at math. Societal expectations and gender stereotypes can play a significant role, leading to gender differences in career expectations and influencing subject-specific attitudes, motivation, and academic performance. Additionally, teaching styles and classroom environments can affect boys and girls differently, highlighting the need for gender-sensitive teaching approaches.

- Access to high-quality early education and care varies significantly between and within countries. This has profound individual and societal consequences, especially for disadvantaged children. Staff shortages, inadequate professional development and poor working conditions remain pressing challenges, especially in disadvantaged areas. A quarter of European education systems still lack a national curriculum for educational work with young children. Early experiences are crucial, especially for building socio-emotional skills, which are essential for resilience, well-being, motivation, learning outcomes, and lifelong learning capacity. However, socio-emotional difficulties among children are increasingly signaled, with attention problems and poor impulse control increasingly hampering school readiness.

- In vocational subjects, resource shortages and curriculum constraints negatively affect the development of basic skills. Underachieving students often choose or are referred to vocational training programs with curricula that tend to prioritize vocational skills over basic skills. Vocational schools often have fewer resources, including funding, qualified educators, and technological resources, and are not focused on addressing gaps in basic skills.

- Progress in basic skills for adults requires successfully getting to the "hardest-to-reach" groups, which are at significant risk of exclusion. Many of these adults have had bad experiences with

school-based learning, left a “scar effect” or face multiple disadvantages. The low participation of low-skilled, disadvantaged and unemployed adults in learning activities underlines the need for well-designed policies to support those who are most at risk of exclusion from the labour market. Successful policies often take a holistic approach, bringing together multidisciplinary services to support people, including housing, health, employment services, and parental or carer support.

Among other things, as a response to the above-mentioned challenges, the EU countries adopted a Council recommendation on learning for the green transition and sustainable development in 2022[8]. The Recommendation encourages EU countries to:

- provide all learners with high-quality education and training on sustainability, climate change, environmental protection and biodiversity
- prioritize sustainability in education policies and programs from early years to adult education
- invest in green infrastructure and resources
- support educators to teach about the climate crisis and sustainability
- support practical, interdisciplinary learning relevant to local contexts

The Commission supports the implementation of the Code of Practice through peer learning, team-based learning, frameworks, funding, research and community building. The recommendation emphasizes the critical role of education, noting the commitment of member states to achieving a sustainable future.

3.1.2. Mega perspective (National level, NL, IT, NO)

The Sustainable Learning Partnership consists of two EU member countries and one EEA country. The Education policy within EU will naturally be characterized by the tension between national autonomy and common goals of a strongly inclusive and innovative education system.

Education is the responsibility of the nation state, but the EU influences education systems through common strategies, funding and recommendations. Key initiatives include among others:
• **European Education Area** (EEA) 2025: Aiming for a common education area, where students and educators can move freely.
• **Horizon Europe and Erasmus+**: Funding for research, education and mobility.
• **The European Semester**: Economic surveillance that includes education as a growth factor.
These measures are based on principles of inclusion, digitalization, sustainability and skills adaptation.

The EU seeks furthermore to balance national identity with a common European value base. To create a European identity in education, imply[9]
• Multiculturalism and languages: The EU encourages multilingualism through the Council Recommendation on Language Learning (2019). The aim is for all students to learn at least

[8] **Learning for the green transition and sustainable development**
EU Member States underline their commitment to make teaching and learning for sustainability a priority in Education (June 2022).

[9] https://cor.europa.eu/en/our-work/opinions/cdr-6048-2017

two foreign languages.
- European history and values: Programs such as Discover EU and Citizenship Education strengthen knowledge of the EU's history and democratic principles.
- Democratic education: Education for Democratic Citizenship promotes critical thinking and counters disinformation.

Dynamic educational factors
- Lifelong learning: The European Skills Agenda (2020) focuses on further education and retraining.
- Labor market adaptation: The Pact for Skills and Europass make it easier to document competences across borders.
- Digital education: The Digital Education Action Plan 2021-2027 develops digital skills and infrastructure.

The EU is trying to balance national identity with a common European value base. Creating a European identity in education requires that one emphasizes the development of multiculturalism, strengthening of a common language, insight into, knowledge of and understanding of European history, value bases and democratic education. Finally, agree on lifelong learning perspectives, labour market adaptation and that digital education is made available to all. To ensure good comparability and quality in the education system, the EU has established regulations and standards through the European Qualifications Framework, competence-based learning and innovation and strengthening of practice-based, non-formal learning strategies and a close connection between regional innovation strategies and vocational education. It has also been announced that a stronger priority will be given to educational offerings related to green competence/sustainability, digital transformation (AI) and inclusion strategies and measures that will benefit migrants and socially vulnerable groups.

The Erasmus+ project **Sustainable Learning** (KA 220 YOU Cooperative Partnerships in Youth – 2023 – 2026) aims to contribute new knowledge that corresponds to the Commission's recommendation.

The project aims to contribute to a more inclusive and diverse system of meaningful learning for all young people. This will be achieved by:

1. Recognizing learning outcomes achieved via non-formal learning methods and bridge the gap between non-formal and formal learning approaches.
2. Developing a more sustainable, greener way of living for the next generation. We do this by developing a non-formal experience-based learning model and a toolbox for educators in different fields of education so that they have the tools they need to give young people good green/sustainable skills.

The Sustainable Learning partners will contribute to achieving the overall goals through these specific sub-goals:

1. Implement the understanding of the holistic learning approach, by recognizing the inextricable links that exist between **formal**, **informal** and **non-formal** learning – and building an 'academic bridge' between these approaches three learning.

2. Clarify which elements are important when developing non-formal learning methods and how we can bridge the gap between the non-formal, informal and formal educational structures.
3. Contribute to sharing good practice and theory on non-formal learning methods, within the topic of sustainability.
4. Show which "green skills"/sustainability skills and good practices are necessary/useful in the daily and working life of young people and how to use these.
5. Showcase examples of how to motivate young people to learn sustainable/green skills.
6. Map, test and share the various elements that are important when developing the new tools in the toolbox.

3.1.3. Macro perspective (Local, regional level)

The Macro perspective in this context is referred to as the local community; general public level; the level of close interaction that includes the family, circle of friends, kindergartens, schools, leisure arenas and the daily workplaces, where we exercise our daily life-world activities. How are the local management systems arranged for the population – and in particular the young population – to be able to develop and use their capacities, potentials and talents in both education, working life, culture and leisure that in the future can contribute to a development that meets today's needs for sustainable development without destroying the opportunities for future generations to meet their social needs, - intellectual and cultural development needs. Local community development that is facilitated by local/regional authorities and stands for the sum of efforts aimed at creating security, welfare and opportunities for its residents. The efforts include expertise, public health, climate and environment, culture, resource management, transport and business development. The daily efforts related to these complex and extensive societal challenges are rooted in municipal plans that are supported by democratic majority decisions.
The 6 partner organizations in Sustainable Learning have this backdrop locally as a reference when they are to carry out innovative activities related to education, knowledge and skills development where green sustainable knowledge and skills development is the central theme. The development work they carry out jointly shall, if it works as intended, be able to be shared – and used by others who have the same purpose in the respective partner countries – within the EU and outside the EU.

3.1.4. Micro perspective (Individual level)

The philosopher and political scientist Hannah Arendt has shared the following reflection on education/learning:

"Education is the place where we decide whether we love the world enough to take responsibility for it – and in the same way save it from destruction... Education is also there, where we decide whether we love our children enough not to shut them out of our world and leave them to their own devices..." (Hannah Arendt 2012)

The Micro perspective emerges through collected empirical data, such as interviews and questionnaires. The empirical data related to the micro perspective is primarily expressed through dialogues; conversations, interviews with reflective wonders and experience-based stories from all those who have been involved in

this research process. The qualitative research process emerged through semi-structured single interviews, focus group interviews and surveys, where the purpose was to elicit the individual's experience-based wealth of experience through reflexive processes. The quantitative inputs come from a couple of survey questions.

Through this perspective, the "I's gaze", or the human subject's experience, emerges; expressed through the informants' and their own reflections. This is also where our common practitioner perspective lies, which includes both theoretical knowledge and experience-based practical knowledge. This knowledge highlights the elements of self-led interest-based learning. In the micro perspective, we also find the "professional culture" that has made educators, teachers, youth workers the professional practitioners they are. In the micro perspective, we also find the room for manoeuvres the individual must be able to stimulate his or her own creative and innovative ability to respond. *By ability to respond, we mean "the practical knowledge".* The human ability to respond is given to us with life, but it is not developed in any good way without our consideration. On the one hand, to develop the ability to respond, we need support, well-intentioned challenges, expectations, care and upbringing. Based on this, we develop our own response ability through formation. In the formation process, we then develop, by moving in the bridge span between formal, informal and non-formal knowledge practice, applicable knowledge that we need to be able to relate to the world, respond to its challenges, participate in what is happening and perceive and act in life (Lindseth 2015, p. 59 and Ofstad 2016, p.27).

4. Method of data collection

We chose to define this research work as an *embedded single case* with a *paradigmatic case approach*. The primary purpose of adopting a paradigmatic case approach is to develop an example, a prototype or metaphor for the area the case deals with (Flyvbjerg 2006, p. 137). According to Flyvbjerg, there is no given norm for the paradigmatic case, because it itself defines the norm.

4.1. Research design and Methods

4.1.1. The Research process:

The research process will be completed trough the following steps

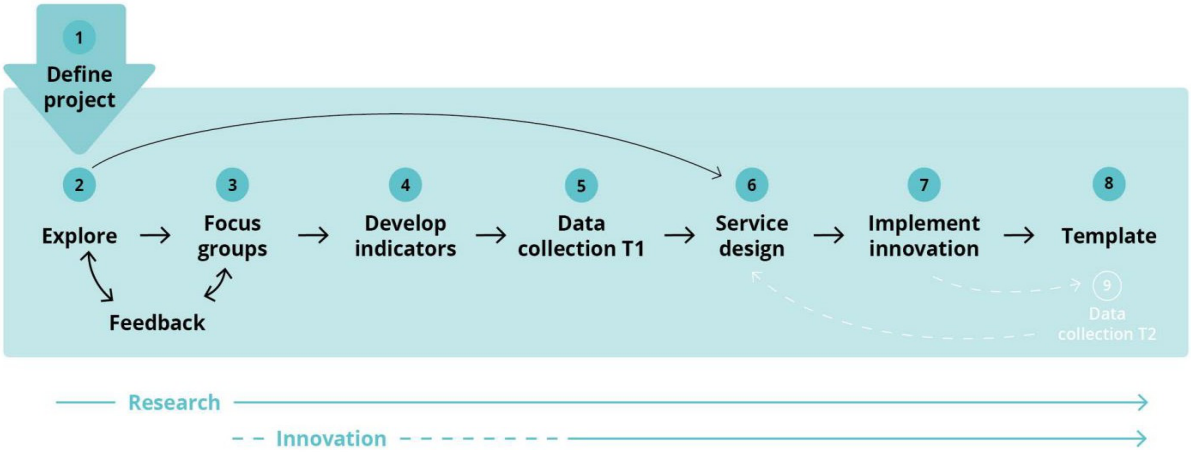

Figure 3.
Reference: Research and Innovation Cycle: Eide, A. H, Ofstad, D, Støylen, M, Hansen, E, Høiseth, M (2022): Participation and inclusion of children and young people with disabilities in local communities

The process:
How to build theory from case studies
(Andersen, S.S. 2013, p.38 -Fagbokforlaget – Source: Eisenhardt 1989:533)

Nr.	GRADE	ACTIVITY	PURPOSE
1.	**Getting Started**	Defining the survey's questions Possibly making construction	**Focus efforts** **Laying the foundation for measurement**
2.	**Choosing Case**	What theory or hypothesis Specified population Theoretical, not random selection	**Maintain theoretical flexibility** **Remove unnecessary variation** and create support validity **Focus on theoretically** interesting cases that reflect or expand the theory by filling conceptual categories
3.	**Creating Instruments and Protocols**	Multiple Data Collection Methods Qualitative and quantitative data are combined	**Strengthening the basic theory** with broader support **Synergistic view of empirical data**
4.	**Data**	More data collectors Overlapping data collection and data analysis Flexible and innovative data collection methods	**Ensure different perspectives** and strengthen the basic theory **Initiate the analysis** and highlight the benefits of changes in the collection process at an early stage **Let data collectors** take advantage of preliminary themes and special characteristics of cases
5.	**Analyse data**	As a case analysis Search for comparative case patterns using different techniques	**Increase knowledge** about data and preliminary results **Forcing the investigator** to see the underlying first-hand impressions and find evidence/support through different "lenses"
6.	**Making hypotheses**	Step-by-step support for each construction Repetition – not selection logic	**Clarify the definition,** validity and measurability of the construction

Nr.	GRADE	ACTIVITY	PURPOSE
		Searching for evidence of the "why" behind correlations	**Verifying, expanding, and clarifying** the theory **Strengthen internal validity**
7.	**Relevant literature**	Compare with non-coinciding literature Compare with similar literature	**Strengthen internal validity**, raise theoretical level and sharpen the definition of the construction **Increase transfer value**, improve the definition of the structures and raise the theoretical level
8.	**Ending**	Theoretical saturation, when possible	**End the process** when the marginal improvement goes towards zero

Figure 4

4.1.2. The strategic focus and objectives

This study has a constructivist[10] approach, that reflects Niklas Luhmann´s *operative constructivism*. To answer the issues that we have outlined, it became appropriate to use a combination of qualitative and quantitative methodological approaches to obtain in-depth knowledge of how strategic groups experience training today – and how they experience the challenges related to sustainability and the learning of green skills is taken care of in today's education system.
We want to contribute to a more inclusive and diverse system of meaningful learning for all young people, by motivating them to learn and live a sustainable life and providing recognition for skills gained. We also aim to stimulate educators to engage with this learning concept, by offering them learning tools that can be adapted to the learning needs that motivate young people to learn and grow as employees and citizens with sustainable and green skills.

Our mission is to contribute to a more inclusive and diverse system of meaningful learning for all young people.

1. We do this by increasing the recognition of learning outcomes achieved via informal and non-formal learning (NFL) methods and bridging this to formal education.
2. We want to help develop a more sustainable, greener way of living for the next generation. We do this by creating a non-formal experiential learning model and by developing a toolbox for educators in different fields of education to educate green/sustainable skills for young people.

Our task has also been to research the topic of "green skills", as well as the use of IFL and NFL methods (bridging the gap between the fields of education formal, informal and non-formal learning) in different fields of education and how to give recognition to this (Erasmus + Application Form KA220-YOU-C46474E9 04.0ct. 2023 p. 4)

[9] "**Operational constructivism**" (Luhmann 2007), where the main essence is that people are self-referential individuals who win their unity through relationships with their surroundings, which means that unity, Integrity and identity must be produced by man himself.

4.1.3. Selection of Informants:

Since the topic of "Holistic learning" is a relatively little-explored field of educational research, we chose to use an exploratory design, where the starting point has been to map the experiences of people who work at the intersection of training, education, work and activity in relation to adapted learning methods and green skills. On this basis, we chose our informants among school leaders, educators, pupils (lower and upper secondary school/vocational school and general studies), youth workers and stakeholders in the public, business and leisure sector. We also chose to interview partner and expert representatives to create an "inside-out" perspective. All the “informants” participated in an interview, or a survey were presented “a declaration of consent” which they were asked to sign (ref. attachment 3).

4.2. THE CONTEXT 1 - Where, How and Why holistic learning happens?

The figure below shows a synthesis of the scholastic and the non-scholastic paradigm of knowledge. From our perspective, the goal must be to stimulate creative, innovative interaction between actors in school, in the leisure community and in working life, combined with interest-based self-led learning activities, where the premises should be that each student receives assistance in developing his or her strategic plan for his or her own learning activities. Through this approach, we will be able to strengthen the pupils' participation skills and help develop methods that aim to increase human agency.

2.1.1. Formal learning (The Propositional/scholastic knowledge tradition)

This takes place in educational and training institutions, is recognized by relevant national borders and leads to diplomas and qualifications, formal learning is structured according to educational schemes such as curriculum qualifications and teaching requirements. It is usually practiced in classrooms. The Commission emphasizes that formal learning plays a crucial role in learning in order to strengthen the sustainability perspective.

Our task in this project is to create structures, learning prerequisites and tools that can help strengthen the individual student's ability to **respond**. Knowledge is the ability to respond, and in our European education system, it is the **scholastic approach** that has been dominant. Scholasticism can be traced back to Socrates, Plato and Aristotle. It is built on the assumption that knowledge can be linguistically articulated in clear rules and procedures – and on the notion that professional competence consists in possessing the relevant linguistic knowledge and the application of relevant sets of rules (Wackerhausen 1999, p. 184). That contains a narrow concept of knowledge. Learning is seen as the solution to "on-predefined" tasks, while learning the "new" that others do not already know, is needed in the background. It must be possible to see it as a paradox that the learning that the school is supposed to promote, takes place largely separately from the future action context in which the pupils or students are to become proficient. We find that the core elements of this type of education are the *propositional* knowledge through academic studies, rule-based skills, verbal or textual instruction in school or classroom detached from practice (lectures), - where the theoretical part has had a wide space and where the learning goal is explicit knowledge. It is not only educational policy thinking that is characterized by the scholastic paradigm. Educational research is also strongly influenced by this, with the result that it is the "scholastic" approach to learning that has also received the attention of research and thus gives the research its character and profile (ibid.). School learning literally emphasizes supplying the

individual student with knowledge. This is done through an extensive emphasis on knowledge dissemination with the educator as the responsible disseminator. (Ofstad 2016).

2.1.2. Non-formal learning (The Non-Propositional/Non-scholastic knowledge tradition)

However, learning opportunities also exist **outside of formal education**. Non-formal learning is learning that is acquired in addition to, or as an alternative to formal learning. In some cases, it is also structured according to education and training schemes, but more flexible. It usually takes place in community-based settings, in the workplace, and through the activities of civil society organizations. These can be found in **non-formal** educational activities such as communities of practice; cultural, multilingual and scientific institutions; public and private organizations, sports clubs, youth and religious communities, as well as related to cultural heritage, and in national parks and natural areas.

The "non-scholastic" tradition of knowledge is linked to **learning in practice** and is seen as a necessity for achieving a high level of professional competence. This is knowledge that is often not exhaustively expressed in sentences or descriptions (Wackerhausen 1999, p. 185), knowledge that cannot be acquired based on school education alone. Non-scholastic knowledge and learning are also linked to knowledge and learning experiences that take place outside – and/or as a supplement to the established education system. This means that it takes place through practice, both in active participation in established communities with competent guidance, and in general learning in everyday life. To this paradigm is linked all knowledge that is not expressed, or can be expressed exhaustively in sentences or books, but which is expressed through participation in other forms of pedagogical practice such as tacit knowledge[11] , experiential knowledge, learning as social practice, apprenticeship, community of practice and situated competence. The aim here is to strengthen the personal and professional basis of experience (Wackerhausen 1999, p. 184). Our knowledge of learning in various other non-scholastic contexts, and across them, is in short supply (Dreier 1999, pp. 70-71 - Ofstad 2016)).

Such non-formal activity offers provide various opportunities to experience and connect with people with the aim of:

1. to build skills and abilities for sustainability knowledge for active citizenship
2. to create more practical engagement with the natural environment.
3. to explore sustainable living.

These opportunities provide expanded access to learning outside the classroom to involve students and people of all ages and backgrounds in sustainability thinking and practice. Despite the significant role such offerings play, there is little data and little evidence that clearly defines the unique contributions or impact of non-formal education/training in advancing the green transition. In the absence of sufficient data material, there is a great need to map existing programs and further develop programs that can contribute to providing greater insight into the opportunities that exist in dynamic processes related to strengthening non-formal learning processes together with sustainability and the green transition.

[11] **Tacit knowledge**– is the way we are aware of neural processes through sensed processes (Polanyi 2000:27). Is more personal and subjective. It's based on individual experiences, intuition, and insights that are hard to put into words.

2.1.3. Informal learning (The Non-Propositional/Non-scholastic knowledge tradition)

Informal learning is learning that takes place in daily life - most commonly in communities and through individuals' common interests and activities. The American philosopher John Dewey called human interaction with the environment *experience* (Fink 2008, p.16). Of course, not every experience was the basis for progress. Progress depends on the quality of experience. *The good experience*, according to Dewey, has two characteristics – it is pleasurable, and it lives fruitfully and creatively on in the subsequent experiences (Myhre 1996, pp. 173 - 74). *This he called the continuity of experience*. When we have an experience, neither we nor our range of knowledge is the same anymore as before. Experience is described, among other things, as *the meaning that we construct when we participate in different communities of practice in the life we live*. While the experiences have a social character, they also have an individual side, because the student's constructions/ideas/use of talent are their own creative use of the social life they have participated in. Information becomes available by putting it into words – and through this, structures for dialogue are established. Whether we can make use of this information depends on whether participants in the dialogue need to establish an understanding or constructions for harmony – or on what needs/wishes the pupil has in the situation in question and that the information is part of his or her zone of immediate development (Vygotsky 2001, Ofstad 2016).

Formal education	Non-formal education	Informal education (forming)
*Scholastic (propositional knowledge) *Context free, abstract, general, objective, technical analytic and rational knowledge tradition *Educator managed *Intentional organized *Theoretically in its form *Qualification *Deductive approach	*Non-Scholastic (non-propositional knowledge) Contextual, value rational dynamic and practicable knowledge tradition Professional specific knowledge Skill-based subjective knowledge Practical knowledge, knowledge as a capability, experiential, skill oriented, intuitive, emotional, activity based and proficient, internalized knowledge *Inductive, abductive (entrepreneurial) approach	*Non-scholastic (non-propositional knowledge) *Experiential knowledge *Daily activity reflected *Values, attitudes, ethics, *Relational (family, network) *Societal norms and rules. *Socialization, subjectivation *Inductive, abductive (entrepreneurial) approach

Figure 5

4.3. THE CONTEXT 2 - Where, How and Why sustainability and green skills must be implemented in holistic learning?

The project partners were challenging themselves in implementing Sustainability and Green Skills in the Holistic learning context by aiming to the vital question: “Why is it important that sustainability and green skills are important in our age?”
Through its 17 Sustainable Development Goals, the United Nations (UN) has developed a common work plan. The UN aims to avoid depriving future generations of the opportunity to bring into the future a healthy planet, with healthy interacting and co-creative values. The most recent reports show us that it is high time that we create the conditions for the planet's inhabitants to become co-creators of its much-needed

turnaround. The UN's own report (*The Sustainable Development Goals report*, SDG 2024) on how these goals is safeguarded by the world's 195 countries, is not pleasant reading.

It finds that only 17 percent of the SDGs are on track, almost half show minimal or moderate progress, and progress of over a third has stalled or even reversed. Furthermore, systemic shortcomings and inequalities in the global economic and financial system mean that developing countries must tackle enormous and growing challenges with only a fraction of the international support they need and deserve.

Against this backdrop, the steadfast unity of governments behind the 2030 Agenda, as demonstrated at the September 2023 SDG Summit, offers a glimmer of hope. Their commitment to rescuing the SDGs and delivering an SDG stimulus has generated new impetus behind the goals. This report also highlights that despite deeply worrying trends, progress is being made – with reductions in child mortality, HIV infections and the cost of remittances and improvements in access to water, sanitation, energy and mobile broadband.

To turn these green shoots into accelerated and transformative progress, bolder actions are required: First, we need peace. We must resolve ongoing armed conflicts through dialogue and diplomacy and prevent future conflicts by upholding the principles and values of the UN Charter.

In this project, the owners have emphasized the holistic perspective that forms the basis of the UN Sustainable Development Goals. They have built within the Sustainable Learning project a holistic learning perspective that will facilitate the knowledge of – and skills to solve the challenges that today's young people will face in the future years ahead.

For this, they have received recognition from Erasmus+ project evaluators, the project partners and the informants who have been involved in the project research.

Up to now formal, informal and non-formal learning have been defined as separate paradigms. They have been a “learning triad” – In a kind of diverse learning context:

Paradigm	Definition	Typical Setting	Recognition	Examples
Formal Learning	Structured, curriculum-driven, institution-based	Schools, colleges, universities	Diplomas, certificates, degrees	Mathematics class, law degree
Non-Formal Learning	Organized and intentional, but outside formal education systems	Workshops, community programs, NGO courses. Active nursing the nature	Often certificates, informal recognition	Youth climate workshops, entrepreneurship bootcamps
Informal Learning	Unstructured, experience-based, lifelong and spontaneous	Everyday life, family, social media, travel	Rarely formal recognition	Learning gardening from grandparents, learning from YouTube, through dialogues & conversations

Figure 6

By building a bridge between them we are creating a “Triple Helix Bridge”. Here we can move into the organic context, where **Formal + Non-Formal + Informal Learning**

Forms a Learning ECO-system that are emerging in a holistic synthesis where we learn to know and to master Green Skills for a Regenerative Future

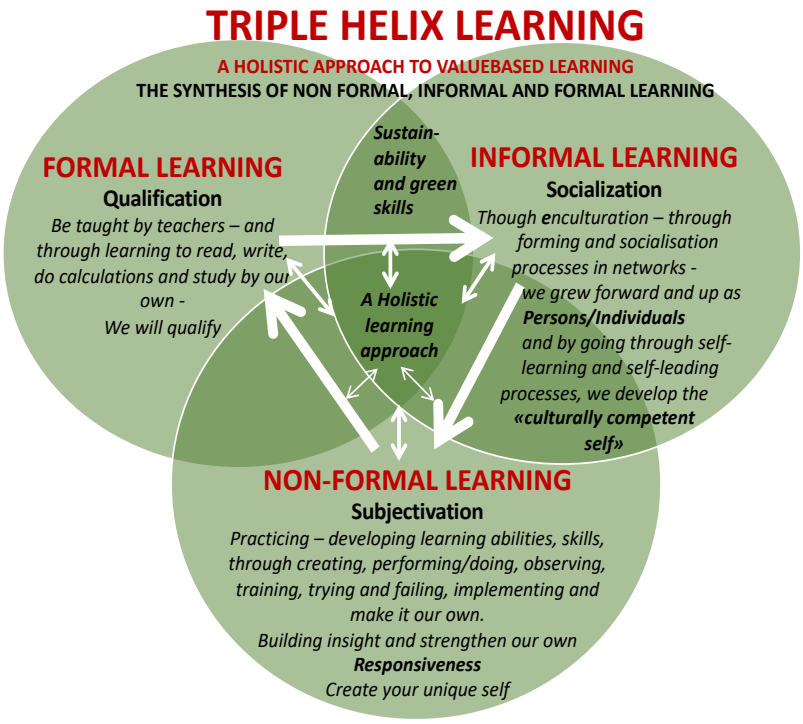

Figure 7.

Figure 8.

5. The research methodology

5.1. A Paradigmatic Case Study

This research report describes a social science study across the disciplines of pedagogy, psychology and social work. We primarily study the phenomena of sustainability and green skills – and the connections between *formal* (Propositional Knowledge), *informal* and *non-formal knowledge* (Non-Propositional Knowledge). This research is being carried out to facilitate the development of a holistic learning concept that promotes building a bridge between the formal and non-formal learning that implements sustainability and green skill development in education involving youngsters and young adults (age 13 – 25).

Our research design is what we´d like to call *an embedded single case study* with several units of analysis that are part of a study where we put data from the different units of analysis into a whole within the case. The analytical method we have used is the phenomenological hermeneutic method (Lindseth and Nordberg 2004, pp. 145 - 53).

We have launched a *paradigmatic case approach* as a research strategy. It sheds light on more general characteristics of the conditions that are the subject of the investigation. The paradigmatic case, which aims to develop a model example, or a prototype for the area of knowledge the case touches on (Flyvbjerg 2006, p. 151); In this case, the knowledge area is *knowledge innovation.*

The method we have chosen is a *mixed study*. We are using a mix between qualitative, and quantitative methods based on an *exploratory case design*, we have chosen to call **"The Holistic Learning Process."**
Both qualitative and quantitative methods are based on theories of human experience (phenomenology), interpretation (hermeneutics) in a real setting as well as opposites that are united in a higher unity (dialectic). According to Creswell and Plano Clark (2017, p. 13), research with mixed methods encourages the use of models, or *paradigms*[12] (exemplary examples), rather than the typical association of certain paradigms with *quantitative* research and others with *qualitative* research. It also encouraged us to think about paradigms that can encompass all qualitative and quantitative research.

This type of study is suitable for describing and analysing the understanding of, and qualities of, the phenomena to be studied. The methods used in the study are *Focus interviews* (Brinkmann & Tanggard 2010, pp. 121-135), and *Semi-structured single interviews* (ibid 35 – 40). At a certain point in the research process in our *qualitative approach* to the research work, we chose to combine this with *quantitative methods* (survey) *that elicit a mix-method effect* (ibid, p. 19).

5 **Paradigms** are, according to Thomas Kuhn's (1922-1996) paradigm theory (Greek: paradeigma – means specimen, model example) Kuhn creates scenarios for dynamic dialectical thinking through his theory, where we think that the normal thing in a society in a rapidly changing pace will be that traditions are continuously challenged by new fundamental discoveries that can help researchers reconsider their basic beliefs and through acquiring new impulses may contribute to nuances and new approaches to the topic area being researched (Kuhn 1996, pp. 33 – 34, 58). One of these paradigms is constructivism. It is within this philosophy of science framework this study was conducted. It is a descriptive and interpretive case study. We emphasize the descriptions, because this is a field where little research has been done before (Ofstad 2016)

In this way, we could conduct our research without thematizing the paradigmatic[6] differences between the qualitative and the quantitative.

Our research approach has been based on the *Case Study* as a research method. We have researched a specimen in education and knowledge development. This example is intended to be a *model example*[13] – a prototype of holistic (authentic) education. In this research work, we have chosen to research people's experiences of the educational space, processes and experiences using interpretive and *mixed methods*. We seek to understand how the three forms of learning formal, informal and non-formal learning shape each other – possibly not shape each other. To understand the complexity – and the possibilities – in creating a holistic model for education that exploits the dynamics between the theoretical (propositional), result-producing (non-propositional) and the practical experience-based (non-propositional) knowledge approach, we chose a paradigmatic approach with mixed methods.
How can we then integrate paradigms with research using mixed methods? How can we ensure that the validity of the program is strong?
The challenge is to ensure that the integration of the qualitative and quantitative components makes sense. Mixed-method studies should not just be two effectively different studies (one qualitative and one quantitative) on the same topic. To be able to combine qualitative and quantitative elements coherently, it requires that we consider that our research paradigms include both. We are showing a bricolage[14] of various qualitative and quantitative units of analysis on which the case is built.

5.2. Qualitative & quantitative research process.

Sustainable Learning includes an exploratory mixed-methods approach, integrating a quantitative survey (53), semi-structured qualitative interviews (14), Qualitative Focus Interviews (8). Furthermore, it includes a Desktop study on Good Practices within the educational context and linked to sustainability and green skills.

5.2.1. Mixed methods

Mixed methods integrate and combine strategically rigorous quantitative and qualitative research methods to draw on the strengths of each one. Mixed methods approach allows researchers to use a diversity of

6 **Paradigmatic** - means that one opens up to be able to make a generalization that can later become a reference point.

7 Based on Kuhn's paradigm cups and reflection on the paradigm concept in the sense of a common example and how good examples develop into an **EXAMPLE**, many concrete examples emerged during the process of how something and someone could appear as a good example. We found good examples in the informant group as the interviews and questionnaire had become fully transcribed.

8 **Bricolage** – a research strategy, which gives us the opportunity to develop a model example that can form a school for the phenomenon this case concerns. Has its origin in "bricoleur" - Denzin and Lincoln (1994:3) describe the ideal researcher ("bricoleur") as follows; "The Bricoleur understands that research is an interactive process shaped by his or her personal history, biography, gender, social class, race, and ethnicity, and those of the people in the setting. The bricoleur knows that science is power, for all research findings have political implications. There is no value-free science". The Bricolage is a French term of how to create something by taking the ones you have at hand and putting them together into something new. The bricolage method has helped us to look for unexpected places and see reality with new eyes (Ehn & Löfgren 2011:198-199)

methods, combining inductive and deductive thinking, and offsetting limitations to purely quantitative and qualitative research through a complementary approach. This maximizes the strength of each data type and facilitates in our research a more comprehensive understanding of the challenges we´ll face within future education and furthermore; how we may fully exploit the recourses, potentials and capacities in the young generation on their entrance to handling the future missions.

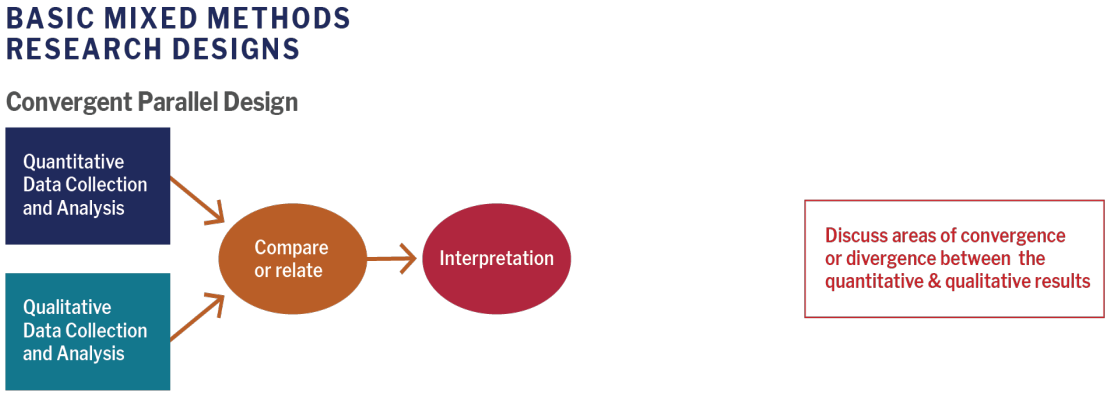

Figure 9

Mixed methods can be used to produce robust results, and furthermore make robust results more understandable, or understand the broader applicability of qualitative findings with small samples. The integration process can take place during data collection, analysis or in the presentation of results (https://catalyst.harvard.edu/community-engagement/mmr/).

5.2.2. Focus Group interviews

Focus group dialogue is a structured group dialogue between different actors where the goal is to develop qualitative data on a current topic. In the focus dialogue, the interaction between the participants (in this case, professionals and young people in the target group) is the most important.
The topic of the dialogue has a clear focus on an issue – which initially has been defined by the Project Owners. The focus group dialogues often contribute to the dynamics between the participants opening for insight of a different nature than that we get from individual dialogues/interviews.
The interviewer plays the role of moderator – and is facilitating the dialogue flow by ensuring that the group has adequate questions/issues to discuss/be in dialogue about.

5.2.3. Semi-structured interviews

The *semi-structured single interview* ("semi-structured, partly structured"). This type of interview can best be characterized as a conversation between the researcher and a respondent, where the course of the conversation is controlled by the researcher. The researcher bases the interview on an interview guide that was developed prior to the interview, which contains a plan for which questions are important to reflect on – and get answers to. The interview guide is based on the research question; (cf. sub-chapter 2.2.).
The questions to the “informants” were based on topics related to learning, learning processes, school challenges, society's climate challenges, including the sustainability perspective and the need for increased awareness about the development of our lifeworld. In particular, we were preoccupied by reflections

concerning the young people's insight and understanding of the sustainability perspective and of the incorporation of green skills and the exploring of human processes or problems in a real-life context.

As qualitative researchers, it was natural for us to approach our research based on a paradigm, which implies that we bring with us a set of assumptions that are guiding meaning and significance for the research area in which we have become involved. We must as researchers be open to what the participants do, say, want to share with us and through that highlight their perspective (Creswell 1998, Postholm 2010). We have chosen to follow *the phenomenological hermeneutical method for researching lived experience* (Lindseth & Nordberg 2004) as our research approach.

5.2.4. Desktop studies

Desktop research is another name for secondary research. Desktop research is not about collecting data. It is about searching for relevant previous research that can give our research added value by creating new insights, ideas of combining our study to the thematic area and the topics of this. Desktop studies have provided us with an initial understanding of our different subject areas, current situation, identifying potential risks and informed us of the detail, scope and methodology of subsequent investigations.

Initially, it is necessary to clarify **why** we want to conduct a desktop survey? Simply to ensure that we get enough knowledge to be able to create the optimal research study – and thus create the best basis for a research project that has high validity.

Furthermore, it is natural to ask ourselves **how** we should carry out the research work.
Here it is natural to search for studies and possible experiments that have been done on the thematic areas we want to make use of, learn from - and draw ideas, impulses and knowledge out of. It is then natural to search for work related to the topic – possibly closely related topics that are closely related to our research area. Conducting desk research is a critical first step and therefore needs to be rooted in a search strategy. The most important thing is to map out keywords, related to the topic. Our search terms have primarily been:

1. Non formal education concepts in combination with Formal concepts
2. Non formal education concepts
3. Examples of practical experience-based learning methods
4. Good practical examples of sustainability projects and the development and practice of green skills in various non-formal contexts.

Here it is important to be able to map projects and concepts within public/private organizations, universities, university colleges, research institutes, journals/media and any professionals and experts.

Finally, it is important to envision **what we are doing** concretely, to ensure the quality of the project and thus the material for the report? When we have come this far in the process, we have acquired the overview we need to be able to carry out the project within the framework we have set. With the premises we have laid down around the research, it is the search work, the collection/sorting of the material and the analysis/assessment of the results, the mapped examples, that we want to use as parameters in further research. Here it is also important to be in dialogue with everyone from those within your own organization

to different types of stakeholders, who may have experience-based knowledge that can be useful. Some of this last-mentioned informant group, has helped us with the focus, single interviews and questionnaires.

2.1.4. Questionnaire

In our modern society, large amounts of information are collected that are available for research. Statistics Norway (SSB) and the Norwegian Centre for Research Data (NSD) are examples of two national research institutions that collect and make data available for social research. If you use data that you have collected yourself, we call it primary data. If, on the other hand, you use data that others have collected before you, we say that you are using secondary data.

Our ambition in this project has also been to reach a larger group of people with questions that can give us among other, answers to following questions:

1. *how our respondents have experienced/experience encountering the various formal, informal and non-formal learning processes in school.*
2. *how non-formal learning methods can be implemented within the framework of formal learning.*
3. *how we can bridge the gap between formal and non-formal learning and at the same time emphasize an environmental perspective and sustainable learning concepts in teaching*
4. *How they experience the encounter with "Green Skills" and Self-contribution to a sustainable social development*

The data material that we collect in our survey are composed as a hybrid survey where most of the questions that have to undergo a reflection process by the informant and the answers has to been written down. Quite a small part of the survey required any numerical material.

5.3. The outcome of the research process.

The choice of informants is linked to the goal of the report, which is to provide knowledge about the thoughts and reflections the various informants share with interviewers in the course of a semi-structured interview dialogue. When the selection had been made and relevant, the informants were requested and consented to be interviewed, the project managers made arrangements for the time of the interview with the relevant interviewees.
At the end of the qualitative research process, we ended with the following result.

Countries	Partner	Focus group	Single interview	Questionnaire	Good practice
Italy	**AOL - Agenzia per la Formazione, l'Orientamento e il Lavoro della Provincia di Como**	1 (AOL) (9 informants)	3	17	8
Italy	**KORA - Associazione di Promozione Sosial KORA Passingnano sul Trasimeno**	1 (KORA) (7 informants)	1	0	5
Netherlands	**Stitching Bloom/Roc Mondriaan**[15]	3 (24 inform. SB+RM)	5	6	13
Norway	**Dag Ofstad,**	3 (3+8+4=15 informants)	6	13	19

[15] The two Dutch partners collaborated on planning, conducting and analysing the interviews.

Countries	Partner	Focus group	Single interview	Questionnaire	Good practice
	Kompetansemegleren/ FREM Bodø AS[16]	(FBAS + DOK)			
Total		**8 (55)**	**15**	**53**	**60**

Figure 10: Overview of data collection by country, partner and method]

76 actions of qualitative dialogs and 60 questionnaire responses in 6 different environments in 3 different countries

The interviews and the survey were completed during the period April/May until mid-October 2024. The research process was initiated and completed by the partners within different environments in the partner countries. This interview work was based on research Guidelines designed by the Research Manager and the Research Team members. We completed Focus Group Interviews with both educators & teachers and with educators/teachers/experts and youngsters together. The dialogues in these focus interviews were led by a facilitator who were guiding the group through a list of questions based on the core of the survey questionnaire (Att.m 1). All the interviews were recorded on audio file and transcribed in full. The interviews lasted 1-2 hours and took place in meeting rooms.

5.4. Research ethic issues.

In this project, we have encountered several challenges in research ethics.
Perhaps the most complicated matter we had to deal with, has been that the framework conditions the project finally got, required a change in the way we were conducting the research. Normally, the person responsible for research will take care of research responsibility alone, possibly together with a qualified second person.

We organized the research work in a Research Team of 3 people. It has worked quite well, but a barrier was the distance between the team members. It's true that we were operational with digital tools throughout the entire process, but the discussions were too much influenced by the fact that the entire process had to be carried out digitally. The reflection and discussion processes became “poorer” than they could have been if we had physically met. That would have generated more time of common reflection and more professional continuity.

Furthermore, we had, due to funding issues, to entrust the project managers with a lot of research responsibility, because it was not possible within the financial framework to cover travel and accommodation costs for the research team to carry out the research processes that had been set up to conduct physical dialogues. The research manager made a "Handbook" for the project managers on how they should/could carry out the research work in their partner district. They have taken and carried out the work successfully and we consider the results to be valid and say that the results of the survey provide a basis for drawing valid/sustainable conclusions about what the survey aims to elucidate.

[16] The two Norwegian partners collaborated on planning, conducting and analysing the interviews.

Another factor that can be pointed out is that the Research Team (RT), has more influence on the analysis, interpretation and theory development process than the partners and their associates did. An asymmetric relationship thus arises between RT and our informants, and it is assumed that RT handles this asymmetry of humility, respect and gentleness. How should RT take care of the informant's perspectives in the analysis and interpretation work? When it comes to processing data, the Personal Data Act becomes important. RT followed the guidelines for the work given by Erasmus+ and the project management. The survey has an enlightening character, which will make us able to add a lot of new knowledge to our field, and to others, which can make it easier to enter into a dialogue with others about theory development. In the transcription process, all written material was anonymized and the same applies to the analysis and interpretation process and in the discussions, where parts of the interviews were included as an element. In our opinion, the ethical perspective has been satisfactorily safeguarded given the framework conditions that the research work has had in this project.

6. Research Analysis.

6.1. Introduction

The research part has aimed to provide knowledge about the potentials that exist in developing a training model that bridges the gap between formal and non-formal forms of learning with sustainable societal development and the development of green skills as an academic topic.

In the traditional school, theory-based, educator-led teaching has governed all teaching over several generations. At the same time, since the turn of the millennium, we have experienced that the well-known learning arenas has been challenged through digital development with web-based information systems, social media, artificial intelligence and an increasingly complex and complicated knowledge horizon. The questions our project is built on are whether our traditional education system captures all the academic challenges that each and every one of us faces in everyday life – or not. In accordance with the project's research questions, we have explored to what extent and how a holistic form of learning where all three of the above-mentioned forms of learning work together, can contribute to us all being able to develop our knowledge in a training system that is adapted to the learning capacity we have, our spheres of interest, talents and skills.

In this chapter, the results of the study are presented based on experiences shared by a wide number of people in 3 European countries rooted in the project's goals and issues.

The project's goal has been to make a basis for creating a more inclusive and diverse system for meaningful learning for all young people. We seek to achieve this by recognizing learning outcomes achieved through non-formal learning methods (NFL) and creating a "Holistic Learning Profile" by:

- bridging the gap between the three forms of learning; *formal, informal and non-formal learning*.
- A key strategic benefit will be to be able to develop a more sustainable, greener way of living for the next generation through this bridging process.

We hope to achieve a high-quality curriculum within this field of learning by developing a **holistic learning model** and a **toolbox for educators** in different fields of education to educate green/sustainable skills of young people.

Our conclusions are that there is great potential in strengthening the development of a comprehensive education regime in European upper secondary education, where emphasis is placed on bridging the gap between formal scholastic (propositional) and informal – and non-formal non-scholastic (non-propositional) education.
If we are succeeding in doing this in the school of the future, we will be able to achieve the following results to a greater extent:

1. More youngsters will find their place in a "hybrid educational position" – both within – and outside the school's learning context
2. More youngsters will be able to utilize their capacities and talents in a better way than within the school, that until now has emphasized conducting traditional educator-led teaching with the main focus on formal learning methods and structures.
3. Comprehensive education can foster a more holistic learning environment, where it becomes natural to broaden the educational framework to include the important learning opportunities found within the local community and leisure activities.
4. Comprehensive education can promote a greater diversity of learning experiences for both youngsters and educators, and in doing so, become a valuable resource for society. It allows important and unresolved societal challenges to be addressed through project-based initiatives that offer fresh perspectives and innovative solutions.
5. The holistic approach to education pursued in this project are aiming at strengthening the development of sustainable, green skills within a comprehensive learning framework. This approach has the potential to make valuable contributions to *the momentum* our global society needs to achieve the UN's Sustainable Development Goals, and ultimately, to become more responsible stewards of the planet's resources.

Here, among other things, there is considerable potential in starting to think differently, holistically and forward-looking, which can help each and every one of us – including future generations – to a greater extent get an idea, an insight, an understanding and some methods – and solutions for how we can best become the future stewards of an unstable world order and a vulnerable planet.

6.2. Research analysing Categories

What kind of learning strategies, methods and actions are needed to enable us to create an inclusive and diverse learning system that is adapted to the young people's potentials, capacities and motivation that also includes knowledge about sustainability and green competence?
In this chapter, we will seek to extract and understand a deeper meaning of the text we have obtained through our extensive qualitative and quantitative research work. We will focus on both content and context.

The result has been a figurative summary of what we have defined through analysis as the *core categories* in the research results. Our task has been to extract the most important themes, opinions and insights that emerge through the analysed material.

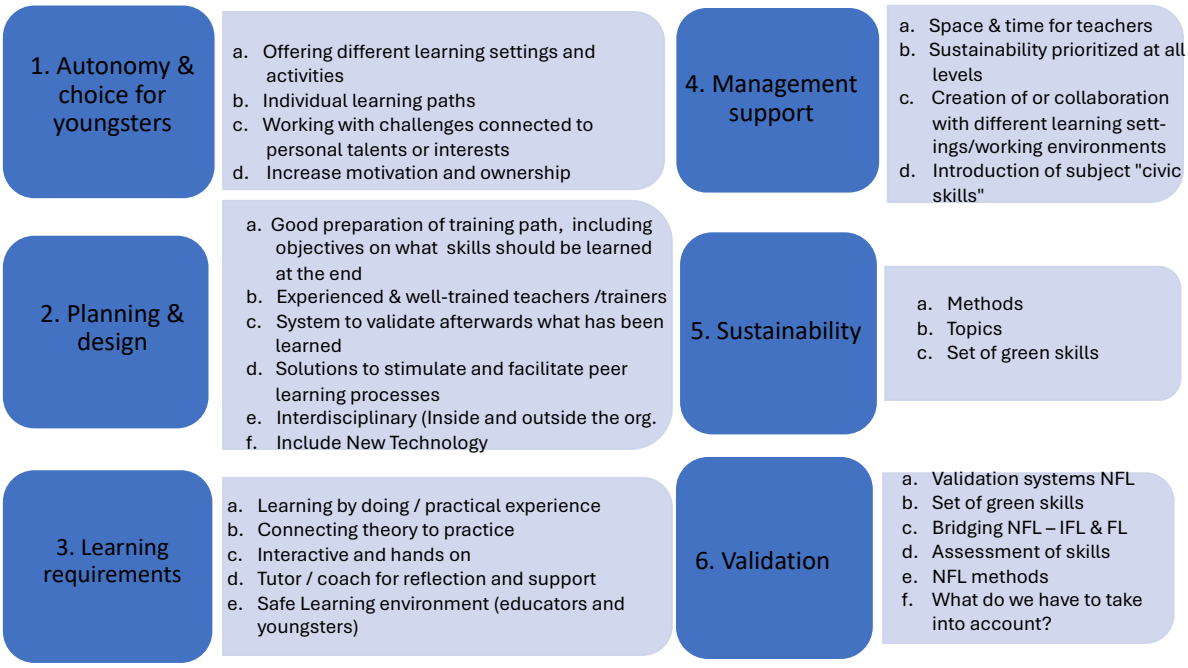

FigurE 11.
THE RESEACH ANALYSING CATEGORIES SUSTAINABLE LEARNING (ERASMUS +)
NFL = Non-Formal learning
IFL = Informal learning
FL – Formal Lerning

Based on the analyses of the transcribed material, our task has been to identify main and subcategories. Each subcategory then forms the basis of our overall understanding of the material.

The table below (Figure 5) illustrates how specific quotations from the research material were coded into thematic clusters and assigned to macro indicators. This Analyse Grid demonstrates the translation from raw empirical data to conceptual structure.

Quote	Thematic Clusters	Macro Indicators	Person, age, nationality
*** I dare to conclude that education is not inclusive for everyone – no one is excluded voluntarily.**	**b. Individual Learning paths**	**Autonomy and choice for youth**	**Male 40+ (NL)**
***Why we need to learn everything in the classroom. There are so many other places where we are learning things that we really want to and need to learn?**	**d. Increase motivation and Ownership**		**Youth 16+ (NO)** **Female 30+ (NL)**

Quote	Thematic Clusters	Macro Indicators	Person, age, nationality
*Teachers should have more freedom to Innovate and adapt teaching to the needs of the pupils. *Learning is forced on the learners. There is not much freedom in choosing –	c. Work with Challenges related to Personal talents or interests a. Offers various Learning settings and activities		Female 50+ (I)
*The more differences we encounter, including conflicting ideas, the better. We want to collect as much as possible, so that we can choose the Important elements for research and the subsequent development of a toolbox. *I have many weak students in class and must teach according to to it I try to make as many practical things as possible in classroom because they can't sit still all day and learn better by doing.	c. System for validating what has been learned Female a. Good facilitation of training route, among other things. Defining learning outcomes and skills	Planning and design	Male 50+ (NL) Male 40 (I)
*The research focuses on which Important elements of non-formal Learning that is useful in Development of young people's skills *There is no room for thinking Out of the box or tailor teaching to the pupils. It It's just a matter of preparing for Next Group	c. Interactive and Practical d. Supervisor/coach for Reflection and support	Learning requirements	Female 50+ (NL) Woman 40 (I)

Quote	Variable	Macro-Indicator	Person, age, country.
*There are initiatives, but They remain fragmented? There is often a lack of time, place and money *Regulations and standardisation can be inhibit innovation and inclusion.	a. Place and time for teachers b. Sustainability a priority at all levels	Management Support	Woman 40 (NL Male 50+ (NL)

Quote	Variable	Macro-Indicator	Person, age, country.
*Which important learning elements in non-Formal learning can be is turned on the theme of carrying Power and green skills	a. Methods	Sustainability	Male 50+ (NO)
*Sustainability is very important, and I hope to get more room for that in education through strategy and management	b. Topics		Female 30+ (NL)
*We are trying to restore Contact between young people who have lost contact. We are eager to include sustainable Themes in the program	c. Set of greens Skills		Male 40+ (NO)
*We lack validation systems votes for the NFL	a. Validation systems NFL	Validation	Male 50+ (NO)
*We need good holistic curricula for sustainability and green skills, such as are bound together in projects with non-formal, informal and Formal tasks structures.	b. Set of greens Skills		Male 40+ (I)
*We need to develop a Sustainability culture	f. What do we need to take into account?		Male 50+ (NO)

Figure 12: Analyse Grid — example of citation analysis linking empirical data to macro indicators

6.3. The main findings

Through our research, we have sought to shed light on the basic elements of the phenomenon of the "holistic learning process". In order to do so, we have searched into the concepts of formal, non-formal and informal learning contexts. By seeing these learning phenomena as mutually interacting in a human learning process, we seek to be able to constitute and clarify this through the term "Holistic learning", which in turn could be a significant contribution to the discourse on a new paradigm of knowledge. Through this study, we seek to create new theory for how the three forms of learning can interact through the paradigmatic concept of *"Holistic learning"* so that the phenomenon could possibly be used as a supplementary educational concept in school and in other learning contexts in society both in theory, in practice. By doing this we are aiming at supporting students to empower themselves through learning experiences, develop attitudes, value reflection and learning behaviour and by that emerge as the best version of themselves.

Through our research we could identify these following main Categories and Sub-categories:

1. Autonomy & choice for youngsters

6.3.1. Autonomy & choice for Youngsters

Sub-Categories:
1. Offer different learning environments and activities
2. Individual learning paths
3. Work on challenges related to personal talents or interests
4. Increase motivation and ownership

The need for increased differentiation was a recurring theme in the research dialogues. Differentiated adaptation is not taken seriously. There is a lack of emphasis on offering pupils differentiated learning opportunities by facilitating education adapted to the individual, and on mapping and stimulation, among other things. the individual's personal talent, capacity, interest – and experience-based knowledge and belief in mastery. Additionally promoted was that youngsters needs to be able to participate into creating their own learning processes and evaluation method. It increases autonomy and it increases ownership of the learning process.

2. Planning & design

6.3.2. Planning & design

Sub-Categories:
1. Good preparation of training runs, including
Aim for what skills to learn at the end
2. Experienced and well-trained educators/trainers
3. System for validating what has been learned afterwards
4. Solutions to stimulate and facilitate peer learning processes
5. Interdisciplinary (Inside and outside the organization.
6. Including the technology

The need to facilitate individual strategic planning processes, so that each student can have concrete and personalized goals and strategies that they can work towards in a learning process. Important prerequisites for students to succeed are that they have experienced a good and adapted validation system and technological tools that stimulate their desire to learn. Furthermore, teamwork will be able to create good conditions for social learning and learning in cooperation, co-creation and problem solving. Last but not least, it is important to take into account the importance of interdisciplinarity in the learning environment, in order to be able to get to know the different possibilities of the tasks.

3. Learning requirements

6.3.3. Learning requirements

Sub-Categories:
1. Learning by doing/hands-on experience
2. Connecting theory to practice
3. Interactive and practical
4. Supervisor / coach for reflection and support
5. Save the Learning Environment (educators and young people)

The importance of training students in the active nature of interaction; within common frames of reference, where it is possible to build common learning spaces where one can build on the individual's drive, skills and capacity must be underlined. The added value of joint practical experience-based processes will most likely be able to create self-built self-confidence, self-efficacy, new knowledge and new individual skills. If the task is concrete, clear, exciting, innovative and requires an effort from all actors where they play each other well, they can develop robust solution-oriented environments. These can be good solutions if you also have good supervisors (coaches), who can help manage and support the students' reflection processes. It is a parallel learning process for both the educator and the youngster. The opportunity for this parallel learning should be built in the future concept. Through this, students and educators will be able to jointly create well-functioning holistic learning environments.

4. Management Support

6.3.4. Management support

Sub-Categories:
1. Place and time for educators
2. Sustainability prioritized at all levels
3. Creation of or collaboration with different learning environments/working environments
4. Introduction to the subject "social skills"

Educators/teachers need time and space to be able to plan, facilitate, carry out and evaluate learning activities, especially when the goal is to bridge the gap between formal, non-formal and informal forms of learning where the primary area of knowledge is defined within the framework of sustainable development. This area includes, among other things. topics such as democracy and citizenship, climate/environment, green skills, inclusion, cultural diversity and human equality, etc (ref. UN Sustainable Development Goals). To make an impactful contribution to sustainable development, we must also create tolerance, mutual acceptance, respect and the ability to interact across cultural, social and political differences. Funding and support both within and outside an organization are also needed to enable this shift in learning to happen in a sustainable way.

5. Sustainability

6.3.5. Sustainability

Sub-categories:
1. Methods
2. Topics
3. Set of Green Skills

In order to strengthen insight and knowledge about sustainability and green skills and competence in upper secondary education, our informants point out that it is necessary to build it into a holistic educational context where both formal, informal and non-formal forms of learning are used. We must integrate the sustainability perspective into the school's core activities and shape decisions and actions to achieve learning outcomes, while at the same time emphasizing social and environmental factors. The research also showed that a distinction can be made between the types of skills that are valuable in this context: personal skills (such as 21st-century skills) and green skills on a level that a young person can apply them in their daily life.

6. Validation

6.3.6. Validation

Sub-categories:
1. Validation Systems NFL
2. Set of Green Skills
3. Bridging the gap between NFL – FL
4. Assessment of skills
5. NFL Methods
6. What do we need to take into account?

The project has set itself the goal of developing an *alternative validation system* that is based on a broad-spectrum approach to knowledge and competence measurement that is adapted to the overall training model (cf. Figure 4). The holistic learning model includes both the **formal** (mediated) knowledge that is built on traditional knowledge and that is transferred to the pupils via educators/teachers, often in classrooms. **The informal knowledge** that is culturally rooted knowledge that we form through our encounter with everyday experiences in everyday life at home and in social contexts. Last but not least, we are characterized by the somewhat forgotten **non-formal** practical experience-based knowledge. These three knowledge elements help shaping our **response** (ability to give adequate answers to questions) and thus make a significant contribution to the development of our overall competence. **All knowledge is the ability to react** (Lindseth, 2015, p. 55). Our responsiveness includes our ability to mobilize and manage our holistic

knowledge, our skills, attitudes, values, professional practice and guides our reflexive learning processes such as the ability to solve challenges, strengthens our cognitive, social and emotional skills, our belief in mastery and guides our creative and innovative abilities.

7. Stakeholders Recommendations

The research represented a huge variety of people of several sexes, in a very spread age segment, from youngsters to pensioners, from students, young workers or outside both education and work. Educators who were teachers in school, supervisors, trainers or coaches. Stakeholders from business sector, university sector, health and voluntary sector. We had interviews and dialogues with all kinds of expert from managers in school, or in businesses, in public services and politicians. Our informants were selected both based on accessibility, life-experiences and/or professional experiences, context and the relevance of the phenomenon – holistic learning, sustainable and green skills learning. The stakeholders from 3 European countries initiated the following recommendation for future handling of the issues linked to the goals and objectives of *Sustainable learning*.

1. Autonomy & choice for youngsters

1. Offer Freedom and Variety in Activities

- Encourage student-led initiatives to foster ownership and enthusiasm in learning.
- Provide opportunities for students to explore their interests through flexible learning modules.
- Design activities that engage youngsters in practical tasks and real-world problem-solving.

2. Encourage Ownership and Responsibility

- Develop personalized learning plans tailored to individual strengths and goals.
- Support youngsters in setting their own goals and structuring their activities.
- Encourage reflection and self-assessment to build ownership and self-esteem.

3. Create a Safe and Supportive Environment

- Promote inclusive learning environments where students of diverse backgrounds feel welcome.
- Strengthen peer support networks to foster a sense of belonging.
- Provide educators with specialized training to address diverse learning needs.

4. Tailor Learning Paths to Individual Needs

- Implement competency-based assessments that measure practical skills alongside theoretical knowledge.
- Offer flexible pathways, including vocational and hands-on learning options.
- Utilize digital learning platforms to provide personalized educational content.

5. Integrate Fun and Meaningful Learning

- Incorporate interactive and gamified learning approaches to maintain student engagement.

- Link learning activities to real-world applications, such as sustainability projects.
- Utilize storytelling, role-playing, and group projects to create engaging content.

Summary:

Context:
It is obvious based on the informants' statements, that we do not have school adapted to the challenges of our time. We live in a complicated world, and in complicated contexts, it is always wise to make continuous assessments of how systems work – and whether they work in the best interests of the user groups for which they were created. Our school system has been built around the learning paradigm *Formal learning* with natural elements of I*nformal Learning*. The formal form of learning, with teacher-led teaching in the classroom, divided into lesson structures, carefully planned from day to day, with little flexibility and adaptability.

> "The education system is kind of stuck. And it doesn't try to cooperate with the students or what they need. The education system needs to adapt to the present society."

This was one of the inputs in our focus group dialogues.
We should offer an education that gives the youngsters motivation, commitment, with individual adaptation opportunities to learning activities – and seeing the individual youngster for who he/she is, what their capacities are and what learning activities he or she needs to be able to find the best version of themselves. The informant dialogues revealed a love for the non-formal learning activities, i.e. where teaching becomes more personally engaging and significantly more practical than sitting in a lecture hall sharing and absorbing the educator's knowledge.

The feedback from the informants also showed us that they were forward speaking a holistic approach to learning.

> "It is certainly possible to bridge the gap between the three forms of learning – formal, informal and non-formal learning. We all do it more or less instinctively. But not at school. The formal form of learning has still taken hold there. As human beings, we have a dual mandate. We want to shape, create and educate. It supports the perspective that we must include all three focuses to cover the concept of education."

One of the informants were reflecting of the importance of continuity and endurance:

> "If you have experienced headwinds, you know what forces you face - and you have learned to handle them - it is called **headwind competence**. But it can also be compared to experiencing adversity. Then it is important not to give up. You learn that if you just keep going, you will get through. The other choices are to give up - or to resign. What we who have headwind competence do, is that we straighten ourselves up - when the headwind is at its strongest - and get through."

These inputs from one of our informants very much summarize the findings within the subcategories of category 1. and the complex context we are facing.

2. Planning & design

2. Planning and Design

1. Clear Structure with Flexibility

- Provide educators with a flexible toolbox to tailor methods to student needs.
- Encourage interdisciplinary collaboration to foster holistic understanding.
- Establish project-based learning frameworks for hands-on experiences.

2. Celebrate Success to Enhance Motivation

- Recognize and celebrate achievements through milestone evaluations and feedback.
- Offer mentorship programs to guide students through learning journeys.
- Implement reward-based learning systems, such as badges or certifications.

3. Adaptability to Individual and Group Needs

- Design learning paths that connect theory with practical experiences.
- Foster adaptability by incorporating technology and multimedia tools.
- Offer peer mentorship programs to support diverse learning needs.

4. Empower Educators with Flexibility and Tools

- Provide continuous professional development opportunities focusing on sustainability.
- Encourage teacher autonomy in lesson planning and implementation.
- Develop peer learning networks to facilitate knowledge sharing.

5. Integrate Reflection and Validation Systems

- Build self-reflective exercises into educational programs.
- Encourage the creation of digital portfolios for documenting learning progress.
- Foster an open dialogue between students and educators to align expectations.

Summary:

Context:
All children and young people are entitled to receive education that gives them the opportunity to develop knowledge, skills and attitudes that give them the basis to be able to master their lives and participate in society's community through work and leisure. Within the framework of the school offer, they will be given the opportunity to unfold their joy of creation, their commitment and their urge to explore. Here they will learn to think critically and act ethically and environmentally conscious. They must have co-responsibility for their own learning and have the right to participate in the development of their own learning path. In this process, the school and its partners must meet the pupils with trust, respect and demands – and give them challenges that promote education, the desire to learn and thereby contribute to strengthening the individual's abilities and learning prerequisites/learning capacity. All forms of discrimination must be opposed.
How should such a school be planned and designed?
A young person in one of the focus groups made the following statement during the dialogue we had:

> "I learn best when there is practice mixed with theory at the same time because when I sit and listen to theory, I don't get anything with me. And when I'm in practice, I haven't caught up with the theory. So, if I can work with both at the same time, it works better for me."

What this person expresses here is: Make the Non-Formal, Informal and Formal learning cycles into a unified learning circle, where the focus of the theme does not end before we have formed and documented all three learning concepts into a holistic documentary

Another young person in the same focus group agreed with this and added:

> "I do not like to be retold the curriculum. In theory, all of us students could be teachers if we just retold the curriculum. If teachers could use both factual storytelling and stories with time images, documentaries in both radio and TV form, films, etc., it would help us pay attention, listen attentively, and gain enough knowledge to become curious and seek more knowledge on our own."

In September 2020, the then Minister of Education in Norway, Guri Melby, said the following in an interview in NRK.no:

> *The Norwegian school is far too streamlined – it is made for A4 students, which does not exist! We must have greater flexibility and greater opportunity for the pupil's own choice.*

This statement was a contributing factor to several schools in Norway were starting a development work that aimed to find an educational profile for those students who do not master the transition from primary, secondary school to upper secondary school and who therefore take a place in the group of about 20-25% of those who are entitled to upper secondary education, but who for various reasons choose to drop out each school year (Norwegian figures). This approach to holistic education was underlined by the EU commission when pointed out that ***Successful policies often take a holistic approach, bringing together multidisciplinary services to support*** (ref.p. 53)

This has been spreading throughout all three partner countries participating in Sustainable Learning. During the research process, it was expressed by several of the informants that
Experience-based – action-oriented learning – for them are the way of learning where they learn through presence, investigation and documentation of tasks and furthermore, where learning has a clear intention to learn, but the purpose is to use other methods than in school – and often of a more practical one. This is in clear contrast to today's school, which is based on the same criteria today as it was 50 years ago. In other words, there is very little differentiation within the school, and we can see a result of this when we analyse the number of pupils who drop out each year.
Bridging the gap between NFL and FL modes we can achieve by switching between them and changing between where to start. It is not obvious right to always move from formal to non-formal learning. It would be both quite interesting, meaningful and innovative to move from non-formal to formal learning to perhaps create exciting new dynamics in the learning experiences. Implementation of self-management and self-evaluation as a mandatory learning factor throughout the process should also be recommended.

An additional element here, is also that several of the informant's state *entrepreneurial learning methods* could create very exciting learning arenas that give the young people rich and instructive task patterns that which one can easily measure the learning effects of. found the following statement in one of the single interviews conducted in the Netherlands:

> "Learning through entrepreneurial processes, where play, curiosity, imagination, invention/creativity, research/investigations, trial/testing and error, etc. are given ample space. Translating human qualities and skills into action within safe relational contexts, contributes to acting flexibly and creatively in the face of rapid social, cultural and economic changes. Human informants are in a constant entrepreneurial formation process, where they quickly develop an entrepreneurial mindset. We often find the basis for this broad approach to entrepreneurship in our informant groups - in the opportunities and framework conditions that they received, at home, in the local environment, among their friends, in the leisure environment and for someone in the schools they were students at (Informal learning impulses). This applies most of all in those schools and in development environments where entrepreneurial ways of thinking had become part of the teaching culture and development goals

There is over the years quite a lot of research work on international basis that salute this particularly learning approach. Quite a lot of experiences are built on the result of entrepreneurial young enterprise concepts. These experiences could be of a valuable character when searching for creating flexible, holistic organized learning concept that could be adapted to education from primary school up to university level.

3. Learning requirements

3. Learning Requirements

1. Incorporate Experiential and Active Learning

- Encourage hands-on sustainability projects like urban farming and recycling initiatives.
- Develop hybrid learning environments combining classroom instruction and fieldwork.
- Implement collaborative learning methods such as guided tours and group projects.

2. Promote Safe and Inclusive Learning Environments

- Develop alternative support systems for students with learning challenges.
- Encourage collaboration between formal and non-formal educators to bridge gaps.
- Use inclusive teaching methods such as multimedia tools for accessibility.

3. Integrate Theory with Practice

- Encourage project-based learning that integrates real-world applications.
- Establish partnerships with businesses to provide work-based learning opportunities.
- Link sustainability-related learning outcomes to school goals.

4. Use Learning Coaches for Personalization

- Assign mentors to guide students through their educational pathways.
- Foster dialogue and goal-setting between students and educators.
- Provide resources and tools to support personalized learning plans.

5. Encourage Peer-to-Peer and Collaborative Learning

- Strengthen peer support networks to improve collaboration.
- Utilize group projects and team-based learning to build social skills.
- Encourage collective problem-solving through interdisciplinary projects.

Summary

Context:

Those who are entitled to upper secondary education, but who lack motivation or want more practice-related forms of learning, are a significant part of the hidden and important workforce of the future – also including the potential creators, innovators, entrepreneurs of the future, who need alternatively adapted learning pathways, because the traditional school's teaching methods do not suit them. Our informants indicated that they wanted to find possible alternative learning activities that youngsters can undertake and at the same

time acquire the knowledge they need to become qualified professionals. The toolbox that will be developed during the project period will help more people to complete a competence-providing holistically adapted educational pathway.

One of the informants promoted to give young people opportunities, time and guidance to develop their own "individual development plan" (idp)

> "Where they could be mapping their own interests, wishes/dreams/goals for the future and learn to know the close environment, local community, and the larger society through different kind of digital, visual and auditive remedies (Video, Podcasts, Quiz) and physical visits. The plan will be developed together with educators - and the time they will use can vary from 3 - 6 months. The plan will then be added to a COMPETENCE DEVELOPMENT PLAN(CDP). Both plans will follow the student - and it is plans under progress with regularly (quarterly) "milestone evaluations".

Another informant introduced a project where the youngsters are building a city.

> "The City Building projects - How to build an environmental healthy city with all you need, to create a sustainable green skilled life. We got quite a lot of green skills and sustainable development issues and learned a lot how to think environmental when we worked with the "City Building" project."

This is an *interdisciplinary assignment* that the students in the health and childhood subjects must complete together as a class/or a Team. The goal is to strengthen their ability to collaborate, interact, communicate and together create their ideal city – the city of "HeartGood". In this joint project work, they will work together to build the city on a chipboard with cardboard and other small ingrediencies. The city must focus on the environment, on taking care of all its residents. It should be the perfect place to live, all the way from cradle to grave. The overarching interdisciplinary theme is built on Sustainable Development, Public Health and Life Skills, Democracy and Citizenship – and Care, Relationships and Cooperation)"

4. Management Support

1. Prioritize Sustainability Institutionally

- Embed sustainability across the curriculum and operations.
- Align sustainability goals internally and with broader societal objectives.
- Promote institutional commitment through structured support and financing.

2. Invest in Educator Development

- Provide targeted training on sustainability and interdisciplinary teaching.
- Offer mentorship programs to help educators implement best practices.
- Recognize teachers who contribute to educational innovation.

3. Allocate Time and Resources for Change

- Ensure time and funding for educators to plan new learning models.
- Develop a flexible teaching framework to support innovation.
- Streamline resources to focus on meaningful learning experiences.

4. Support Collaboration Across Stakeholders

- Foster relationships between educators, businesses, and community organizations.
- Utilize collaborative platforms to align stakeholders' efforts.

- Encourage knowledge exchange through joint learning initiatives.

5. Ensure Management Alignment and Support

- School management should visibly support innovative learning methods.
- Institutionalize flexible policies to accommodate non-traditional learning.
- Foster an organizational culture that values sustainable education.

Summary:

Context:

School leaders are not unaffected by the growing complexity they face in today's society. A school leader works for a school owner (state, county, municipality) and must be the school's primary guardian of the school's overall environment and is governed by statutory tasks. Furthermore, the school leader must build up both institutional and relational trust. Relational trust is built between the various actors in the school, i.e. students, educators, leaders and other employees.

Institutional trust is played out between actors who meet less often. This can be cooperation between the school owner and the trade unions involved in processes regarding governance, management and cooperation in the municipal school system, but it can also be between school leaders and together, all these actors make up what is referred to as the

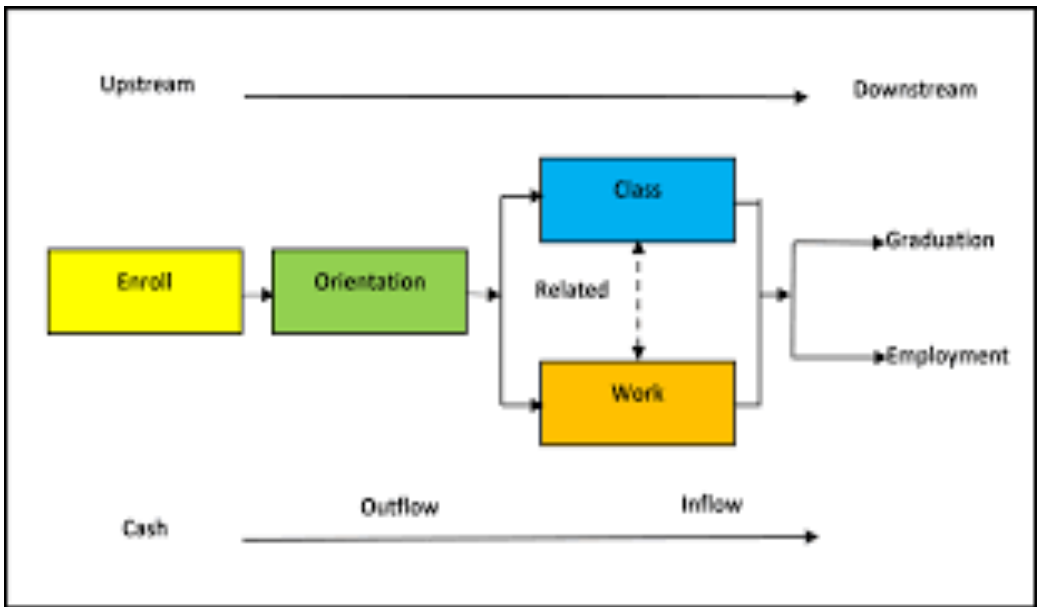

Figure 13

Chain of control in the school system, or the educational value chain (Paulsen 2019).

A principal of a school shall, in addition to answering for his or her chief school leader, be loyal to the school owner (municipality, county or state). The Principal has, among other things the main responsibility for the school's educational activities, the school environment and the pupils' right to a safe and good school environment, digitalization and the development of the professional community. Within this framework, a school leader/principal must exercise his or her management support.

This means that the future development and safeguarding of Sustainable Learning's strategic tasks, must be included in the division of responsibilities between the parties in the educational value chain. It will be our task to sell in the product we develop during the project period – and to do it so well that it appeals to be used.

Some of the informants had input on typical management support tasks.

In one Single interview one of the informants shared the following reflections:

> *"Learning by doing, through own work, in practice, or a mix between practice and theory, by being observant, curious, listen, ask questions, check for yourself/research.*
> Altogether, the students get the best learning experiences through repeats and by writing things down, record data and by being out in practice on a workplace observing what others are doing and by listening to the supervisors and ask for help.
> Establish learning environment where they develop a flexible educational environment with model(s) for education that is composed and tailored for and by the students. Hereby you will contribute to ensuring that "school leavers" are provided with teaching and training that stimulates their self-created, self-developed and interest-based learning processes."

In a Focus Group one of the informants stated the following

> "We got quite a lot of green skills and sustainable development issues and learned a lot how to think environmental when we worked with the "City Building" project. This is an interdisciplinary assignment that the students in the health and childhood subjects must complete together as a class. The goal is to strengthen their ability to collaborate, interact, communicate and together create their ideal city – the city of «HeartGood». In this joint project work, they will work together to build the city on a chipboard with cardboard and other small ingrediencies. The city must focus on the environment, on taking care of all its residents. It should be the perfect place to live, all the way from cradle to grave. The overarching interdisciplinary theme is built on Sustainable Development, Public Health and Life Skills, Democracy and Citizenship – and Care, Relationships and Cooperation)

This "upper secondary school" has inspired and motivated their youngsters for years to build a city; or more rightly so: their Dream City – because they are presenting it for the managers, educators, fellow students and parents in a show when its finished.

One of the business manager informers share the following comment in a single interview:

> "We need to motivate the individual to bring out the best version of themselves, build self-efficacy in the individual and strengthen their ability to mobilize their own power (empowerment)"

This is about offering maturation, learning in completely different areas that have a huge socio-economic effect that costs minimally. That requires flexible learning arrangements and also requires that the management support is willing to support this process.
It´s an investment for the company when leaders make this type of process possible. It's not expensive to give people a day's wage – and give the individual board and lodging as well – because they are doing a piece of work that creates meaning. Both for them and for the surrounding society. Here we are talking about restoring human destinies and building them up by giving them safe learning experiences, both simple and slightly complicated – and the more they learn, the greater the complexity of the task solving can become.

5. Sustainability

1. Integrate Sustainability in Every Organizational Domain

- Ensure sustainability is embedded in curriculum design, staff training, and operations.
- Develop partnerships with environmental organizations to enhance education.

- Promote system thinking and interconnectivity in sustainability topics.

2. Leverage Local Challenges and Events

- Use local sustainability issues to make learning relevant and impactful.
- Encourage participation in community-driven environmental initiatives.
- Align educational projects with national sustainability events.

3. Incorporate Game Elements in Learning

- Gamify sustainability topics to improve student engagement.
- Use interactive tools and challenges to promote green skills.
- Incorporate game-based assessments to validate student learning.

4. Promote System Thinking and Interconnectivity

- Educate students on how their actions impact larger environmental systems.
- Develop interdisciplinary learning modules on energy, waste, and consumption.
- Encourage reflection and action through sustainability challenges.

5. Provide Educators with Support and Tools

- Offer training and materials to educators on sustainability themes.
- Equip schools with resources for hands-on sustainability projects.
- Build educator networks to share best practices in sustainable teaching.

6. Entrepreneurship and Innovation in Learning

- Introduce entrepreneurship education that includes sustainability and social responsibility.
- Provide opportunities for students to develop and pitch their own business ideas within an educational framework.
- Collaborate with local entrepreneurs to mentor and inspire students in their projects.

Summary:

Context:

The UN's 2024 Sustainable Development Goals report (SDG), outlines the challenges the world faces in taking significant steps towards achieving the SDGs, based on the latest data and estimates. It highlights areas of setbacks, while also showing where concrete progress has been made, for example in reducing global child mortality, preventing HIV transmission and access to energy and mobile broadband etc. The report also highlights where action needs to be stepped up, particularly in critical areas that undermine progress on the SDGs – including climate change, peace and security, inequalities between countries etc.

According to the report, the current progress, with only six years left, is far from what is required to achieve the Sustainable Development Goals in 2030. Without massive investments and scaled-up measures, the achievement of the Sustainable Development Goals – the blueprint for a more resilient and prosperous world and the roadmap out of current global crises – will remain unattainable. The persistent consequences of the COVID-19 pandemic, escalating conflicts, geopolitical tensions, and increasing climate chaos have severely hindered progress. The report outlines the urgent priorities and areas needed for stronger and more effective action to secure the 2030 pledge to eradicate poverty, protect the planet and leave no one behind.

In the resolution adopted by the UN General Assembly on 25 September 2024, it is explained; 2030 Agenda for Sustainable Development

> "The UN is determined, between now and 2030, to end poverty and hunger everywhere; to combat inequalities within and between countries; to build peaceful, just, and inclusive societies; to protect human rights and promote gender equality and the empowerment of women and girls; and to ensure the lasting protection of the planet and its natural resources. We are also determined to create the conditions for sustainable, inclusive and sustained economic growth, shared prosperity and decent work for all, taking into account different levels of national development and capacity.
>
> Whether we succeed in this over the next five years is the big question, but the vision extremely ambitious and transformative. We envision a world free of poverty, hunger, disease and distress, where all life can thrive. We envision a world free of fear and violence. A world of universal literacy. A world of equitable and universal access to quality education at all levels, to health care and social protection, where physical, mental and social well-being is ensured. A world where we reaffirm our commitments regarding people's rights to safe drinking water and sanitation and where hygiene is improved; and where the food is adequate, safe, affordable and nutritious. A world where human habitats are safe, resilient and sustainable, and where there is universal access to affordable, reliable and sustainable energy."

One thing is certain – and that is that Sustainable Learning's goals and ambitions will be small debris in the big picture, but there are still three approaches to contribute to positive input to Agenda 2030.

All these inputs were presented to us in dialogue with our informants.

1. **Sustainability part 1**: They express that the political approach is most important. We must carry out sustainability projects with political support emerged on research-based arguments. It is important that someone clarifies the challenges we face and signals a willingness to actually do something about them. Furthermore, it is important that schools are given freedom. One thing that is important is that schools must have a sense of ownership of what is to be done. No two school environments are the same, so we can't just make project copies – it's diversity that will create the new. *Freedom gives diversity.*

2. **Sustainability part 2**: There is not enough action behind the concept of sustainability. Admittedly, there are clear environmental requirements in relation to public procurement. There are also requirements for companies to have "Eco-Lighthouse" certification. More and more companies are getting that status. But what happens then. Are the companies' environmental strategies followed up by the companies – or has it just become a marketing trick? Here it must be cleaned up, so that everyone pulls in the same direction.

3. **Sustainability part 3**: We are becoming more and more dependent on the "enthusiasts". It is the "enthusiasts" who so far make the big difference in the environmental struggle. It makes us vulnerable, because there are too few of us. But they are the ones who grease the environmental machinery – and we need more of them who spend their time building and disseminating expertise on these important issues, and who can also be pioneers when it comes to clarifying environmental perspectives.

4. **Sustainability part 4**: Then we don't just need to talk, but action is necessary. We must have knowledge and it must be shared, spread to as many people as possible. We must have finances and then we must perform practically, it must be recognized as an important development work – and not least, we must use the three knowledge approaches we have talked about so that we get these questions, this perspective integrated into our mindset, refer to many different types of practical experience and not least be able to show that the project work method is the approach to knowledge that fits here, with different types of issues that are important both in the short and long term.

The effect of these 4 approaches will be made clear through the recommendations made for the Sustainability category.

The work must start immediately.

In that case, the model below (figure 11) can help to convey the first-hand message we are left with after conducting the research analysis. This will also help to form a solid foundation for continuing to work with the other work packages in the project, WP3. Recognition, WP4. Validation, WP5. Toolbox and WP6. Dissemination.

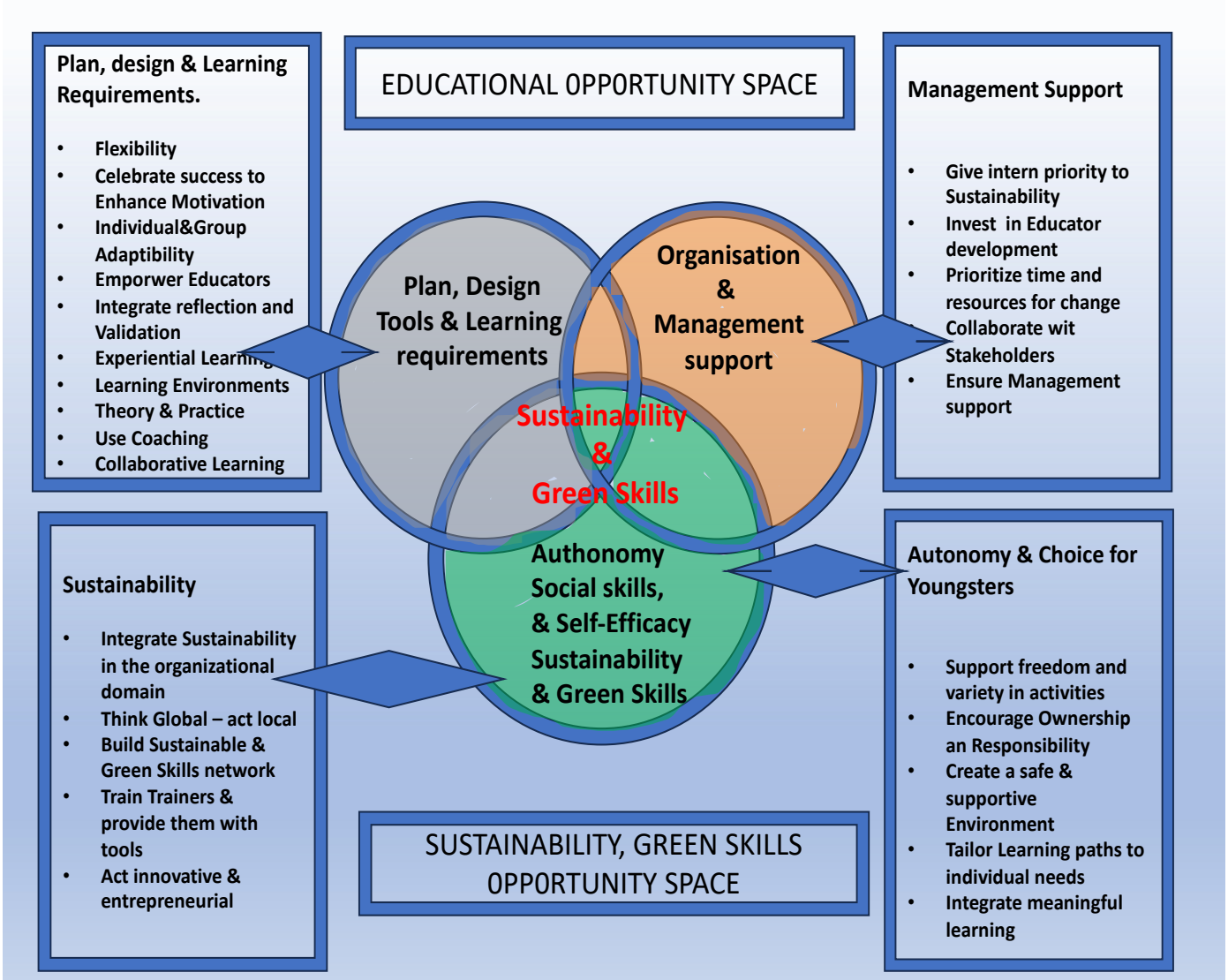

Figure 14

6. Validation

1. Validation Systems for Non-Formal Learning

Recommendations:

- Develop Portfolio-Based Documentation: Replace outcome-only certificates with dynamic portfolio-style documentation, capturing both the learning process and achievements.

- Implement Open Badges & Digital Credentials: Use visual tools like open badges to acknowledge competencies gained through non-formal learning (NFL), especially green and soft skills.

- Align with Formal Learning Standards: Create frameworks that map NFL outcomes to curriculum goals and competence descriptors in formal education.

- Make Learning Visible: Encourage learners to document progress through multimedia (e.g., videos, presentations, journals) to validate skill growth.

- Support Learners in Self-Assessment: Include guided self-reflection and milestone evaluations as recognized components of validation.

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2. Set of Green Skills

Recommendations:

- Define a Common Green Skills Framework: Clearly identify key green and sustainability-related competencies, such as systems thinking, circular economy, and climate awareness.

- Embed Skills Across Learning Contexts: Integrate green skills into all educational pathways—formal and non-formal—using practical projects, local environmental issues, and sustainability events.

- Include Holistic Competencies: Combine environmental knowledge with life skills like self-care, cooperation, critical thinking, and ethical decision-making.

- Incorporate System Thinking: Help learners understand interdependencies (e.g., between consumption, waste, and energy) and their role in broader sustainability systems.

- Connect Skills to Career Readiness: Link green skills development to job market demands in sustainable sectors to enhance learner motivation and relevance.

---

3. Bridging the Gap Between Non-Formal and Formal Learning

Recommendations:

- Create Interoperable Learning Paths: Design learning paths that recognize experiences and achievements across both NFL and formal settings.

- Foster Institutional Partnerships: Encourage collaboration between formal schools and community-based or vocational NFL providers to co-develop programs.

- Use Shared Language for Competences: Harmonize terminology between systems (formal/non-formal) to allow easy recognition and progression.

- Embed NFL in School Policies: Institutionalize space for projects, civic engagement, and experiential learning within formal curricula.

- Encourage Co-Creation and Reflection: Let learners design their own paths and reflect on their learning through joint planning with educators.

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4. Assessment of Skills

Recommendations:

- Diversify Assessment Formats: Offer learners multiple ways to demonstrate their competencies—e.g., videos, prototypes, collaborative projects, journals.

- Include Continuous Feedback Mechanisms: Foster learning loops through regular peer and educator feedback rather than relying solely on final evaluations.

- Use Competency-Based Rubrics: Assess both hard and soft skills with clear descriptors focusing on applied knowledge, personal growth, and contribution.

- Integrate Real-Life Performance Tasks: Assess learners through authentic, context-driven assignments like community challenges, work-based learning, or sustainability interventions.

- Prepare for Digital Assessment Tools: Develop skill portfolios and narratives that are readable and valuable in AI-based recruitment and assessment systems.

---

5. Non-Formal Learning Methods

Recommendations:

1. Prioritize Experiential Learning: Use real-world challenges, hands-on projects, and collaborative simulations to engage learners actively.

2. Incorporate Reflective Practice: Design learning processes that include structured reflection, journaling, or group debriefs to deepen learning.

3. Gamify the Learning Process: Introduce game elements to increase motivation, especially when teaching complex topics like sustainability.

4. Connect to Local and Personal Relevance: Ground NFL in local environmental or social issues to enhance engagement and impact.

Promote Peer and Intergenerational Learning: Use guided dialogue, role-play, and co-creation between students, professionals, and educators to share knowledge and inspire confidence.

8. Conclusions & recommendations

8.1. A new knowledge paradigm

Through our research, we have sought to shed light on the basic elements of the phenomenon of the "Holistic Learning Process" (HLP). In order to do so, we have applied to
the concepts of formal[17], informal[18] and non-formal[19] learning context. By seeing these three learning phenomena as mutually interacting in a human learning process, we seek to be able to constitute and clarify this through the concept of HLP, which in turn could be a significant contribution to the discourse of a new paradigm of knowledge.

Through this study, we seek to create new theory for how the three forms of learning can interact through the paradigmatic concept **HLP,** so that the phenomenon could possibly be used as a supplementary knowledge base in school and in other learning contexts in society.

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9. **Formal learning context** – The learning tradition that has accompanied the European School for generations, with theory-heavy, educator-led learning processes, preferably in classrooms.
10. **Informal learning context** – what we learn from the time we get up in the morning until we go to bed at night through social, practical experience-based experiences that provide knowledge, insight and understanding and help to form attitudes and build values.
11. **Non-formal learning context** – what we learn through organized learning that takes place outside the formal school system (work-related learning in leisure and private life – including entrepreneurial activities, entrepreneurship and enterprising/business creation activities).

The European Commission[20] (ref. pp. 11-13) has pointed out that there are major challenges related to education and skills among young people in today's EU and EEA countries. Several trends are highlighted as crucial for how young people can improve their basic competence development. One of the trends pointed out by the European Commission is the following:

> *Progress in basic skills for adults requires successfully getting to the "hardest-to-reach" groups, which are at significant risk of exclusion. Many of these adults have had bad experiences with school-based learning, left a "scar effect" or have several disadvantages. The low participation of low-skilled, disadvantaged and unemployed adults in learning activities underlines the need for well-designed policies to support those most at risk of exclusion from the labour market.* ***Successful policies often take a holistic approach, bringing together multidisciplinary services to support.***

In this context, it is natural to imagine that the Commission here is thinking about the basic competence development that takes place in adolescence – and young adulthood – and from which adults take experiences with them throughout their adult lives.
Within the field of epistemological paradigms, a distinction is often made between the scholastic and the non-scholastic paradigm.

According to Wackerhausen, the scholastic paradigm constitutes a dominant position in Western pedagogy in a loose Kuhnian sense (Wackerhausen 1999:183). The dichotomy between the scholastic and the non-scholastic paradigm is, as far as we can judge, one of the most secluded and forgotten discourses within today's school and educational policy. This is despite the fact that we know, through extensive research, that learning in a scholastic tradition detached from practice does not give the students enough good practical learning experiences in everyday school life. *Learning about a practical situation* is qualitatively different from *learning in practice*, in the alternation between theory and practice, and the distribution of learning processes over time and space (Lave and Wenger 1991; Low 1999; Nielsen k. & Kvale 1999).

Figure 15

We therefore choose to launch a new paradigm, “The Triple Helix Learning” paradigm (ref. figure 4), which must be seen as a result of a synthesis created by the contradictions between the three existing. It is these three examples that we have used as a starting point for the overall theoretical discussion of the main questions of this research. By adding this Paradigm, we want to be able to emphasize the importance of getting the practical perspective as a stronger and clearer element not only in teaching, but as a methodological awareness, professional approach and didactic way of thinking in the teaching professions. Based on this new paradigm, we will challenge ourselves to find the synthesis holistic learning and through

that, end up with one knowledge paradigm that unites all the important educational, practical and encultural[21] perspectives related to experience-based learning and teaching.

The research work we have done has led us to reflect on how we can create a education where differentiated instruction built on both a practical, experience based and theoretical approach is something more than a concept in a "North Star position" (something you can observe but never reach). The reflection is linked to the freedom to choose – and to link learning to practical activities that can create interest in more learning and different learning based on the learning actor's own world. The Norwegian philosopher Jakob Meløe emphasizes "to what is done, the one who does it responds" and through this the actor himself contributes to being able to define himself not only by who he is, but also by what he does (Meløe 1997:337) The desire to learn created by experience, practical insight into learning activities and freedom to use one's creative and entrepreneurial development potentials, should become a natural starting point for learning for everyone.
Therefore, we need a paradigm synthesis that encompasses both the propositional (formal) knowledge, the non-propositional (informal and non-formal) knowledge together.

8.1.2. Challenges and Barriers

In the dynamics of change, there can be many challenges and barriers. The most common challenges we face in the transition from a traditional, teacher-led school to a comprehensive educational unit that includes formal, informal and non-formal learning may be:

1. Cultural resistance:
Educators/Teachers, parents, students, and administrators are often deeply entrenched in traditional school models. Changing your mindset about what "real learning" looks like will be slow and challenging.

2. Redefining Roles:
In holistic education, the teacher's role changes from "instructor" to "facilitator" or "mentor". Many educators/teachers will need significant professional development to adapt to this new role.

3. Assessment and Certification:
Traditional systems rely heavily on standardized testing and formal assessments. Finding valid, credible ways to assess learning that happens non-formally and informally will be complicated.

4. Structural and organizational changes:
Schools are structured for efficiency around schedules, grades, and exams. A holistic model requires much more flexible structures – a mix of project work, experiential learning, community engagement and interdisciplinary learning. It can be more time-consuming for both educators and young people – and the risk of losing motivation and energy among those involved is present.

5. Resource Management:

[21] Encultural – refers to Enculturation – which is the process by which people learn the dynamics of their surrounding culture and acquire values and norms appropriate or necessary for that culture and its worldview

Holistic education often needs different types of resources – spaces that support group work, hands-on activities, outdoor learning, collaboration with community organizations, etc. Managing this practically and financially can be a big challenge.

6. Equity and Inclusion:
Informal and non-formal learning opportunities may inadvertently favour learners who already have strong social capital, well-developed entrepreneurial mindsets, or supportive home environments. Ensuring that all students benefit equally will require a conscious and co-creative design, where the facilitation work gives ownership to both educators and students/youth.

7. Guidelines and Accreditation Restrictions:
State regulations and accrediting bodies often require specific curricula and assessment procedures. Circumventing or advocating for changes to these guidelines may be necessary – and very slowly.

8. Build trust:
Parents and society at large may worry that a less traditional form of schooling is "less serious" or will not prepare students for higher education and jobs. Communication and transparency will be crucial.

9. Training and support for students:
Students who are used to passive learning may initially struggle with greater responsibility for their own learning paths. They need scaffolding in self-management, reflection and critical thinking.

10. Sustainability and scalability:
Piloting a holistic education model on a small scale is one thing; Maintaining it over time and scaling it to a larger school or network presents a different set of logistical and cultural challenges.

This comprehensive assessment underscores the urgent need for intensified efforts to put the SDGs on course. The UN's 13 climate goals are to stop climate change. This goal has an immediacy that indicates that we have no time to lose. We must fight climate change and its consequences every single day. The goal is to limit the global temperature rise to well below 2 degrees Celsius. We are in a hurry. Climate records have been shattered in recent years. Rising temperatures have not slowed down, and global greenhouse gas emissions continue to rise. Communities all over the world are suffering from extreme weather and increasingly frequent and intense disasters, which destroy lives and livelihoods on a daily basis. Meanwhile, fossil fuel subsidies are reaching record levels.
Therefore, Sustainable Learning could be one small contribution to able us to create new energy and consensus. With the project's strategic and proactive and holistic approach to sustainable learning and green skills, we may reach some of the young people who have dropped out of school, we may be able to help mobilize the 20-30% of young people who do not find their place in education and thus are unable to mobilize the energy from them that we desperately need for strengthening the fight to stop climate change.

8.1.3. Final Comments.

Education for sustainability and green skills cannot be limited to in-house activity in classrooms. It must be lived out, experienced, created and recreated across all the spaces where people learn. Nor does it provide full-fledged results if it is offered within the framework of a separate learning approach.

By bridging the gap between formal, informal and non-formal learning, we don't just create better learners – we cultivate stewards of a thriving, regenerative world.

This is probably the clearest message we harvested in our research work together with our informants.

The UN's two latest climate reports underline the seriousness we face when it comes to dealing with the climate challenges It is urgent to get control of climate change, loss of biodiversity and social inequality. This requires an education that transcends traditional boundaries. Formal learning alone cannot meet the dynamic challenges of sustainability. Non-formal learning offers practical, flexible, and community-connected pathways that are essential for equipping learners with green skills and regenerative mindsets.
Building structured bridges between formal and non-formal learning together with our lifelong daily learning competencies that we have acquired of values, attitudes, assessments, skills and knowledge through daily activities in the family, with friends and through the media, from morning to night. This is essential to prepare future generations to actively participate in the green transition and create resilient, thriving communities. Bridging the gap between formal and non-formal learning is not just an educational innovation – it's an ethical necessity for the future of our planet. By weaving structured real-world knowledge and experience into a Triple Helix of learning, we create education systems that are able to sustain life, regenerate ecosystems, and inspire global citizenship.
Each learning mode contributes with knowledge elements, Formal learning contributes with in-depth knowledge, sharing of knowledge and, according to the informants, also to experiencing knowledge in environments other than school. But most of all, it prevents the individual youngsters from being able to show all their potentials, capacities and talents. The youngsters are for too long kept in fixed structures during some of the most important growth years in young people's lives, when they should be starting to become better at leading themselves and dealing with the challenges they face, alone or with others. The meaningful, relevant, practice-experienceable, creative, innovative and socially engaged learning experience must allow to grow within holistic learning contexts. Youngsters will thereby grow and become stronger and strengthen the individual young person's personal responsible agency. By combining all these elements of knowledge, we gain both *roots and wings* – a learning experience that is both down-to-earth and dynamic

9. Glossary

10. References

Harvard Catalyst (2024*) Basic Mixed Methods Research Designs* (chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://catalyst.harvard.edu/wp-content/uploads/2021/09/HCAT_CEP_MixedMethodsResearch-Accessible.pdf)

Paulsen, J.M (2019). Strategisk skoleledelse. Bergen: Fagbokforlaget.

11. Attachments

1. QUESTIONNAIRE

SUSTAINABLE LEARNING

Questionnaire for Educators

Skilled educational workers working in the community as Educators, Trainers, Mentors, Supervisors, Vocational Masters, Youth Workers etc.

The Survey is about developing a curriculum of green sustainable training, where we aim to bridge formal and non-formal education to contribute to a more inclusive and diverse system of meaningful learning for all young people. We kindly ask you to fill in this questionnaire.

The purpose of the study is to get a deeper understanding of how non-formal learning methods can be implemented in Formal learning, how Formal Learning can be bridged with non-formal learning and green skills/sustainable learning concepts.

Participation in the survey is voluntary. The information we receive through the survey will be anonymised and used in publications from the project in such a way that it will not be possible to recognize individuals. A submitted answer delivered in writing is considered acceptance to take part in the study.

1. **Where do you work?**
   Example.:
   □ Youth Work/Youth Care □ In a Public School □ Private School □ In a Voluntary Organisation □ In a Municipality □ Other or similar (describe)

   ……
   ……
   ……

2. **Write a small personal narrative in the context of your teaching/learning experience (max. 100 words)**

……
……
……
……

3. **Formal Learning (FL) is educator prepared learning topics conveyed from educators to learners. Informal Learning (IL) is the experience-based learning situations you meet in daily living. Non-Formal Learning (NFL) refers to planned, structured programs and practical oriented processes of personal and social**

learning for young people, designed to improve a range of skills and competences, outside the formal educational curriculum

Can you, in short, describe (2 -3) Formal Learning examples from your educator career

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Can you, in short, describe (2 -3) In-Formal Learning examples from your educator career

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Can you, in short, describe (2 -3) Non-Formal Learning examples from your educator career

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.....
.....

4. Do you assess/recognize learning outcomes gained via non-formal learning.
☐ Yes ☐ No + a brief explanation if YES

If YES - how do you do this?

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.....
.....

In what discipline(s) do you educate?

.....
.....
.....

5. By Green Skills we mean:

Through a lifelong learning perspective, green skills need to be mainstreamed and incorporated into education policies and practices. Skills for the green economy (occupation-specific skills and life-skills) are necessary to establish and promote green jobs that can lead the sector transformation. Green skills have to do with knowledge, values, and attitudes to facilitate environmentally sustainable decision-making at work and in daily life: What can I do to live more sustainable?
In line with the New Industrial Strategy for Europe (European Commission, March 2020), green skills are an integral component to adequately equip, re - and upskill people for the future.

What can you do in your daily life to live a more sustainable life?
.....
.....

Are sustainability and green skills topics in your organisation. Please describe topics?
.....
.....
.....
.....

6. Do you have experience with «Good Practice of non-formal and/or green skills?

Non-formal skills: ☐ Yes ☐ No
Green skills: ☐ Yes ☐ No

If YES – please describe the good practice and educational materials to share (website(s), promotion
etc.) .....
.....
.....
.....
.....

7. In order to bridge Formal and Non-Formal learning and green skills/sustainable learning concepts, it is necessary to understand better how this can be done. We therefore ask you to describe what you consider to be barriers and facilitators for a successful bridging process (q 7a – e).

a. What are the barriers for non-formal education in your learning organisation and in general?

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.....

b. What are facilitators for non-formal education in your learning organisation and in general?

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c. What are the barriers for educating and learning green skills in your learning

organisation?

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.....

d. What are facilitators for educating and learning green skills in your learning organisation?

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...

e. What are the barriers for bridging formal and non-formal learning in your learning organisation?

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.....

8. Do you think it is important to include Non-Formal Learning in education? ☐ Yes ☐ No Please provide reasons for your answer:

.....
.....
.....

9. What should be included in a curriculum for teaching green skills in your learning organisation?

.....
.....
.....

For question 10 and 11 we ask you to assess your agreement/disagreement with the respective statements

10. Non-formal learning can provide young learners with skills and motivation that impacts their holistic learning outcome.

1 2 3 4 5 6 7 8 9 10
Agree **Disagree**

11. Impact of formal learning can be strengthened by including non-formal learning as part of curricula in learning organisations.

1 2 3 4 5 6 7 8 9 10
Agree **Disagree**

May we contact you for further information? If yes, please leave e-mail address or telephone number:
.....

THANK YOU FOR COMPLETING THE FORM!

2. Interview guide for semi structured interviews

EDUCATORS SEMI-STRUCTURED SINGLE INTERVIEW
WITH EDUCATORS
(and potential Stakeholders)
Written/oral information about the purpose of the interview.

Thanx for your response, for showing up and participate in this interview.
Time frame: 60 – 75 minutes

The Purpose: Bring out the participants' own accounts related to different learning strategies (formal, informal, and non-formal learning processes) and to the most important learning elements about the development of a sustainable and greener society.

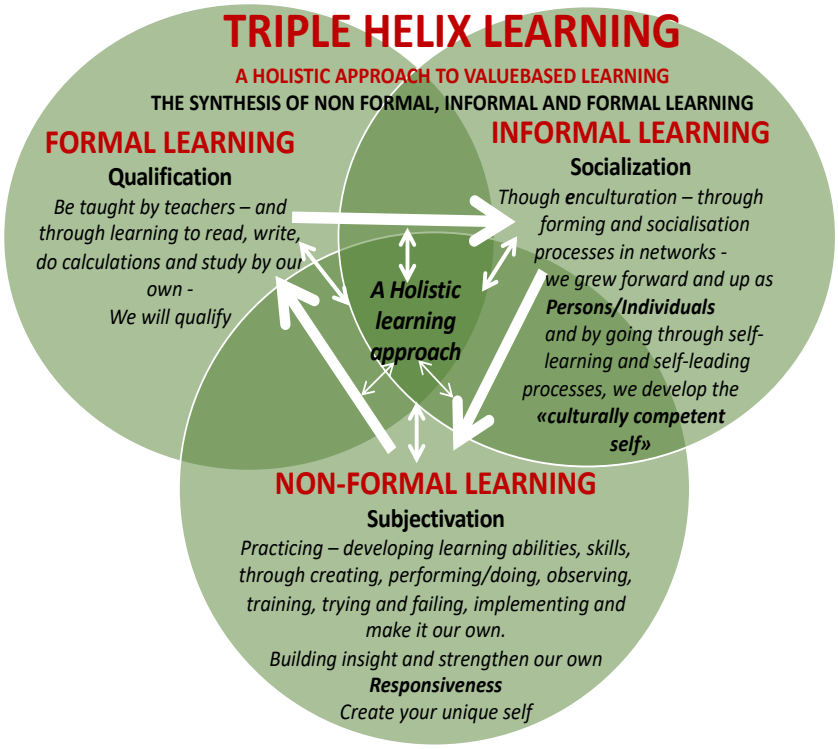
Introduction: A short review about what the interview is about.

Project Summary
The concept of Sustainable Learning revolves around creating inclusive, diverse, and sustainable educational systems by recognizing and bridging non-formal learning methods with formal education. This approach aims to equip young people with green and sustainable skills, preparing them for a more environmentally conscious future with the ultimate goal of empowering young people to thrive in a rapidly changing world. The Sustainable Learning initiative emphasizes collaboration, creativity, and innovation among educators and learners.

Key Objectives:

- Promote inclusivity and diversity in education by recognizing non-formal learning outcomes.
- Foster sustainability by integrating non-formal experiential learning into formal education.
- Empower educators with tools and methodologies to teach green and sustainable skills effectively.
- Motivate young people to take action by providing concrete skills applicable in their lives and future careers.

This project aims to achieve tangible results such as **research papers**, **good practice descriptions**, **validation systems for non-formal learning**, **toolboxes for educators**, **hybrid training**, **job-shadowing opportunities**, and **online resources**. **These outcomes are designed to disseminate knowledge and engage stakeholders in sustainable education practices.**
Three learning forms - formal, informal, and non-formal - are distinguished based on their structured, spontaneous, and planned characteristics, respectively. Each form contributes uniquely to a lifelong learning process, emphasizing skills acquisition, socialization, and personal development.
The innovation lies in bridging formal and non-formal education, creating a validation system for non-formal skills, and promoting sustainability. By linking formal education structures with non-formal learning approaches, this initiative seeks to enhance the quality, innovation, and recognition of youth work.
Research questions explore the potential of non-formal learning to minimize dropout rates in VET schools, experiences with non-formal learning methods, and integration with formal and informal approaches. Research methodologies include case studies, interviews, focus groups, surveys, and workshops to collect contextual data and develop new knowledge. The research process involves collaboration between researchers, educators, students, and other stakeholders to identify learning factors and mechanisms in non-formal and informal settings.



Consent:

- Clarify and confirm that the information letter for personal data has been completed.
- Clarify/confirm permission to make audio recordings (and film recordings) of the interview.
- Do you have any questions before the interview begins?

Topics of the semi-structured single interview:

Tell about your experience as an educator (including formal vs. informal learning methods).

From your experience, do all school children/youngsters benefit equally from education?

Can you describe how some young person's loose out in school?

How do you handle diversity in the classroom with respect to motivation, skills and the ability to learn?

Do you think formal learning methods are good for all young people?

Do you know, and do you have any experience with learning methods other than formal learning?

What are your thoughts about the ability of the current education system to be inclusive of all students?

How do you think different learning methods could contribute to more inclusive schools?

Would it be possible to combine formal and informal learning methods in the current school system?

What are the barriers for combining formal and informal learning methods in todays' school system?

How do you validate the learning of the youngsters? What system do you use and what do you think of this system? Are there things you miss in the system or in the topics of validation?

What is your experience with green skills and (non) formal education?

What kind of green skills are important for youngsters for now and in their future life?

3. DECLARATION OF CONSENT

I will participate in a focus group interview for the Erasmus + project **"SUSTAINABLE LEARNING"**

I agree to:

- To participate in a Focus Group Interview
- that an audio/video recording is made of the interview process
- I agree to my information being processed until the project is finished
- I understand that all audio recordings will be deleted when all post-work has been completed with the interview completed.

……. Place…… Date……2024.

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