

WOVEN Handbook: GreenComp in Practice



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TITLE

WOVEN Handbook: GreenComp in Practice

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EDITION DATE

July 2026

FINANCING

Servicio Español para la Internacionalización de la Educación (SEPIE), Erasmus+ Programme, European Union

Project	Work Opportunities in Vulnerable ENvironments
Acronym	WOVEN
Project n°.	2025-1-ES01-KA220-VET-000353213
Key action	KA220-VET - Cooperation partnerships in Vocational Education and Training
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 Co-funded by the European Union	Funded by the European Union. The opinions and views expressed are solely those of the author(s) and do not necessarily reflect those of the European Union or the Spanish Service for the Internationalisation of Education (SEPIE). Neither the European Union nor SEPIE can be held responsible for them.

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1. Introduction

The transition to a fairer, greener economy and society requires a fundamental shift in how we live, work, and learn. As European economies become more environmentally conscious, many jobs are undergoing a rapid transformation caused by the climate emergency. To meet these challenges, the European Commission has established the European Green Deal, which serves as a catalyst for promoting learning on environmental sustainability across the European Union.

Central to this effort is the GreenComp framework, a reference tool that provides a consensual definition of the sustainability competencies required for individuals to think, plan, and act with empathy and responsibility for our planet. GreenComp is designed for all learners, regardless of age or education level, and aims to nurture a sustainability mindset that enables individuals to become agents of change.



Figure 1 - GreenComp Framework Cover

1.1. The WOVEN Project Context

The WOVEN (Work Opportunities in Vulnerable ENvironments) project responds to the urgent need to equip vocational education and training (VET) teachers and students with the skills required to address climate-related challenges. Rural regions are particularly vulnerable to climate impacts, facing threats such as fires, droughts, and depopulation. The project aims to:

- Improve the understanding of the GreenComp framework for VET teachers through creative and digital methods.
- Align VET education with the professional field of climate change adaptation to protect vulnerable rural communities.
- Increase job opportunities by developing a professional rural network connecting learners with local stakeholders.

1.2. Purpose and Scope of the Handbook

While the official GreenComp framework provides a robust conceptual reference model, its translation into the specific reality of the VET workshop or classroom requires an applied approach. This handbook bridges the gap between high-level policy and daily educational practice, transforming abstract values into concrete professional actions.

This handbook is specifically designed for VET educators and trainers who serve as the vital link between education and the green labor market. It acknowledges the unique challenges of teaching in rural areas and provides the tools necessary to adapt training to emerging green jobs.

1.3. How to Use This Handbook

This handbook is built for flexibility and can be implemented through stand-alone study, modular integration into existing units, or blended learning environments.

- **A Continuous Companion:** Rather than a one-time read, this manual is intended to accompany you throughout your training cycle, from initial curriculum design to student assessment.
- **Supporting Professional Reflection:** Beyond transferring knowledge, the manual is a reflection tool. It encourages trainers to question their own assumptions and "wicked" problems, moving the focus from "what we know" to "how we act".

- **Facilitating Replication:** The structure is designed to allow other trainers to replicate these methodologies easily, ensuring the WOVEN project's impact is transferable and scalable across different VET centers in Europe.

It is vital to distinguish between competencies and mere content. In the GreenComp context, a competence is a dynamic combination of knowledge, skills, and attitudes. While content might cover *information* about climate change, a sustainability competence empowers the learner to embrace complex systems and take action to restore ecosystem health.

The **12 sustainability competencies** are not isolated silos; they are tightly interrelated building blocks that must be treated as a whole. Using the bee pollination metaphor, this handbook illustrates how "Embodying Sustainability Values" (the beehive) protects and gives purpose to "Acting for Sustainability" (the bees).

A primary risk in sustainability education is a superficial or fragmentary interpretation of these concepts. Treating sustainability as an "extra subject" or a simple checklist undermines its potential for transformative learning. This handbook strives for an evidence-based perspective that challenges the status quo and avoids "greenwashing" or oversimplification of complex socioecological realities.

2. Understanding GreenComp

2.1. Origin and Policy Background

GreenComp was developed by the European Commission as a direct response to the ambitions of the **European Green Deal**, serving as a catalyst to promote learning on environmental sustainability across the European Union. Its creation was specifically called for in major policy papers, including the **European Skills Agenda for Sustainable Competitiveness, Social Fairness and Resilience (2020)** and **Achieving the European Education Area by 2025 (2020)**, which underscored the urgent need for a shared European framework to define sustainability as a competence.

Additionally, the **EU Biodiversity Strategy for 2030** highlights that education and training are critical to achieving the goal of a climate-neutral continent by 2050. GreenComp follows the established methodology of other successful EU lifelong learning frameworks, such as **DigComp** (digital competence) and **LifeComp** (personal and social

competence), to ensure consistency in how Europeans develop essential skills throughout their lives.

2.2. The European Context: Green Transition and VET

As European economies transition toward a fairer, greener model, the nature of work is undergoing a rapid transformation. This "green transition" requires a workforce capable of mastering new skills to meet environmental challenges. Within this context, Vocational Education and Training (VET) is a priority area for EU policy, as it must adapt its training offer to meet changing labor market needs and master the skills required for sustainability.

The WOVEN project responds to research showing that sustainability concepts, particularly those related to climate change adaptation, are not yet sufficiently widespread in VET education. By embedding GreenComp into the VET sector, the project aims to bridge the gap between high-level European policy and the practical needs of rural regions, which are often the most vulnerable to climate impacts.

2.3. The Role of VET Trainers

VET educators and trainers serve as the vital link between the classroom and the green labour market. They are responsible for preparing the future workforce to become agents of change capable of protecting their local environments.

However, studies have identified a challenge: many VET teachers currently report a low understanding of how to integrate green competencies into their specific trades. Therefore, this manual is designed not as a simple checklist, but as a pedagogical framework and reflection tool. It supports trainers in moving beyond the mere transfer of information to helping students develop a sustainability mindset, empowering them to think, plan, and act with responsibility for the planet.

2.4. Sustainability as a Cross-Cutting Skill

Sustainability is defined by GreenComp as a transversal, cross-cutting competence that should not be treated as an "extra subject" or an isolated SUBJECT. Instead, it is a dynamic combination of knowledge, skills, and attitudes that should be embedded across all disciplines.

As a "building block" framework, GreenComp recognizes that sustainability involves **four interrelated areas**:

- Embodying values (the "heart").
- Embracing complexity (the "head").
- Envisioning futures (the "imagination").
- Acting for sustainability (the "hands").

Treating sustainability as a cross-cutting skill allows VET students to apply these competencies to any professional context, whether they are working in agriculture, social work, or emergency services, ensuring they can operate within planetary boundaries and contribute to a resilient society.

2.5. Framework

The GreenComp framework is a reference tool developed by the European Commission to provide a common ground for learners and guidance for educators on sustainability as a competence. It identifies a set of sustainability competencies to be integrated into education programs to help individuals think, plan, and act with empathy, responsibility, and care for our planet.

The primary aim of GreenComp is to foster a sustainability mindset. By providing a consensual definition of what sustainability entails, it serves as a catalyst for action and a shared strategy for learning environmental sustainability. It is designed to support the development of systemic and critical thinkers who can overcome cognitive dissonance, the gap between knowing about an issue and having the agency to act on it. To achieve this aim, the GreenComp framework is based on the following key principles:

- **Sustainability as a Transversal Competence:** GreenComp defines sustainability as a cross-cutting skill that should not be treated as an "extra subject" or a mere checklist. It is a dynamic combination of knowledge, skills, and attitudes that must be embedded across all disciplines and subjects.
- **Lifelong and Life-Wide Learning:** The framework is designed for all learners, regardless of age or education level. It applies to formal, non-formal, and informal settings, and covers all spheres of life, from childhood to adulthood, on both personal and collective levels.

- **Relevance for VET Contexts:** In the Vocational Education and Training (VET) sector, GreenComp is crucial for adapting training to meet the needs of the green transition. It addresses the specific gap where VET teachers require better strategies to transfer green competencies to students preparing for the green labour market.

Furthermore, the framework consists of **12 competencies** organized into **4 interrelated areas**. These blocks are equally important and should be treated as parts of a whole:

1. **Embodying Sustainability Values:** Valuing sustainability, supporting fairness, Promoting nature.
2. **Embracing Complexity in Sustainability:** Systems thinking, Critical thinking, Problem framing.
3. **Envisioning Sustainable Futures:** Futures literacy, Adaptability, Exploratory thinking.
4. **Acting for Sustainability:** Political agency, Collective action, Individual initiative.

To illustrate these dynamics, GreenComp uses the bee pollination metaphor. The beehive represents values that protect the system; flowers represent the envisioned futures; pollen and nectar symbolize the complexity that attracts learners; and the bees represent the individuals and collectives acting to ensure the system's survival.

2.6. Practical Relevance

The GreenComp framework is not a static list of definitions; it is a dynamic tool designed to be applied in real-world educational and professional settings. For the WOVEN project, its practical relevance lies in its ability to bridge the gap between sustainability theory and the daily reality of vocational education and training (VET), as trainers are the vital link between the classroom and the green labour market. Trainers are responsible for preparing a workforce that can thrive in a rapidly changing economy driven by the European Green Deal. Their role shifts from mere information providers to facilitators who nurture a sustainability mindset in their students. Therefore, GreenComp provides a common ground for both educators and learners. For VET teachers and trainers, it offers a shared strategy and a consensual definition of sustainability as a competence, helping them overcome the challenge of not knowing how to integrate green

skills into their specific trades. For learners, it empowers them to become agents of change who can think, plan, and act with responsibility for the planet.

2.7. Pedagogical Implications

To develop these competencies effectively, VET pedagogy must move toward transformative and experiential learning. Effective practices include:

- **Active and Student-Centered Learning:** Using project-based and problem-based approaches where students solve real-world issues.
- **Simulations and Role Plays:** Helping learners explore different stakeholder perspectives and practice decision-making under uncertainty.
- **Outdoor and Local Approaches:** Analyzing case studies from the students' own communities to make sustainability tangible.

There is a direct link between GreenComp competencies and employability. As the climate emergency transforms the labour market, businesses urgently need workers who can master the green transition. The WOVEN project specifically connects these competencies to job opportunities in climate change adaptation, particularly in critical community systems like agriculture, water management, and emergency services. By acquiring these skills, VET students secure their future in an economy that prioritizes planetary boundaries. Therefore, it is essential to understand that GreenComp is a pedagogical framework and curriculum design tool, not a simple checklist.

- **Not an Extra Subject:** Sustainability should be treated as a transversal, cross-cutting competence embedded across all disciplines and subjects rather than an isolated "extra" module.
- **A Reflection Tool for Practice:** Educators can use the framework to assess where they stand in supporting learners and to reflect on their own teaching methodologies.
- **A Strategy for Lifelong Learning:** It supports a whole-school approach, encouraging a sustainability culture that persists from childhood through adulthood and across all spheres of professional life.

It is also important to recognize that there are real dilemmas in VET training, as sustainability often involves "wicked problems", complex issues with no single solution and

various conflicting requirements. VET training can address these through real-world dilemmas, such as:

- **Technological Trade-offs:** Discussing how green technologies like biofuels can have unintended consequences, such as increased competition for land and loss of biodiversity.
- **Consumerism vs. Sustainability:** Evaluating the systemic impact of "fast fashion" or frequent air travel against the values of resource preservation.
- **Economic vs. Ecological Interests:** Navigating situations where sustainable options might compete with short-term personal or commercial interests.

3. The Four GreenComp Areas



Figure 2 - GreenComp Areas

The GreenComp framework consists of 12 sustainability competencies organized into four interrelated areas. These areas are not a hierarchy but function as building blocks that must be treated as parts of a whole to develop a true sustainability mindset. Together, they empower individuals to think, plan, and act with empathy and responsibility for the planet. To illustrate how these areas interact, the framework uses a bee pollination metaphor:

- **Embodying Sustainability Values (The Beehive):** This area serves as the foundation that protects and sustains the system, encouraging us to reflect on personal values and advocate for equity and nature.
- **Embracing Complexity in Sustainability (Pollen and Nectar):** This area focuses on the intellectual tools, systems thinking and critical reflection, needed to understand the intricate interdependencies of our world.
- **Envisioning Sustainable Futures (Flowers):** This area enables learners to imagine alternative scenarios and navigate uncertainty to create seeds for future life.
- **Acting for Sustainability (The Bees):** This area represents the active agency of individuals and collectives working together to ensure the system's survival and drive systemic change.

In the context of the WOVEN project, these four areas provide a pedagogical map for VET trainers to transform students into climate change professional agents. By mastering these interrelated areas, learners move beyond mere knowledge acquisition to overcome cognitive dissonance, closing the gap between knowing about environmental issues and having the agency to act on them

4. Embodying Sustainability Values

Embodying Sustainability Values is the foundational area of the GreenComp framework, serving as the "heart" or the beehive that protects and sustains the entire system. This competence area encourages learners to reflect on and challenge their own personal values and world-views, advocating for equity and justice for current and future generations while supporting the fundamental view that humans are a part of nature.

In the Vocational Education and Training (VET) sector, this area is essential for fostering a sustainability mindset. VET educators and trainers serve as the vital link between the classroom and the green labour market, preparing a future workforce that can act as agents of change. Because socioecological problems are "wicked problems", complex, ill-structured, and involving interlinked social and natural systems, learners must develop a core set of values to navigate these challenges. Mastering this area helps students overcome cognitive dissonance, closing the gap between knowing about an environmental issue and having the ethical agency to act on it.

Links to Professional Identity and Ethical Responsibility

The development of sustainability values is deeply intertwined with professional identity and ethical responsibility. A professional's values and world-views shape their perception and understanding of workplace problems at all times. Within VET, it is critical that these values are established early, as technical competencies like systems thinking or futures literacy could otherwise be used for unsustainable actions if they are not grounded in an ethical framework. For rural professionals in sectors such as agriculture, forestry, and emergency services, this area ensures they can operate within planetary boundaries and make decisions that prioritize the needs of all life forms.

Map of Interconnections

The three competencies in this area are interrelated building blocks that must be treated as a whole:

- **Valuing Sustainability:** Focuses on reflecting on personal values and identifying how they align with or diverge from sustainability values.
- **Supporting Fairness:** Promotes intra- and intergenerational equity and justice, recognizing that environmental quality is intrinsically linked to human equity and the rights of other species.
- **Promoting Nature:** Develops empathy for the planet and acknowledges human dependence on healthy, resilient ecosystems.

While these competencies are complementary, for instance, environmental justice directly supports human equity, there are inherent tensions to navigate. VET training must address the conflict between sustainability values and ingrained socio-economic models, such as the tension between resource preservation and consumerism. Together, these values provide the foundation and protection for the "bees", the active agency of individuals and collectives, to drive systemic change for the planet.



Figure 3 - Map of Interconnections

4.1. Competence 1: Valuing Sustainability

4.1.1. Definition & Theoretical Background

The official GreenComp descriptor defines this competence as the ability to reflect on personal values, understand how these values vary across different people and time periods, and critically assess how they align with the broader goals of sustainability. In simpler terms: It is the practice of thinking deeply about what you care about, noticing how your priorities might differ from others', and making sure your personal and professional choices truly support the health of the planet and society.

Valuing Sustainability is considered a meta-competence. Its primary goal is not to force a specific set of rules, but to make learners realize that values are constructs that people can choose to prioritize. Within the overall vision of GreenComp, this competence acts as the "anchor." Without it, technical skills like systems thinking or futures literacy could be misused for unsustainable ends. It fosters the sustainability mindset needed to overcome "cognitive dissonance", the gap between knowing there is an environmental problem and actually feeling the ethical responsibility to act.

This competence is the first building block of the "Embodying Sustainability Values" area, detailed in the European Commission's Joint Research Centre report: [*GreenComp: The European sustainability competence framework*](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022)

Theoretical Foundations

This competence is rooted in the "Head, Hands, and Heart" model. It moves beyond simple knowledge acquisition to profoundly change a learner's perspectives and beliefs through reflection. It draws on moral philosophy to advocate for equity and justice for both current and future generations. It acknowledges that socioecological issues are "wicked problems", complex and ill-structured, requiring a values-based framework because purely objective, "value-free" science is often insufficient to solve them. It uses a holistic approach to show how individual demand (driven by greed or individualism) has systemic negative consequences for the environment.

Associated Key Concepts:

- **Normative Knowledge:** Understanding how the world *should* look based on ethical goals, as opposed to just describing facts (descriptive knowledge).
- **Worldviews:** Recognizing the three main lenses through which we see sustainability, namely Anthropocentrism (human-centered), Technocentrism (believing technology solves all ecological issues), and Ecocentrism (nature-centered).
- **Value Plurality:** Acknowledging that various cultures and generations attach different importance to sustainability based on their unique value systems.

4.1.2. Practical Examples

Integrating the GreenComp framework into the Vocational Education and Training (VET) sector requires a fundamental shift in how instructors approach their craft. This transition moves away from traditional lecture-based models toward a more dynamic, facilitative, and ethically grounded pedagogical practice.

Table 1 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
Technological Trade-offs (Classroom Debate)	Trainers lead a debate on biofuels, requiring students to evaluate unintended systemic consequences like competition for land and loss of biodiversity.	Embracing Complexity: Using critical thinking to navigate the dilemmas of "wicked problems".
Consumerism vs. Sustainability (Workshop Analysis)	In retail or fashion programs, students analyse the systemic impact of "fast fashion" against values of resource preservation.	Valuing Sustainability: Assessing how professional choices align with long-term ecological health.
Sustainable Procurement Choice	A trainer presents two purchasing options for workshop materials: the	Valuing Sustainability: Comparing professional decisions according to the values they promote, such as

(Workshop Decision-Making)	cheapest disposable option and a more durable, repairable, or locally sourced alternative. Students discuss which values are reflected in each choice and how professional decisions can either support or undermine sustainability.	responsibility, durability, fairness, and ecological care.
School Procurement Values Debate (Classroom Debate)	Students examine a school purchasing decision, such as cleaning products, workshop materials, or food suppliers. They compare criteria such as price, health, fairness, local economy, animal welfare, biodiversity, and long-term environmental impact.	Valuing Sustainability: Assessing how institutional choices reflect different values and whether these choices support ecological, social, and ethical responsibility.
Professional Values Audit (Workshop Reflection)	Students compare two professional choices in their trade, such as buying cheaper disposable materials versus investing in durable, repairable materials. They identify which values each choice reflects, such as cost, convenience, fairness, ecological care, or long-term responsibility.	Valuing Sustainability: Reflecting on how professional choices reveal personal and institutional values, and assessing whether those choices align with sustainability principles.
Waste and Repair Initiatives (Practical Workshop)	Organizing sessions focused on reducing waste, reusing, or sharing materials, such as using second-hand gardening tools for campus maintenance.	Promoting Nature: Actively working to restore and regenerate healthy ecosystems through circular practices.

Open Business Challenges (Student Pilot)	Students participate in a competition to develop business ideas that prevent climate impacts or protect vulnerable rural residents.	Individual Initiative: Connecting green competencies directly to employability and rural economic resilience.
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Key Implications for VET Trainers

- **Shift from Information Provider to Facilitator:** The trainer's role evolves from delivering content about climate change to becoming a facilitator who nurtures a sustainability mindset in students. Instead of merely lecturing on facts, trainers guide students through the complexities of the green transition.
- **Adoption of Transformative Learning:** Practice must move toward experiential and transformative learning, which engages the "Head, Hands, and Heart". This means encouraging students to reflect on their own assumptions and "wicked problems," shifting the focus from "what we know" to "how we act".
- **Integrating Sustainability as a Cross-Cutting Skill:** Rather than treating sustainability as an "extra" or stand-alone subject, trainers must embed these competencies into the daily reality of the VET workshop or classroom. This allows students in agriculture, social work, or emergency services to apply green skills directly to their specific trades.
- **Utilizing Active and Student-Centered Methods:** Trainers are encouraged to implement Project-Based Learning (PBL) and Problem-Based Learning, where students solve real-world issues. This includes using simulations and role-plays to explore stakeholder perspectives and practice decision-making under uncertainty.
- **Emphasis on Normative and Critical Reflection:** Trainers must help students navigate ethical dilemmas and "value-free" science gaps by prioritizing the needs of all life forms within planetary boundaries.
- **Employability Link:** Training is specifically aligned with emerging job opportunities in climate change adaptation, ensuring VET graduates are prepared for the green labor market.

4.1.3. *Teaching & Learning Approaches*

The WOVEN project adopts a pedagogical model rooted in transformative and experiential learning, moving beyond the simple transfer of information to the cultivation of a sustainability mindset. This approach requires engaging the "Head, Hands, and Heart" to help learners bridge the gap between knowing about environmental issues and having the agency to act on them.

Link to Professional Practice & Learning Outcomes for Trainers

VET educators and trainers are the vital link between the classroom and the green labor market, particularly in rural regions. The trainer's role moves from being a traditional information provider to a facilitator who guides students through the complexities of the green transition. Trainers will develop the ability to integrate GreenComp competencies as cross-cutting skills within their specific trades (e.g., agriculture, forestry, social work). The manual serves as a reflection tool, enabling trainers to assess their own teaching methodologies and question their assumptions regarding "wicked problems", complex socioecological issues with no single solution.

Appropriate Teaching Methods

Project-Based and Problem-Based Learning methods empower students to solve real-world issues within their own communities. For example, students might be challenged to develop business ideas that protect vulnerable rural residents from climate risks. Role-play and simulations help learners explore diverse stakeholder perspectives and practice decision-making under conditions of uncertainty, risk, and ambiguity.

Debates & Case Studies

Trainers should facilitate discussions on socioecological dilemmas, such as: Technological Trade-offs, to evaluate the unintended consequences of "green" technologies like biofuels (e.g., loss of biodiversity vs. energy needs); Consumerism vs. Sustainability to analyse the systemic impact of "fast fashion" against the values of resource preservation. Trainers can use everyday professional dilemmas, such as choosing workshop materials, managing waste, or selecting suppliers, to help students reflect on how their values influence sustainable decision-making.

Reflection Questions for Students/Trainees:

- "Why is the GreenComp framework valuable for my future professional career?"
- "How must future jobs in my sector align with the needs of vulnerable communities?"
- "How does my practical experience during this project align with the WOVEN community goals?"

Reflection Questions for Trainer Self-Assessment:

- "Where do I currently stand in my ability to support learners in developing sustainability skills?"
- "Am I successfully moving the focus of my training from 'what we know' to 'how we act'?"
- "Does my teaching approach adequately account for the specific needs and geographical challenges of my rural VET center?"

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources specifically designed to integrate this competence into VET workshops and classrooms. These materials support trainers in guiding students to apply green skills directly to their trades, ensuring they are prepared for the emerging labor market in climate change adaptation. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 4 of the [ToolKit](#)**.

4.2. Competence 2: Supporting Fairness

4.2.1. Definition & Theoretical Background

The official GreenComp framework defines this competence as the ability to support equity and justice for both current and future generations while learning from the wisdom and actions of previous generations. In simpler terms: It is the active commitment to making sure everyone, people living now, those who will be born in the future, and even other species, has a fair and just chance to thrive in a healthy environment. It means understanding that we cannot have a healthy planet without a fair society.

Supporting Fairness acts as a moral compass within the GreenComp vision. It shifts the focus from purely technical or environmental fixes to the ethical dimension of sustainability. Its intention is to help learners recognize that human health is inextricably linked to planetary health. By fostering this competence, GreenComp aims to bridge the gap between "knowing" about inequality and having the ethical agency to demand and create just transitions for all citizens.

This is Competence 1.2 of the "Embodying Sustainability Values" area, found in the European Commission's Science for Policy report: [*GreenComp: The European sustainability competence framework*](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022).

Theoretical Foundations

Supporting fairness asserts that education should empower learners to become agents of change who prioritize the needs of all life forms within planetary boundaries. It is rooted in a sense of belonging to a common humanity. It encourages learners to move beyond individualism toward global solidarity and active participation in democratic processes. This competence draws on moral philosophy to address complex issues where technical solutions alone are insufficient because they involve conflicting social and political values. Fairness is theoretically supported by a holistic worldview that sees how socio-economic inequalities (like income gaps) are deeply interconnected with environmental risks (like pollution or climate vulnerability). This competence uses the "Head, Hands, and Heart" model to profoundly change a learner's perspective. It specifically targets the "Heart" (affective domain) to nurture empathy and a deep-seated commitment to justice.

Associated Key Concepts:

- **Intra- and Intergenerational Equity:** Ensuring fairness among different groups of people living today (intra-) and protecting the rights and resources of those who will live in the future (inter-).
- **Environmental Justice:** The principle that all people, regardless of income or background, have a right to a safe, clean, and healthy environment.

- **Justice for Other Species:** Recognizing the inherent rights and needs of non-human life and ecosystems as a fundamental part of fairness.
- **Learning from Past Generations:** Valuing and incorporating traditional knowledge and sustainable practices from our ancestors into modern solutions.

4.2.2. Practical Examples

Integrating the "Supporting Fairness" competence requires VET trainers to move beyond technical instruction toward becoming ethical facilitators who nurture a sustainability mindset. The primary implications for pedagogical practice include:

- **From Technical Efficiency to Ethical Equity:** Trainers must shift the focus from "how a system works" to "who a system serves," guiding students to assess if their professional solutions (in agriculture, mechanics, or social work) are just and inclusive.
- **Navigating "Wicked Problems":** Instructors should move away from providing "one-size-fits-all" answers, instead facilitating discussions on complex dilemmas where technical fixes might create social inequalities, such as the trade-off between green technology costs and community accessibility.
- **Modeling Inclusive Solidarity:** Trainers are encouraged to implement the project's inclusion and diversity criteria, ensuring that at least 40% of participants represent those with fewer opportunities and that marginalized perspectives (e.g., migrants or those in remote rural areas) are central to the learning process.
- **Transformative Assessment:** Evaluation shifts from checking knowledge to observing affective domain changes, how students demonstrate empathy for other species and a commitment to protecting the rights of future generations.

Table 2 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
Classroom (Debate)	Students lead a structured debate on water rights during a drought, arguing the ethical priority between high-yield industrial farming and small-scale subsistence gardens.	Intragenerational Equity: Ensuring the just distribution of essential resources among current community members.
Technical Workshop	In a construction or design unit, students analyse the "environmental debt" of different materials, specifically selecting those that do not leave a toxic legacy for the local community.	Intergenerational Equity: Protecting the right of future generations to inherit a safe and healthy environment.
Work-Based Learning (WBL)	During an internship in a rural utility company, a student proposes a "vulnerability map" to ensure that emergency services are optimized for elderly residents living in remote areas.	Social Justice: Removing barriers to safety and resilience for the most disadvantaged populations.
Rural Fieldwork	Students collaborate with elderly farmers to document ancestral irrigation techniques, evaluating how these low-tech, sustainable methods can be integrated into modern climate adaptation plans.	Learning from Generations: Valuing the wisdom of past generations to create fairer modern solutions.
Project Pilot	Students participate in the "WOVEN Business Challenge" to design a Community Repair	Circular Fairness: Promoting sharing economies that reduce

	Hub, which provides free tool-sharing and repair skills to low-income rural households.	waste while supporting community economic resilience.
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4.2.3. Teaching & Learning Approaches

The WOVEN project utilizes a pedagogical model based on transformative and experiential learning, moving beyond the simple transfer of information to profoundly change a learner's perspective and behaviour through reflection. This approach engages the "Head, Hands, and Heart" to help learners bridge the gap between knowing about environmental issues and having the ethical agency to demand and create just transitions for all citizens.

VET educators in rural regions are the vital link between the classroom and the green labour market. For this competence, trainers should aim to:

- **Identify Equity Impacts:** Facilitate the ability of students to identify how professional decisions in their sector (e.g., agriculture or construction) create intragenerational or intergenerational equity.
- **Foster Environmental Justice:** Integrate the concept that environmental quality is intrinsically linked to equity and justice, helping students see access to green spaces or clean resources as a fundamental human right.
- **Promote Inclusion:** Model professional fairness by adhering to the project's inclusion criteria, ensuring that at least 40% of participants represent those with fewer opportunities (economic, cultural, or geographical).

Appropriate Teaching Methods

Empower students to solve real-world issues within their own communities. Students might be challenged to develop business ideas that protect vulnerable rural residents from climate impacts, ensuring the "just transition" is practical and localized. Help learners explore diverse stakeholder perspectives (e.g., a dialogue between an industrial developer and a local minority group) to practice decision-making under conditions of uncertainty. Foster the skill of building consensus on sustainability in an inclusive manner, acknowledging and respecting worldviews from different cultures or generations.

Debates & Case Studies

Trainers should facilitate discussions on whether current professional practices are "borrowing" resources from future generations or committing "ecocide" (long-term damage to the environment). Analyse how ancestral or indigenous techniques from previous generations can be integrated into modern professional practices to create more resilient and fairer solutions. Use case studies to identify connections between income inequality and environmental risks, such as how low-income families in rural areas are often more exposed to polluted environments.

Reflection Questions for Students/Trainees:

- "How does my professional choice today impact the life opportunities of someone in my sector 50 years from now?".
- "Does this technical solution remove barriers for the most vulnerable people in my rural community, or does it create new ones?".
- "How can I ensure that the interests of other species are respected in my daily professional tasks?".

Reflection Questions for Trainer Self-Assessment:

- "Am I ensuring that marginalized perspectives (e.g., minority cultures or elderly residents) are represented when we frame professional problems?".
- "How am I promoting responsibility and fairness within the student teams during our collaborative workshops?".
- "Does my teaching approach adequately account for the specific geographical challenges and vulnerabilities of my rural VET center?".

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources, specifically designed to integrate this competence into VET workshops and classrooms. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 7 of the [ToolKit](#)**.

4.3. Competence 3: Promoting Nature

4.3.1. Definition & Theoretical Background

The official GreenComp framework defines this competence as the ability to acknowledge that humans are part of nature and to respect the needs and rights of other species and nature itself to restore and regenerate healthy, resilient ecosystems. In simpler terms: It is the practice of developing empathy for our planet and showing active care for all living things. It involves moving away from seeing nature as just a "tool" for humans and recognizing that we are an inseparable part of a living system that we must help heal.

Promoting Nature is designed to ignite a deep feeling of connectedness to the environment. Within the GreenComp vision, this competence aims to contrast the psychological distress and "eco-anxiety" often felt by learners by providing a sense of agency and purpose in restoring the natural world. By fostering a healthy relationship with the natural environment, it provides the "heart" of the framework, ensuring that sustainability is not just a technical task but a meaningful relationship.

This is Competence 1.3 of the "Embodying Sustainability Values" area, detailed in the European Commission's Science for Policy report: [*GreenComp: The European sustainability competence framework*](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022).

Associated Key Concepts:

- **Connectedness to Nature:** Moving beyond "surface-level contact" (being outdoors) to a meaningful internalization of experiences with plants, animals, and places.
- **Nature Deficit Disorder:** Understanding the human costs of alienation from nature, such as decreased use of senses, attention difficulties, and physical illnesses.
- **Interdependence:** Recognizing the close links between living organisms and non-living components (geosphere, biosphere, hydrosphere, etc.).
- **Regenerative Practice:** Not just "preserving" what is left but actively working to **restore and regenerate** damaged ecosystems.

Theoretical Foundations

This competence is rooted in the understanding that the divide between human and ecological systems is arbitrary; humans shape ecosystems, and their actions can cause rapid, irreversible damage. It draws on the scientific framework of nine critical Earth system processes (like biosphere integrity and land-system change) that regulate the planet's stability and must not be exceeded. Rooted in the "affective domain" (Heart), it uses reflection to profoundly change perspectives and behaviours, helping learners overcome the "cognitive dissonance" of knowing about environmental crises but not feeling connected enough to act. It moves beyond human-centric ethics (anthropocentrism) to a view that respects the inherent rights and needs of nature itself. It highlights that human security, health, and mood are directly dependent on the well-being and health of nature.

4.3.2. Practical Examples

Integrating the "Promoting Nature" competence requires a shift from viewing the environment as a resource to be managed toward viewing it as a living system to which humans belong. For VET trainers, this involves several pedagogical transitions:

- **From Lecturer to Experiential Facilitator:** Trainers move beyond providing information about climate change to facilitating experiential learning. This means taking students out of the traditional classroom to experience nature directly, which helps overcome "nature deficit disorder" and builds a meaningful internalization of ecological experiences.
- **Adopting Regenerative Pedagogies:** Instead of focusing solely on "minimizing harm" or "preserving" what remains, trainers guide students toward regenerative practices, actively healing and restoring ecosystems through their specific trades, such as agriculture or forestry.
- **Engaging the Affective Domain ("Heart"):** Trainers must foster empathy for the planet. This involves using reflection to help students overcome cognitive dissonance, the gap between knowing about environmental destruction and feeling the agency to act for restoration.
- **Leading by Example:** Trainers build trust and inspire change by modelling sustainable behaviours in their own professional lives, such as reducing single-use

materials in practical workshops, creating a refill system for cleaning products, or dedicating part of the campus to native species and pollinator habitats.

Table 3 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
Campus Biodiversity Recovery (Outdoor Workshop)	Students survey a neglected area of the school grounds and design a small biodiversity recovery plan, such as native planting, pollinator shelters, reduced mowing, or soil restoration.	Promoting Nature: Developing empathy for local ecosystems and taking practical steps to restore and regenerate biodiversity.
Pollinator Conservation (Campus Workshop)	Students organize a community treasure hunt for litter collection. The prizes consist of seeds and second-hand gardening tools to promote pollinator conservation on school grounds.	Regenerative Practice: Actively working to restore and regenerate healthy, resilient ecosystems.
Circular Tool Hub (Technical Workshop)	In a mechanics or construction workshop, trainers implement a repair and share initiative where students maintain second-hand tools rather than purchasing new ones.	Resource Interdependence: Recognizing the link between material demand and the extraction of non-living components from the geosphere.
Regenerative Agriculture (Work-Based Learning)	During an internship at a rural farm, a student develops a plan to transition from high-chemical inputs to soil regeneration techniques that support local biodiversity.	Respecting Species Rights: Transitioning from anthropocentric (human-centric) management to ecocentric (nature-centered) solutions.
Waste Hierarchy	VET students partner with local schools to teach younger children	Acting for Nature: Combining individual initiative with political

Strategy (Community Engagement)	how to separate and recycle waste correctly, creating a signed petition for local council preventive action.	agency to protect the community's natural surroundings.
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4.3.3. Teaching & Learning Approaches

The WOVEN project employs a pedagogical model based on transformative and experiential learning, moving beyond the simple transfer of information to profoundly change a learner's perspective and behaviour. This approach engages the "Head, Hands, and Heart" to help learners overcome cognitive dissonance and develop a deep sense of connectedness to the environment. VET educators serve as the vital link between the classroom and the green labour market. For this competence, trainers should aim to:

- **Transition to Experiential Facilitation:** Shift from being a traditional lecturer to a facilitator who takes students out of the workshop to experience and investigate local ecological health directly.
- **Foster Regenerative Mindsets:** Guide students to identify how their specific trades (e.g., agriculture, mechanics) can move beyond "minimizing harm" to actively restoring and regenerating local ecosystems.
- **Address "Nature Deficit":** Utilize training as a tool to counteract alienation from nature, helping students internalize that human well-being and security are dependent on healthy natural systems.

Appropriate Teaching Methods

Students can undertake projects to "trash-hack" a local area, turning waste into resources or redesigning campus spaces to support pollinator conservation. Use the outdoor approach by asking students to investigate a neglected green space, damaged soil area, or low-biodiversity corner of the campus, then frame restoration as part of their professional responsibility. Help students explore the conflict between human demand and ecosystem needs by simulating a dialogue between a rural developer and an environmental protector.

Debates & Case Studies

Facilitate a discussion on whether the decline of pollinators should be framed as a technical problem for food security or a renewal problem for nature itself. Use the case of a teacher who approaches a polluted community river as a "sustainability problem" to teach students how to identify the root causes of local environmental degradation. Analyse "Best Rural Practices" where jobs or projects have successfully transitioned to soil regeneration or biodiversity support.

Reflection Questions for Students/Trainees:

- "How does my chosen profession depend on the health of the local ecosystem?"
- "If I treat nature as a 'colleague' in my trade rather than a 'tool,' how does my work change?"
- "What small change can I make in my workshop today that helps restore local nature instead of just using it?"

Reflection Questions for Trainer Self-Assessment:

- "Am I successfully moving my training from 'what we know' about nature to 'how we act' to restore it?"
- "Am I providing enough experiential learning opportunities for my students to connect with their local natural environment?"
- "Does my teaching approach help students see themselves as a part of nature rather than separate from it?"

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources, specifically designed to integrate this competence into VET workshops and classrooms. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 11 of the [ToolKit](#)**.

5. Embracing Complexity in Sustainability

The competence area of Embracing Complexity in Sustainability focuses on the intellectual tools required to understand the intricate interdependencies of our world. In the GreenComp framework, this area is represented by pollen and nectar, which serve to attract individuals (the bees) to envisioned futures (the flowers) and ensure the survival of the entire system. The rationale is to empower learners to go beyond a passive understanding of sustainability concepts, instead enabling them to scan systems for feedback loops, assess information critically, and frame challenges in a way that identifies scale and relevant stakeholders.

Relevance for VET Education

In the Vocational Education and Training (VET) sector, mastering complexity is crucial for adapting training to meet the needs of the green transition. VET educators report a need for better strategies to transfer green competencies to students preparing for a changing labour market. By embedding these competencies as cross-cutting skills, VET students can apply them to any trade, whether in agriculture, social work, or emergency services, ensuring they can operate within planetary boundaries and contribute to a resilient society.

Links to Professional Identity and Ethical Responsibility

These competencies are deeply linked to a professional's ability to act as a responsible social agent. Systems thinking is a vital tool for professional decision-making and evaluating options under conditions of risk and ambiguity. However, the sources emphasize that these technical intellectual tools must be linked to sustainability values; without an ethical foundation, systemic and critical skills could potentially be used for unsustainable professional actions.

Sustainability Challenges as Complex Systems

Sustainability problems are defined as "wicked problems", complex, ill-structured issues that involve interlinked natural, social, technological, and economic systems. A complex system is composed of many interacting parts where the relationships (dependency, competition) make the outcomes difficult to model or predict. Because these

problems are resistant to simple "taming," they often cannot be "solved" in a traditional sense; instead, they must be managed through anticipation, prevention, mitigation, and adaptation.

Importance of Critical and Systemic Thinking in VET

Systemic Thinking allows VET learners to approach professional problems from all sides, considering time, space, and context. It prevents fragmentary thinking, which analyses parts in isolation and leads to oversimplification and short-termism. Critical Thinking, this high-level cognitive process is fundamental for learners to cope with uncertainty and change. It empowers students to challenge the status quo and identify greenwashing, sustainability claims made without robust evidence.



Figure 4 - Map of Interconnections

The three competencies in this area function as a cohesive set of building blocks:

- **Systems Thinking:** Maps the elements and their interactions within a context to understand how a system evolves.
- **Critical Thinking:** Challenges the assumptions and cultural backgrounds that influence how we interpret the information provided by the system.
- **Problem Framing:** Uses the insights from the other two to define the difficulty, scope, and goals of a specific sustainability challenge.

Tensions and Complementarities: While these competencies complement each other, such as how critical thinking prevents a systems map from being taken for granted, they also navigate tensions. For example, there is a constant tension between the professional need for "straightforward" technical solutions and the reality of "wicked" socioecological problems that require a more adaptive and humble approach.

5.1. Competence 4: Systems Thinking

5.1.1. Definition & Theoretical Background

The official GreenComp framework defines systems thinking as the ability to approach a sustainability problem from all sides, considering time, space, and context to understand how different elements interact within and between systems. In simpler terms: It is the practice of "seeing the big picture." It means looking at how a single action (like using a specific pesticide or building a new road) ripples through the environment, the economy, and the community over time, rather than looking at those pieces in isolation.

Systems thinking is a core component of the "Embracing Complexity" area, represented by the pollen and nectar in the project's bee metaphor. Its intention is to move learners away from "fragmentary thinking", analysing parts in isolation, which often leads to short-termism and oversimplified solutions that do not work in the real world. Within the overall vision, systems thinking serves as a decision-making tool; it helps professionals evaluate options under conditions of risk and ambiguity by identifying feedback mechanisms and "intervention points" where change can be most effective.

This is Competence 2.1 of the framework, detailed in the European Commission's Science for Policy report: [*GreenComp: The European sustainability competence framework*](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022).

Associated Key Concepts:

- **Interconnectedness:** Identifying how environmental change is linked to economic activities and societal lifestyles.
- **Feedback Loops:** Understanding how systems self-regulate or how a small change can trigger a large, escalating reaction.
- **Life Cycle Thinking:** Considering the entire "cradle-to-grave" impact of products and services, from resource extraction to end-of-life disposal.
- **Cascade Effects:** Recognizing that human actions influence outcomes across time and space, often leading to unpredictable chain reactions.
- **Synthesis and Emergence:** Understanding that complex systems have properties that arise from the interaction of their parts, which cannot be found in the parts alone.

Theoretical Foundations

Systems Thinking Theory assumes that parts of a system act differently when taken apart; therefore, a holistic grasp of connections between natural events and human actions is required to understand reality. It uses a holistic approach to show that sustainability aspects, environmental, social, cultural, and economic, are intrinsically interrelated and embedded within all professional disciplines. Systems thinking must be grounded in sustainability values. The sources warn that without an ethical foundation; technical systemic skills could be used for unsustainable actions. It encourages a sense of responsibility for the short- and long-term impacts of personal and professional choices. Transformative Learning targets the "Head" (cognitive domain). It facilitates a shift in mindset by encouraging learners to question the worldviews underpinning current economic systems and to think holistically about "wicked problems", complex issues with no single solution. Socioecological Systems Theory acknowledges that the divide between human (social/economic) and ecological systems is arbitrary; human society is contained within and dependent on a planet with limited resources and boundaries.

5.1.2. Practical Examples

Integrating Systems Thinking into Vocational Education and Training (VET) requires a fundamental shift from teaching isolated technical skills to facilitating a holistic understanding of how professional actions ripple through complex environments.

- **From Information Provider to Systems Facilitator:** The trainer's role evolves from delivering content about environmental facts to becoming a facilitator who guides students through the interdependencies of their specific trade. Instead of just teaching how to complete a task, the trainer helps students scan for feedback loops and cascade effects.
- **Focus on "How We Act":** Practice moves toward transformative learning, shifting the emphasis from "what we know" to "how we act" within a professional system. Trainers encourage students to move beyond "fragmentary thinking", analysing parts in isolation, to prevent short-termism in their trade.
- **Navigating "Wicked Problems":** Trainers must introduce students to real-world dilemmas where there is no single solution. This involves using pedagogical maps to help students navigate conflicting requirements, such as the tension between economic demand and resource preservation.
- **Ethical Grounding of Technical Skills:** Trainers must ensure that technical systemic tools are always linked to sustainability values. This prevents the misuse of systemic skills for unsustainable professional actions and helps students develop the ethical agency needed for the green transition.
- **Adopting Outdoor and Local Approaches:** Trainers move lessons out of the traditional workshop to analyse local community systems. By using the immediate environment as a case study, trainers make complexity tangible and help students identify where they can act as professional agents of change.

Table 4 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
Technological Trade-offs (Classroom Debate)	A trainer leads a debate on biofuels. Students must evaluate how this "green" technology ripples through the system, impacting land competition, food security, and loss of biodiversity.	Cascade Effects: Recognizing that professional actions influence outcomes across time and space.
Workshop Material Flow Map (Systems Mapping Activity)	Students map the full journey of materials used in their workshop, from extraction and purchase to use, repair, waste, and disposal. They identify hidden impacts, feedback loops, and points where the workshop could reduce its environmental footprint.	Systems Thinking: Understanding how materials, professional habits, supply chains, waste, and environmental impacts are interconnected across time and space.
Waste & Repair Strategy (Workshop)	In a mechanics or construction unit, students implement a repair and share initiative. They analyse the life cycle of their tools, from resource extraction to end-of-life disposal, to reduce the workshop's footprint.	Life Cycle Thinking: Considering the "cradle-to-grave" impact of products and professional services.
Emergency Access Mapping (Work-Based Learning)	During an internship in a rural utility or forestry company, a student identifies how maintenance roads can be optimized to also function as	Intervention Points: Identifying where a change in a system can be most effective for community resilience.

	evacuation routes for vulnerable elderly residents.	
WOVEN Business Challenge (Pilot Project)	Students compete to design business ideas that prevent climate impacts. They must demonstrate how their project supports local ecosystems while creating economic value for rural citizens.	Synthesis: Understanding that properties of a complex system arise from the interaction of its parts.

5.1.3. Teaching & Learning Approaches

The WOVEN project utilizes a pedagogical model based on transformative and experiential learning, moving beyond the simple transfer of information to profoundly change a learner's perspective and behaviour. This approach engages the "Head, Hands, and Heart" to help learners understand the interdependencies of complex systems and develop the agency to act effectively within them. VET educators serve as the vital link between the classroom and the green labour market, particularly in rural regions. For this competence, trainers should aim to:

- **Facilitate Holistic Decision-Making:** Enable students to use systems thinking as a tool for evaluating options and taking action under conditions of risk and ambiguity.
- **Identify Intervention Points:** Guide students to move beyond "fragmentary thinking", analysing parts in isolation, to identify feedback mechanisms and the most effective points for professional intervention.
- **Foster Synthesis and Emergence:** Help learners understand that professional problems have properties that arise from the interaction of their parts, requiring a synthesized rather than a linear approach.

Appropriate Teaching Methods

Empower students to solve real-world issues within their own communities. For example, students can design business ideas that support local ecosystems while creating economic value for rural residents. Help learners explore diverse stakeholder perspectives

and practice decision-making when ripple effects are unpredictable. Analysing local systems, such as workshop material flows, school energy use, irrigation systems, or transport to work placements, makes interconnectedness tangible and allows students to see how professional habits create wider environmental and social impacts.

Debates & Case Studies

Facilitate discussions on how "green" technologies like biofuels can have unintended systemic consequences, such as increased competition for land and a loss of biodiversity. Assess the systemic impact of professional choices in sectors like retail or fashion against long-term resource preservation. Use the case of a teacher who frames a polluted river as a sustainability problem to teach students how to identify the root causes of local environmental degradation. Analyse how income inequality is interconnected with environmental risks, showing how professional solutions must address both to be effective.

Reflection Questions for Students/Trainees:

- "Why is the GreenComp Framework valuable for my future professional career?".
- "How must future jobs in my sector align with the adaptation of vulnerable communities?".
- "How does a specific action in my trade ripple through the environment, economy, and community over time?".
- "What improvements can be made to existing professional practices to reduce negative cascade effects?".

Reflection Questions for Trainer Self-Assessment:

- "Where do I currently stand in my ability to support learners in developing systemic skills?".
- "Am I successfully moving my training from 'what we know' about systems to 'how we act' within them?".
- "Does my teaching approach adequately account for the specific geographical challenges and interdependencies of my rural VET center?".

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources, specifically designed to integrate this competence into VET workshops and classrooms. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 15 of the [ToolKit](#)**.

5.2. Competence 5: Critical Thinking

5.2.1. Definition & Theoretical Background

The official GreenComp framework defines critical thinking as the ability to assess information and arguments, identify assumptions, challenge the status quo, and reflect on how personal, social, and cultural backgrounds influence thinking and conclusions. In simpler terms: It is the practice of not taking information at face value. It involves questioning the "why" and "how" behind sustainability claims, recognizing your own biases, and being brave enough to challenge existing ways of doing things when they harm the planet.

Critical thinking is an essential intellectual tool within the "Embracing Complexity" area, represented as pollen and nectar in the project's metaphor. Its intention is to empower learners to go beyond a passive understanding of sustainability concepts. Within the GreenComp vision, critical thinking acts as a safeguard against oversimplification and misinformation; it enables learners to cope with uncertainty and change by broadening their views and integrating information from different disciplines.

This is Competence 2.2 of the framework, detailed in the European Commission's Science for Policy report: [GreenComp: The European sustainability competence framework](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022).

Associated Key Concepts:

- **Greenwashing:** Recognizing sustainability claims that lack robust evidence and are used merely as communication strategies.
- **Bias Awareness:** Identifying how personal reasoning, political narratives, and cultural backgrounds can distort the discourse on sustainability.

- **Evidence-Based Perspective:** Trusting scientific claims while remaining ready to revise one's own outlook when new data emerges.
- **Challenging the Status Quo:** Understanding that systemic change requires questioning predominant narratives and unsustainable patterns at individual, collective, and political levels.

Theoretical Foundations

Critical Thinking, rooted in the "Head" (cognitive domain), moves beyond simple skill acquisition. It helps learners reflect on how they acquire and frame knowledge, leading to profound changes in their beliefs and values regarding the environment. This competence views critical thinking as a high-level cognitive process necessary for evaluating information regarding "wicked problems", complex issues with no single solution. It draws on the idea of the learner as an active agent of change. Rather than being a passive consumer of "green" information, the learner develops the agency to demand accountability and demand effective policies for sustainability. This competence also acknowledges that our understanding of reality is not "value-free." It asserts that our personal and social backgrounds inherently shape how we interpret ethical decisions in professional contexts. Within this framework, critical thinking provides the analytical depth needed to ensure that the "big picture" provided by systems thinking is based on reliable, high-quality information rather than assumptions.

5.2.2. Practical Examples

Integrating Critical Thinking into Vocational Education and Training (VET) requires trainers to move beyond being providers of "green facts" to becoming facilitators of enquiry and scepticism.

- **From Accepting to Questioning Information:** Trainers must guide students to not take sustainability claims at face value. This involves teaching them how to identify greenwashing, sustainability claims made for communication purposes that lack robust evidence.
- **Navigating "Wicked Problems":** The trainer's practice shifts toward addressing real-world dilemmas where there is no single "correct" solution. Trainers must

create a safe space for students to explore conflicting requirements and challenge the status quo of their specific trades.

- **Awareness of Bias:** Practice must include helping students recognize how their own personal, social, and cultural backgrounds influence their professional conclusions. This is essential for coping with the uncertainty and change inherent in the green transition.
- **Focus on Evidence-Based Logic:** Trainers shift the focus toward a high-level cognitive process where students learn to trust science while remaining critical of how information is framed by predominant narratives.
- **Transformative Reflection:** Evaluation moves toward transformative learning, where students reflect on what they know versus what they don't know, transforming how they interpret their professional surroundings.

Table 5 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
Technological Trade-offs (Classroom Debate)	Trainers facilitate a discussion on biofuels. Students must critically assess the trade-off between "green" energy and the unintended consequences of land competition and biodiversity loss.	Identifying Assumptions: Challenging the narrative that technology alone solves ecological problems.
Greenwashing Detective (Workshop Activity)	Students analyse marketing materials for professional tools or supplies in their trade (e.g., "100% natural" labels) to identify claims without robust evidence.	Bias Awareness: Recognizing communication strategies used to distort sustainability discourse.
Source Reliability Clinic (Workshop Investigation)	Students compare sustainability claims from suppliers, advertisements, news articles, or social media posts related to their trade. They check what evidence is	Critical Thinking: Assessing information and arguments, identifying assumptions, and challenging unsupported or misleading sustainability claims.

	provided, what assumptions are being made, and who benefits from the claim.	
Fast Fashion Nexus (Work-Based Learning)	In retail or textile programs, students map how cheap clothing production is interlinked with poor labour conditions and solid waste accumulation to identify professional solutions.	Evidence-Based Perspective: Analysing how different socioecological issues underpin and aggravate each other.
Institutional Sustainability Claims Audit (Campus Investigation)	Students review the school's environmental claims or policies and compare them with evidence, such as energy use, paper consumption, waste separation, procurement choices, or water use. They identify where claims are supported by evidence and where they may be superficial.	Critical Thinking: Evaluating evidence behind sustainability claims and identifying greenwashing, contradictions, or unsupported institutional narratives.

5.2.3. Teaching & Learning Approaches

The WOVEN project utilizes a pedagogical model based on transformative and experiential learning, moving beyond the simple transfer of information to profoundly change a learner's perspective and behaviour. For Critical Thinking, this involves moving from the passive acceptance of "green facts" to a high-level cognitive process of inquiry, scepticism, and evaluation. VET educators serve as the vital link between the classroom and the green labour market. For this competence, trainers should aim to:

- **Facilitate Scepticism:** Support learners in not taking information or sources for granted, helping them BROADEN their views regarding complex sustainability problems.
- **Identify Greenwashing:** Equip students with the knowledge to recognize sustainability claims that lack robust evidence and are used merely as communication strategies in their professional sectors.

- **Encourage Status Quo Challenge:** Foster the ability to identify and challenge unsustainable patterns and predominant narratives at individual, professional, and political levels.
- **Reflective Facilitation:** Use the manual as a tool to reflect on their own assumptions and cultural backgrounds to ensure they are providing a balanced, evidence-based training environment.

Appropriate Teaching Methods

Students can undertake projects to develop business ideas that protect vulnerable rural residents, requiring them to critically analyse existing local economic models and propose fairer alternatives. Use simulations to help learners explore diverse stakeholder perspectives (e.g., a dialogue between a "fast fashion" representative and a resource preservation advocate) to practice decision-making under uncertainty and risk. Adopt an investigative attitude by analysing contradictory claims around a local sustainability decision, such as buying "eco-friendly" equipment, installing new heating systems, or choosing between different construction or agricultural materials.

Debates & Case Studies

Facilitate discussions on "wicked problems" such as biofuels, where students must critically assess the trade-off between green energy and unintended consequences like land competition and biodiversity loss. Evaluate the systemic impact of professional practices in sectors like retail (e.g., fast fashion) or travel against the values of resource preservation. Use examples of how personal, social, and cultural backgrounds influence concluding thoughts on sustainability to help students recognize their own reasoning biases.

Reflection Questions for Students/Trainees:

- "What evidence supports this 'green' claim in my trade, and who benefits from this narrative?"
- "How does my own cultural or social background influence my conclusion about this environmental solution?"

- "Am I willing to challenge the status quo of my profession if it creates a long-term sustainability risk?".
- "How does this professional choice impact the adaptation of vulnerable communities in my rural region?".

Reflection Questions for Trainer Self-Assessment:

- "Am I successfully moving my training from the mere transfer of information to helping students develop a sustainability mindset?".
- "Where do I stand in my ability to support learners in questioning knowledge acquisition and predominant narratives?".
- "Does my teaching approach adequately allow for diverse viewpoints and the discussion of 'wicked problems' without single solutions?".

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources, specifically designed to integrate this competence into VET workshops and classrooms. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 19 of the [ToolKit](#)**.

5.3. Competence 6: Problem Framing

5.3.1. Definition & Theoretical Background

The official GreenComp framework defines problem framing as the ability to formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time, and geographical scope. In simpler terms: It is the process of identifying and structuring a challenge to understand what makes it a problem in the first place. It involves looking at a situation, like local pollution or a changing labor market, and defining its scope and stakeholders so you can decide whether to focus on preventing it from happening or adapting to it if it already exists.

Problem framing is a critical intellectual tool within the "Embracing Complexity" area, symbolized by pollen and nectar in the bee metaphor. Its intention is to help learners understand the scale of a situation and move beyond surface-level observations. Within the overall vision, it acts as the bridge between understanding a system and taking action;

it defines the goals and direction for the problem-solving process, ensuring that interventions are targeted where they can be most effective.

This is Competence 2.3 of the framework, found in the European Commission's Science for Policy report: [*GreenComp: The European sustainability competence framework*](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022).

Associated Key Concepts:

- **Problem Characterization:** Distinguishing between different types of issues, ranging from "straightforward" (clear problem and solution) to "wicked" (unclear problem and no single solution).
- **Anticipation and Prevention:** Identifying potential future challenges before they become critical.
- **Mitigation and Adaptation:** Finding ways to reduce the impact of existing problems or adjust professional practices to cope with them.
- **Multi-stakeholder Perspectives:** Recognizing that to identify fair actions, one must look at a problem through the eyes of everyone involved, including marginalized groups and the environment itself.
- **Transdisciplinary Approach:** Combining knowledge from different fields (e.g., science, tradition, and economics) to define a challenge accurately.

Theoretical Foundations

Problem Framing is rooted in the acknowledgment that sustainability issues are often complex, ill-structured, and involve conflicting requirements. These problems are resistant to being "tamed" and often cannot be solved entirely; instead, they must be "danced or coped with" through adaptive management. This competence provides the foundation for nurturing a mindset that prioritizes the needs of all life forms. It encourages learners to frame problems within planetary boundaries, ensuring that human activities do not exceed the Earth's limits. Problem framing depends heavily on systems thinking to identify feedback loops and interconnections. By seeing how elements interact, learners can correctly frame a challenge as a systemic sustainability problem rather than an isolated technical failure. The framework draws on the idea of the professional as a responsible social agent. Framing a problem requires an ethical commitment to fairness

and inclusion, ensuring that solutions do not inadvertently increase inequality or harm future generations. This foundation allows learners to detach their own judgment from the process and challenge the predominant narratives or assumptions that might be oversimplifying a professional challenge.

5.3.2. Practical Examples

Integrating Problem Framing into Vocational Education and Training (VET) requires a fundamental shift from being a "solution provider" to becoming an "enquiry facilitator". The primary implications for pedagogical practice include:

- **From "Straightforward" to "Wicked":** Trainers must move beyond teaching technical tasks with a single "correct" answer, instead guiding students to structure "wicked problems", complex issues where the problem itself is often unclear or involves conflicting requirements.
- **Student-Led Formulation:** Educators shift agency to the learners, requiring them to **formulate challenges** themselves by defining the scope, the difficulty, the timescale, and the specific people involved in a sustainability challenge.
- **Adopting Stakeholder Lenses:** Trainers guide students to look at technical challenges through multi-stakeholder perspectives, ensuring that professional actions are fair and inclusive of marginalized groups within the rural community.
- **Goal Setting for Resilience:** Practice focuses on helping students decide whether a professional intervention should aim at prevention (stopping a problem before it starts), mitigation (reducing the impact), or adaptation (learning to live with the change).
- **Investigative Localism:** Using the "Outdoor Approach," trainers encourage an investigative attitude toward the students' own community, transforming local observations into tangible professional sustainability problems.

Table 6 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
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Local River Analysis (Outdoor Approach)	Following the "Fatima" case study, students visit a polluted local river. Instead of just identifying waste, they use an investigative attitude to frame the situation as a systemic sustainability problem linked to regional travel habits and regional pollution.	Problem Characterization: Moving beyond surface observations to structure a complex, ill-defined local issue.
Pollinator Debate (Workshop/Class room)	Trainers facilitate a session where students must frame the decline of pollinating insects. They contrast a technical management framing (focusing on food security) with a nature renewal framing (focusing on resource overuse).	Multi-stakeholder Perspectives: Identifying different ways to structure a problem based on diverse professional and environmental values.
Rural Vulnerability Mapping (Work-Based Learning)	During an internship in emergency services or agriculture, a student frames a lack of local irrigation or access roads not just as a technical failure but as a risk to the community's climate resilience.	Anticipation and Prevention: Identifying potential future challenges for vulnerable groups before they become critical.
Open Business Challenge (Student Pilot)	Students participate in a competition (WP3 Pilot) to develop a business idea. They must first structure a specific local climate impact as a professional problem that their business will adapt to or mitigate.	Mitigation and Adaptation: Deciding on the appropriate professional approach to address a structured sustainability problem.

Inclusion Nexus Analysis (Case Study)	Students analyse a professional project (e.g., a new "green" infrastructure) and re-frame it to account for income inequality, ensuring the problem of "access" for the most vulnerable rural residents is prioritized.	Fair and Inclusive Actions: Ensuring the problem frame includes the interests and capabilities of all social groups and life forms.
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5.3.3. Teaching & Learning Approaches

The WOVEN project utilizes a pedagogical model based on transformative and experiential learning, moving beyond the simple transfer of information to profoundly change a learner's perspective and behaviours. For Problem Framing, this involves shifting students from being passive "solution-receivers" to active "problem-formulators" who can structure complex sustainability challenges within their specific trades. VET educators serve as the vital link between the classroom and the green labour market, helping students understand that modern professional challenges are rarely "straightforward". For this competence, trainers should aim to:

- **Facilitate "Wicked" Problem Structuring:** Guide students to distinguish between simple technical failures and "wicked problems", complex issues with no single solution and conflicting requirements.
- **Foster Multi-Stakeholder Perspectives:** Enable learners to look at professional challenges through the eyes of different stakeholders, including marginalized groups and the environment itself, to identify fair and inclusive actions.
- **Integrate Transdisciplinary Thinking:** Support students in combining knowledge from their specific trade with environmental science and social ethics to define the scale, scope, and direction of sustainability interventions.

Appropriate Teaching Methods

Apply the "Outdoor Approach" to investigate local community challenges. Students take an investigative attitude toward a site in a "dire state" (like a local river) to frame its condition as a systemic sustainability problem rather than just a management failure.

Students can participate in challenges to find new business projects that contribute to a just transition. They must first "frame" the climate risks to vulnerable residents before proposing a technical or commercial solution. Help students practice consensus building by simulating stakeholder dialogues where each party frames the same environmental issue differently based on their professional or personal values.

Debates & Case Studies

Facilitate a discussion on the decline of pollinators. Students must contrast a technical framing (focusing on food security and agricultural management) with a nature renewal framing (focusing on the overuse of natural resources). Use the case of the teacher who reframes a polluted local river from an "underused area" to a sustainability problem linked to regional travel habits and systemic pollution. Analyse case studies that connect income inequality with environmental risks, requiring students to reframe technical projects to ensure they don't leave vulnerable rural residents behind.

Reflection Questions for Students/Trainees:

- "If I frame this professional challenge differently, what new solutions become possible?"
- "Who is included or excluded from the way I have defined this problem?"
- "How does this challenge involve intergenerational equity—how will this problem look to someone in my trade 50 years from now?"
- "Is this a problem I can 'solve' with a single tool, or is it a wicked problem I must learn to adapt to?"

Reflection Questions for Trainer Self-Assessment:

- "Am I giving my students the freedom to formulate the problem, or am I providing them with a pre-defined technical task?"
- "How am I helping learners move beyond surface-level observations to see the systemic root causes of local issues?"
- "Does my teaching environment encourage students to challenge predominant narratives that might be oversimplifying a sustainability challenge?"

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources, specifically designed to integrate this competence into VET workshops and classrooms. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 23 of the [ToolKit](#)**.

6. Envisioning Sustainable Futures

The competence area Envisioning Sustainable Futures centers on the power of imagination and the ability to move away from looking for certainties toward thinking about possibilities. In the GreenComp framework, this area is represented by flowers, which generate the fruits and seeds necessary for life to continue. The rationale is to empower learners to understand the future as something open that can be shaped collectively rather than a fixed trajectory. It provides the "imagination" block of the framework, enabling individuals to visualize alternative scenarios and identify the steps needed to achieve a preferred, sustainable outcome.

For Vocational Education and Training (VET), this area is critical for preparing a workforce that can thrive in a rapidly changing economy. As the climate emergency transforms the labour market, VET students must master the ability to envision how their specific trades, such as agriculture, water management, or emergency services, can adapt to meet emerging green needs. By embedding these competencies, VET programs ensure that graduates are not merely reactive but are prepared to fill roles that contribute to the long-term climate resilience of rural and vulnerable regions.

VET serves as the vital bridge between education and the green labour market. Its role is to help students overcome cognitive dissonance, the gap between knowing about environmental issues and having the agency to act. By integrating these competencies into VET curricula, educators empower students to lead the transition towards climate-resilient development, ensuring that rural communities are protected and that the future workforce can operate within a circular society.

These competencies transform the professional identity of VET learners into that of climate change professional agents. This shift involves an ethical responsibility to think, plan, and act with empathy and care for the planet. It requires professionals to be "ethical

agents for change" who prioritize the needs of all life forms and ensure that human activity does not exceed planetary boundaries. It also involves the ethical courage to discontinue unsustainable professional practices in favour of alternative solutions.

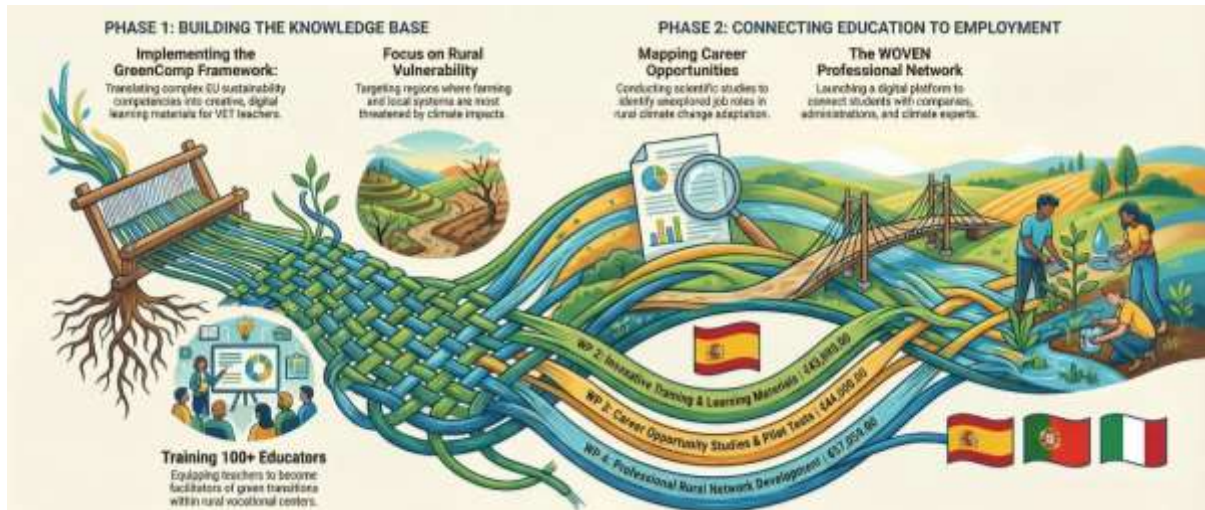


Figure 5 - Map of Interconnections

The three building blocks in this area function as a creative and adaptive toolkit:

- **Futures Literacy:** The "Imagination" block. It involves developing alternative scenarios to identify the steps needed for a preferred sustainable future.
- **Adaptability:** The "Navigation" block. It focuses on managing transitions and making decisions in the face of uncertainty, ambiguity, and risk.
- **Exploratory Thinking:** The "Relational" block. It uses creativity and experimentation to link different disciplines and traditions to find novel solutions.

While these competencies work together to create a resilient professional outlook, they also navigate tensions. For instance, Adaptability requires coping with difficult trade-offs between immediate economic needs and long-term environmental outcomes. Exploratory Thinking complements Futures Literacy by providing the creative methods (like "trash hacking") needed to turn imagined scenarios into reality.

Futures Literacy and Anticipation

Futures literacy is defined as a life skill that allows learners to anticipate, prepare, and invent as changes occur. It encourages professionals to differentiate between:

1. **Expected Futures:** What we think will happen based on current "business as usual" trends.
2. **Alternative Futures:** Different possibilities that might arise, such as new green jobs.
3. **Preferred Futures:** The sustainable visions we collectively choose to work toward.

6.1. Competence 7: Futures Literacy

6.1.1. Definition & Theoretical Background

The official GreenComp framework defines futures literacy as the ability to envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future. **In simpler terms:** It is a life skill that allows you to stop looking for a single "guaranteed" future and instead explore many different possibilities. It empowers you to imagine what a better world looks like and then map out the specific actions needed to make that preferred future a reality.

Futures literacy is the "imagination" block of the framework, represented by flowers which generate the fruits and seeds necessary for life to continue. Its intention is to help learners understand that the future is not a fixed track but something open and collectively shapeable. Within the overall vision, it serves as a catalyst for action, helping learners overcome cognitive dissonance, the gap between knowing about environmental crises and having the agency to build a better alternative.

This is Competence 3.1 of the "Envisioning Sustainable Futures" area, found in the European Commission's Science for Policy report: [*GreenComp: The European sustainability competence framework*](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022).

Associated Key Concepts:

- **The Three Approaches to Futures:** Distinguishing between the expected future (business as usual), alternative futures (divergent possibilities like new green jobs), and the preferred future (the sustainable vision we choose to work toward).
- **Scenario Development:** Using past events and current signals of change to create "what-if" situations that inform decision-making.

- **Logical Analysis and Disciplined Imagination:** Combining scientific data with creative thinking to identify realistic steps for planetary regeneration.
- **Time Horizons:** Understanding the difference between short-, medium-, and long-term approaches and their implications for sustainability.

Theoretical Foundations

Education for Sustainability this foundation encourages people to move away from looking for certainties and instead focus on possibilities within planetary boundaries. It nurtures a mindset that prioritizes the needs of all life forms by visualizing how human activity can be transformed. Futures literacy requires the ability to analyse the present by understanding that it is composed of complex interacting systems that influence future trajectories. The sources emphasize that futures literacy is most useful when linked to sustainability values, as technical foresight skills alone could be used for unsustainable professional actions. This competence specifically targets the affective and cognitive domains to change a learner's behaviour through reflection. It uses creativity, imagination, and awareness of emotions/intuition to inform the ability to envision alternatives. It is rooted in the life skill of being able to anticipate, prepare, and invent as changes occur, rather than simply reacting to a crisis. Theoretically, it is supported by the belief that a sustainable planet cannot be achieved by one-off actions but requires a collective, consistent approach to shaping a preferred future for the whole community.

6.1.2. Practical Examples

Integrating Futures Literacy requires VET trainers to shift from teaching fixed technical procedures to facilitating a mindset of anticipation and possibility. The primary implications for pedagogical practice include:

- **From Looking for Certainties to Exploring Possibilities:** Trainers must move away from preparing students for a static labour market. Instead, they act as facilitators of imagination, helping students visualize the future as an open space that can be collectively shaped.
- **Addressing Cognitive Dissonance:** Educators play a key role in helping students bridge the gap between knowing about environmental crises and feeling the agency

to build alternatives, providing them with the "imagination" tools needed to create a better world.

- **Focus on Anticipation and Invention:** Practice shifts from being purely reactive to a crisis toward being proactive. Trainers encourage learners to anticipate, prepare, and invent new professional solutions as changes occur.
- **Modelling Ethical Courage:** Trainers should demonstrate the willingness to discontinue unsustainable professional practices in favour of alternative solutions, showing students how to align professional identity with planetary boundaries.

Table 7 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
"Future of the Trade" (Classroom Debate)	Students analyse the "expected future" of their sector (e.g., agriculture or construction) based on "business as usual" and contrast it with a "preferred future" that prioritizes sustainability.	Approach to Futures: Differentiating between likely outcomes and the sustainable visions we choose to work toward.
Climate Risk Scenarios (Workshop)	Using local data on droughts or forest fires, students develop "what-if" scenarios to map out how their specific trade will need to adapt to protect the rural community in 20 years.	Scenario Development: Using current signals of change to inform long-term professional decision-making.
Green Job Innovation (Work-Based Learning)	During an internship, students identify a task in the company that is currently unsustainable and propose a new "green" job role or procedure that could replace it in the future.	Alternative Futures: Exploring divergent possibilities and new job roles for climate adaptation.

The "Future-Proof" Audit (Technical Lab)	Students evaluate current professional tools or methods and use disciplined imagination to propose how these tools must evolve to remain functional within planetary boundaries.	Logical Analysis & Imagination: Combining technical knowledge with creative thinking for planetary regeneration.
WOVEN Business Challenge (Student Pilot)	Students compete to design business projects for a "just transition." They must map out the specific steps and actions required to make their imagined sustainable business a reality.	Identifying Steps: Moving from an imagined preferred future to concrete, realistic actions.

6.1.3. Teaching & Learning Approaches

The WOVEN project utilizes a pedagogical model based on transformative and experiential learning, moving beyond the simple transfer of information to profoundly change a learner's perspective and behaviour. For Futures Literacy, this approach focuses on the "Heart and Head" to help learners move from a sense of uncertainty or eco-anxiety toward a sense of agency and purpose in shaping a sustainable world. VET educators serve as the vital link between education and the green labour market, preparing a workforce that can thrive in a rapidly changing economy. For this competence, trainers should aim to:

- **Transition to Facilitators of Imagination:** Shift from teaching fixed technical procedures to helping students visualize the future as an open and collectively shapeable space.
- **Address Cognitive Dissonance:** Support students in bridging the gap between knowing about environmental crises and feeling the ethical agency to build better professional alternatives.
- **Foster Proactive Anticipation:** Guide learners to move beyond reacting to crises toward anticipating, preparing, and inventing as changes occur in their specific trades.

Appropriate Teaching Methods

Project-Based Learning (PBL) where students participate in the WOVEN Business Challenge, competing to design new business projects that contribute to a just transition by protecting vulnerable rural communities. Problem-Based Learning by using the "Outdoor Approach," students investigate local signals of change, such as declining crop yields, heat stress in outdoor work, changing tourism patterns, higher wildfire risk, or increased water restrictions. Simulations & Role-Play to facilitate "what-if" scenarios where students must practice decision-making under uncertainty, such as negotiating resource use in a future with severe water scarcity.

Debates & Case Studies

Trainers lead discussions on the "expected future" of a trade (e.g., industrial agriculture) versus the "preferred future" (e.g., regenerative agriculture), identifying the professional steps needed to move toward the latter. Apply the "Best Rural Practices" report to analyse real-world examples of projects that successfully anticipated climate shifts to create resilient professional paths. Use case studies to show how combining scientific data with creative thinking leads to planetary regeneration.

Reflection Questions for Students/Trainees:

- "What does my sector look like in 50 years if we continue with 'business as usual'?"
- "How must future jobs in my trade align with the adaptation needs of the most vulnerable people in my community?"
- "What specific steps can I take in my professional practice today to reach my preferred sustainable future?"

Reflection Questions for Trainer Self-Assessment:

- "Am I providing a safe space for my students to use 'disciplined imagination' and explore alternative possibilities?"
- "Am I teaching skills for a static labour market, or am I equipping students to invent new 'green' job roles as environmental needs evolve?"
- "Where do I stand in my ability to help learners overcome eco-anxiety by highlighting their role as agents of future change?"

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources, specifically designed to integrate this competence into VET workshops and classrooms. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 27 of the [ToolKit](#)**.

6.2. Competence 8: Adaptability

6.2.1. Definition & Theoretical Background

The official GreenComp framework defines adaptability as the ability to manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity, and risk. In simpler terms: It is the practice of being flexible and resilient in a changing world. It involves adjusting your professional and personal behaviour to accommodate new environmental realities and having the courage to make decisions even when the "perfect" solution isn't clear.

Adaptability is the "navigation" block of the Envisioning Sustainable Futures area, symbolized by flowers that generate the seeds for future life. Its intention is to move learners away from looking for fixed certainties and instead prepare them to handle the "wicked" nature of sustainability problems. Within the GreenComp vision, this competence empowers individuals to handle difficult trade-offs, such as balancing immediate economic needs with long-term ecological health, ensuring they can remain effective agents of change in an unpredictable climate.

This is Competence 3.2 of the framework, detailed in the European Commission's Science for Policy report: [GreenComp: The European sustainability competence framework](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022).

Associated Key Concepts:

- **Navigating Ambiguity:** Being comfortable making professional choices even when information is incomplete or contradictory.
- **Trade-off Management:** Identifying and coping with the tensions between environmental, social, and economic outcomes.

- **Cognitive and Behavioural Adaptability:** Learning to change one's opinions and managing emotions (cognitive) while promoting positive, constructive actions for the environment (behavioural).
- **Resilience:** The capacity to cope with the emotional impact of climate change and biodiversity loss while remaining resourceful.

Theoretical Foundations

This foundation encourages people to move away from looking for "guaranteed" outcomes and instead focus on possibilities. It teaches that the future is open and can be shaped through collective, adaptive action. Rooted in both the affective (Heart) and cognitive (Head) domains, it helps learners manage their emotions, such as eco-anxiety, and fundamentally change their behaviour in response to new information. Adaptability requires the ethical courage to discontinue unsustainable practices even when they are part of a traditional professional identity or satisfy short-term personal interests. This competence relies on the understanding that human actions have unpredictable and complex consequences. Adaptability is the intellectual tool used to "dance or cope with" these interactions rather than trying to control them. It draws on the concept of the learner as an active participant in the transition towards green and climate-resilient development, requiring them to take local circumstances into account when dealing with global issues.

6.2.2. Practical Examples

Integrating Adaptability into Vocational Education and Training (VET) requires a fundamental shift from preparing students for a static labour market to equipping them for a world defined by uncertainty and rapid change.

- **From Technical Instructor to Uncertainty-Navigator:** Trainers must move beyond teaching standard "straightforward" procedures to facilitating the management of "wicked problems", complex issues where the problem itself is unclear and solutions are resistant to being "tamed".
- **Addressing the Affective Domain:** Educators must help students acknowledge the emotional impact of environmental crises, such as eco-anxiety, while supporting them to remain resourceful and flexible in their professional roles.

- **Modelling Behavioural Change:** To build trust and inspire agency, trainers should lead by example by demonstrating a willingness to discontinue unsustainable professional or personal practices, such as switching to public transport for their daily commute.
- **Focus on Local Resilience:** The trainer's role shifts toward helping students consider local circumstances (e.g., rural droughts or fires) when applying technical skills, ensuring they can adapt their trade to protect vulnerable community systems.

Facilitating Trade-off Management: Trainers must guide students through the process of making difficult decisions where they must balance competing interests, such as immediate economic gain versus long-term environmental health.

Table 8 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
Commuting Transition (Trainer Modelling)	A VET trainer decides to stop driving a private car and begins commuting by bus. They share their reluctance and the adjustments made with their students to illustrate the reality of adapting to greener lifestyles.	Behavioural Adaptability: Demonstrating the willingness to discontinue unsustainable practices despite personal habits.
Wicked Problem Simulation (Classroom)	Students engage in a simulation where they must manage a local resource (like a drying river) with conflicting stakeholder needs and no "perfect" technical solution, requiring them to "dance" with the complexity.	Navigating Ambiguity: Making professional decisions in the face of uncertainty and risk.
International Job Practice	During an Erasmus+ mobility (WP5), students from Spain work in a Portuguese enterprise.	Coping with Change: Adapting to different approaches and local

(Work-Based Learning)	They must adapt their professional skills to a new cultural environment and localized climate challenges.	circumstances in the green labour market.
Drought-Response Workshop Adaptation (Technical Workshop)	Students redesign a routine activity in their trade to use less water during drought conditions, such as cleaning tools, irrigating training plots, mixing materials, or maintaining equipment. They discuss the trade-offs between convenience, cost, hygiene, productivity, and long-term resilience.	Adaptability: Managing trade-offs and adjusting professional routines in response to uncertainty, environmental limits, and changing climate conditions.
Vulnerability-Focused Capstone (Student Pilot)	For their final project (WP3), students must redesign a standard professional task in their trade (e.g., agriculture or emergency services) to specifically support the adaptation of the most vulnerable rural residents.	Cognitive Adaptability: Changing opinions and strategies to meet the evolving needs of a climate-resilient society.

6.2.3. Teaching & Learning Approaches

The WOVEN project utilizes a pedagogical model based on transformative and experiential learning, moving beyond the simple transfer of information to profoundly change a learner's perspective and behaviour. For Exploratory Thinking, this involves tapping into creativity and intuition to link different disciplines and find novel solutions to complex sustainability challenges. VET educators serve as the vital link between education and the green labour market. For this competence, trainers should aim to:

- **Foster Relational Thinking:** Guide students to adopt a relational way of thinking by exploring and linking different disciplines, traditions, and cultures within their trade.
- **Promote Transdisciplinary Solutions:** Support learners in understanding that sustainability problems must be tackled by combining different knowledge cultures and divergent views to initiate systemic change.
- **Encourage Creative Experimentation:** Facilitate the use of creativity and experimentation with novel ideas or methods, such as "trash hacking", to address professional challenges.

Appropriate Teaching Methods

Students can engage in "trash hacking" projects to turn professional waste into precious resources, exploring the circular economy through creative problem-solving. Use the "Outdoor Approach" to investigate local sustainability opportunities where traditional methods have failed, requiring students to link technical skills with environmental ethics. Simulate transdisciplinary working groups (e.g., a dialogue between a technical engineer, a local resident, and an environmentalist) to practice synthesizing information from different fields to solve a rural community risk.

Debates & Case Studies

Facilitate a discussion on whether technical solutions alone are sufficient for ecological problems or if they must be combined with social and ecocentric perspectives. Analyse real-world examples of how creative experimentation has turned waste into resources in different professional and cultural contexts. Analyse the use case of a teacher who uses an "investigative attitude" to link local travel habits with regional pollution levels, demonstrating a relational view of a community problem.

Reflection Questions for Students/Trainees:

- "How can I combine my technical trade skills with knowledge from another field to find a more sustainable solution?"
- "What novel or 'outside-the-box' ideas have I ignored because they didn't fit the 'business as usual' way of working?"
- "How does looking at a professional problem from a different cultural or traditional perspective change my approach?"

Reflection Questions for Trainer Self-Assessment:

- "Am I providing a safe space for my students to experiment and fail as a way of discovering novel sustainability methods?"
- "Do I provide enough opportunities for students to link different disciplines during their workshop activities?"
- "How well am I supporting learners in moving beyond surface-level information to synthesize complex data from diverse sources?"

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources, specifically designed to integrate this competence into VET workshops and classrooms. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 30 of the [ToolKit](#)**.

6.3. Competence 9: Exploratory Thinking

6.3.1. Definition & Theoretical Background

The official GreenComp framework defines exploratory thinking as the ability to adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods. In simpler terms: It is the practice of connecting the dots between different areas of knowledge, like art, science, and traditional crafts, to find creative and untested ways to solve environmental problems. It involves experimenting with new ideas, like "trash hacking" or sharing-platforms, to break away from old, unsustainable habits.

Exploratory thinking is the "relational" building block of the Envisioning Sustainable Futures area, represented by flowers that generate the fruits and seeds for future life. Its intention is to provide the creative tools necessary to move society from linear patterns (take-make-waste) toward circular ones. Within the overall vision, it transforms imagination into action by helping learners use experimentation and intuition to identify the practical "how-to" of planetary regeneration.

This is Competence 3.3 of the framework, detailed in the European Commission's Science for Policy report: [GreenComp: The European sustainability competence framework](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022).

Associated Key Concepts:

- **Relational Thinking:** Understanding how different fields, cultures, and traditions can be linked to create a fuller picture of reality.
- **Transdisciplinary Manner:** Moving beyond just one area of expertise to integrate diverse perspectives, including traditional knowledge and divergent views.
- **Creative Experimentation:** The willingness to try novel methods and "not be afraid to fail" while seeking systemic change.
- **Circular Economy/Society:** Envisioning systems where resources are reused and repaired rather than thrown away.
- **Intuition and Innovation:** Recognizing that solving "wicked" problems requires not just logic, but also human intuition and creative processes.

Theoretical Foundations

Exploratory Thinking is rooted in the belief that the future is not a fixed track; it is something we can actively invent and prepare for by moving from certainties toward possibilities. It combines scientific data with creative thinking. This foundation suggests that information from multiple disciplines helps people make more informed, resilient decisions in a complex society. This competence emphasizes the close link between sustainability issues and the development of creative thinking abilities. It nurtures a mindset that can rethink current economic norms and envision regenerative cultures. Theoretically, exploratory thinking assumes that sustainability problems cannot be solved by one field alone; they require a synthesis of diverse knowledge cultures to initiate systemic change. Rooted in the cognitive and affective domains, it encourages learners to reflect on their own patterns of consumption and use their intuition to find satisfaction in alternative, greener lifestyles.

6.3.2. Practical Examples

Integrating Exploratory Thinking requires VET trainers to move from teaching established, linear routines toward facilitating a mindset of innovation and connectivity. The transition involves several key shifts in pedagogical practice:

- **From Linear to Relational Facilitator:** The trainer's role shifts from teaching technical tasks in isolation to helping students "connect the dots" between their trade and other fields, such as art, environmental science, or traditional local knowledge.
- **Encouraging Transdisciplinary Solutions:** Trainers must create opportunities for students to solve problems by combining different knowledge cultures (e.g., linking mechanics with circular design) rather than relying solely on traditional trade manuals.
- **Creating a "Safe to Fail" Environment:** Exploratory thinking requires creative experimentation. Trainers must foster a workshop atmosphere where trying novel, untested methods, and failing, is viewed as a vital part of the learning process for systemic change.
- **Shifting from Consumption to Circularity:** Trainers guide students to rethink their professional habits, moving from "take-make-waste" patterns toward **circular patterns** like repair, reuse, and "trash hacking".
- **Engaging Intuition:** Beyond logical technical steps, trainers encourage students to use their intuition and creative processes to find satisfaction in alternative, greener professional lifestyles.

Table 9 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
"Trash-Hacking" Workshop (Technical Workshop)	Students are challenged to take waste materials from their specific trade (e.g., scrap metal, textile offcuts) and use creative experimentation to prototype them into new, useful professional tools or products.	Circular Economy: Moving from linear patterns to circular society habits through experimentation.
Reusable Packaging Prototype (Local Design Challenge)	Students connect knowledge from design, logistics, local commerce, and environmental science to prototype a reusable packaging or deposit-return system for a local producer or school service.	Relational Thinking: Understanding how different fields, lifestyles, and professional practices can be linked to create more sustainable local systems.
Transdisciplinary Design (Work-Based Learning)	During an internship, a student works with a local artisan to integrate traditional water-saving techniques with modern digital sensors to create a novel irrigation system for a drought-prone farm.	Transdisciplinary Manner: Combining diverse knowledge cultures and traditions to initiate systemic change.
Circular Tool Hub (Campus Initiative)	Students design and implement a digital "repair and share" platform within the VET center, allowing different workshops to maintain and exchange specialized	Relational Thinking: Linking internal campus needs to the broader goal of resource preservation.

	equipment rather than purchasing new items.	
Alternative Future Pitch (Classroom Project)	VET students participate in a "Business Challenge" to pitch an untested idea (e.g., bio-based construction materials) that challenges the status quo of their trade, using disciplined imagination to defend its viability.	Creative Experimentation: Daring to make unusual choices and thinking outside of professional norms.

6.3.3. Teaching & Learning Approaches

The WOVEN project adopts a pedagogical model rooted in transformative and experiential learning, moving beyond the mere transfer of information to profoundly change a learner's perspective and behaviours. This approach engages the "Head, Hands, and Heart" to help learners move from a sense of knowing about environmental issues to having the professional agency to act on them. VET educators serve as the vital link between the classroom and the green labour market. For exploratory thinking, trainers should aim to:

- **Transition to Relational Facilitators:** Shift from teaching technical tasks in isolation to helping students "connect the dots" between their trade and diverse fields such as art, ethics, or local traditions.
- **Foster Circular Mindsets:** Guide students to identify how their specific professional sectors can move from linear "take-make-waste" patterns toward circular systems involving repair, reuse, and resource sharing.
- **Enable Transdisciplinary Problem-Solving:** Support learners in combining knowledge cultures and divergent views to initiate systemic change within their local rural communities.

Appropriate Teaching Methods

Students can undertake "trash hacking" projects, utilizing creativity to turn professional waste into precious resources or prototyping new tools from scrap materials. Using the "Outdoor Approach," students investigate local sustainability opportunities, such as managing a workshop waste stream, reusing discarded materials, redesigning an unused school space, or connecting traditional local practices with new technical solutions. Facilitate transdisciplinary working groups (e.g., simulating a dialogue between a technical engineer, a local resident, and an environmentalist) to practice synthesizing information from different fields to solve a community risk.

Debates & Case Studies

Facilitate a discussion on whether technical solutions (technocentrism) are sufficient for ecological problems or if they must be combined with ecocentric perspectives to be sustainable. Use the case of a teacher who adopts an "investigative attitude" to link local lifestyles and travel habits with regional pollution levels, demonstrating a relational view of a community problem. Analyse visual reports of twenty "Best Rural Practices" where creative experimentation has successfully protected vulnerable environments or created green work opportunities.

Reflection Questions for Students/Trainees:

- "How can I combine my technical trade skills with knowledge from another field to find a more sustainable solution?".
- "What novel ideas have I ignored in my work because they didn't fit the 'business as usual' way of doing things?".
- "Why is developing these sustainable competences valuable for my future professional career?".

Reflection Questions for Trainer Self-Assessment:

- "Am I providing a safe space for my students to experiment and fail as a way of discovering novel sustainability methods?".
- "Where do I stand in my ability to support learners in synthesizing complex information from different disciplines?".

- "Does my teaching approach help students see the future as open and collectively shapeable through professional innovation?".

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources, specifically designed to integrate this competence into VET workshops and classrooms. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 34 of the [ToolKit](#)**.

7. Acting for Sustainability

- Rationale of the competence area
- Relevance for VET education
- Links to professional identity and ethical responsibility
- A brief “map” of interconnections between competencies (integrated reading of the 3 competencies; tensions and complementarities)
- From awareness to action
- Empowerment in professional and civic life

The competence area of Acting for Sustainability represents the "Hands" of the GreenComp framework. In the project's bee pollination metaphor, this area is represented by the bees themselves, individuals and collectives who take active agency to ensure the survival of the entire system and drive systemic change. The rationale is to move beyond passive understanding; it emphasizes that a sustainable planet cannot be achieved through small, one-off actions alone but requires a consistent, long-term approach involving individual initiatives, community collaboration, and political mobilization.

For Vocational Education and Training (VET), this area is critical for preparing a workforce that functions as climate change professional agents. By embedding these competencies, VET programs empower students to apply sustainability to any professional context, such as agriculture, social work, or emergency services. It addresses a specific gap in VET where students often have the technical knowledge but need the agency to master the green transition in their local rural communities.

Acting for sustainability transforms the professional identity of VET learners from passive workers to ethical agents for change. This shift involves an ethical responsibility

to demand accountability for unsustainable behaviours and to prioritize the needs of the planet and all life forms. The framework highlights that professional action must be grounded in sustainability values; without this ethical core, technical skills could inadvertently be used for unsustainable actions.



Figure 6 - Map of Interconnections

The three building blocks in this area function as a hierarchy of agency that scales from the self to the system:

- **Political Agency (4.1):** The capacity to navigate political systems, identify accountability, and demand effective policies to influence the collective future.
- **Collective Action (4.2):** The ability to act for change in collaboration with others, recognizing that coordination among peers is fundamental to solving local and global sustainability problems.
- **Individual Initiative (4.3):** The internal drive to identify one's own potential to contribute to the community and planet, grounded in confidence and a willingness to act.

Tensions and Complementarities: These competencies are tightly interrelated and should be treated as a whole. For example, individual initiative complements collective action by fostering the entrepreneurial mindset needed to start community projects. A primary tension exists between one-off personal actions and the systemic transformation required by political agency; the framework resolves this by showing that small actions can have widespread global repercussions when they trigger reflection and collective engagement.

From Awareness to Action

A core aim of this area is to help learners overcome cognitive dissonance, the gap between knowing about environmental issues and having the agency to act on them. While the "Head" (complexity) and "Heart" (values) provide the foundation, Acting for Sustainability provides the tools to bridge this gap through transformative learning. It moves the focus from "what we know" to "how we act," encouraging learners to take or request action that restores ecosystem health and enhances justice.

Empowerment in Professional and Civic Life

These competencies empower individuals to become active participants in society:

- **Professional Empowerment:** Nurtures an entrepreneurial mindset, encouraging professionals to act as role models and agents of change within their trades.

- **Civic Empowerment:** Equips citizens to take part in democratic processes regarding the use of natural resources and to demand political responsibility for environmental damage.
- **Rural Resilience:** In rural regions, this empowerment is focused on protecting the most vulnerable residents from climate risks through both professional services and collective community action.

7.1. Competence 10: Political Agency

7.1.1. Definition & Theoretical Background

The GreenComp framework defines political agency as the ability to navigate the political system, identify political responsibility and accountability for unsustainable behaviours, and demand effective policies for sustainability. In simpler terms: It is the capacity to positively influence our collective future by mobilizing people and institutions at the political level to take action. It involves knowing how your local and national government works, identifying who is responsible for environmental damage, and having the courage to demand fair and effective rules that protect the planet.

Political agency is a core building block of the "Acting for Sustainability" area, represented in the project's metaphor by bees. Just as bees play a vital role in ensuring the survival of an entire natural system, this competence is intended to empower learners to become agents of change. It bridges the gap between individual understanding and systemic transformation, showing learners that while their individual actions matter, they can have widespread global repercussions by engaging others and demanding institutional commitment.

This is Competence 4.1 of the framework, detailed in the European Commission's Science for Policy report: [*GreenComp: The European sustainability competence framework*](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022).

Associated Key Concepts:

- **Political Responsibility and Accountability:** Identifying who is responsible for making and implementing policies and demanding they account for unsustainable outcomes.

- **The "Polluter Pays" Principle:** Knowing specific policies that assign responsibility for environmental damage.
- **Democratic Decision-Making:** Engaging in civic activities and democratic processes regarding the use of natural resources.
- **Advocacy for Change:** Pushing for new norms, rules, regulations, and institutional commitments toward a green transition.
- **Power Structure Analysis:** Understanding how political systems and power structures exert influence over sustainability issues.

Theoretical Foundations

Political Agency is rooted in the "Hands" (psychomotor domain) but requires the "Head" and "Heart" to overcome cognitive dissonance, the gap between knowing about an environmental issue and having the agency to act on it. It aims to profoundly change beliefs and behaviours through reflection and active social participation. This competence provides the foundation for training ethical agents for change. It highlights that technical systemic skills must be linked to sustainability values; otherwise, political power could be used for unsustainable actions. This foundation views the learner as an active participant in society rather than a passive observer. It emphasizes that a sustainable planet cannot be achieved by small, one-off actions alone but requires a consistent, long-term approach to collective mobilization. Because socioecological problems are "wicked", highly complex, ill-structured, and involving conflicting requirements, they cannot be "solved" by technical means alone. They require political agency to navigate normative assumptions and negotiate social and ethical decisions. Political agency requires the capacity to analyse the context to spot possible avenues for moving the sustainability agenda forward. It involves identifying key political, social, and economic stakeholders who can be brought on board to achieve systemic transformations.

7.1.2. Practical Examples

Integrating Political Agency into Vocational Education and Training (VET) requires a shift from viewing the professional as a technical operator to viewing them as an active agent of change. The primary implications for trainers include:

- **From Passive Instruction to Facilitating Agency:** The trainer's role shifts from a mere provider of "green facts" to a facilitator who nurtures a sustainability mindset, helping students close the gap between knowing about environmental issues and having the agency to act on them.
- **Encouraging Institutional Scepticism:** Trainers must support students in not taking professional standards for granted. This involves teaching them to identify unsustainable patterns and challenge the status quo within their specific trades.
- **Bridging Trade Skills with Civic Life:** Trainers must show how technical professional skills can be used to influence policy. For example, an agricultural trainer helps students understand how to petition for better water management laws.
- **Facilitating Multi-Stakeholder Dialogue:** Trainers act as bridges, connecting students with local stakeholders and regional authorities through networks like WOVEN to practice advocacy and negotiation.
- **Modelling Ethical Responsibility:** Educators lead by example by demonstrating their own willingness to discontinue unsustainable practices or petition for institutional changes within the training center itself.

Table 10 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
The Canteen Petition (Campus Initiative)	Students and trainers identify the school board, canteen manager, or relevant service provider as decision-makers and prepare a petition requesting daily vegetarian and vegan options to reduce the institution's environmental footprint. They support their request with evidence and propose practical implementation steps.	Demanding Effective Policies: Identifying the decision-makers and requesting specific institutional commitments to sustainability.
Local Waste Accountability Audit (Classroom/Community Activity)	Students investigate an illegal dumping site, poor recycling service, or construction-site waste problem. They identify which authority, company, or institution is responsible and prepare a formal request for action.	Identifying Accountability: Recognizing political, legal, and institutional responsibility for unsustainable behaviours and demanding appropriate action.
Regional Action Mapping (Work-Based Learning)	Students analyse their local Regional Action Plan or Territorial Pact for Employment to see how	Navigating the Political System: Understanding how power structures and regional plans

	their trade (e.g., forestry or construction) is represented and identify gaps where more sustainable policies are needed.	exert influence over professional sustainability.
Greenwashing Detective (Workshop/Workshop)	Students evaluate "green" marketing materials for professional tools in their trade. They contrast these claims against evidence-based standards and current regulations to see if they are mere communication strategies.	Assessing Political/Commercial Claims: Identifying assumptions and challenging narratives that lack robust evidence.
Stakeholder Exhibition (Local Event)	VET students help organize a local "Green Job Opportunity" exhibition, presenting their sustainable business ideas to local council members and SMEs to advocate for regional support for green transitions.	Advocacy for Change: Engaging in democratic processes and mobilizing institutions to take action on sustainability.

7.1.3. Teaching & Learning Approaches

The WOVEN project utilizes a pedagogical model based on transformative and experiential learning, moving beyond the simple transfer of information to profoundly change a learner's perspective and behaviours. For Political Agency, this involves moving the focus from "what we know" to "how we act," empowering learners to become active agents of change who can navigate political systems to demand a sustainable future. VET

educators serve as the vital link between the classroom and the green labour market, preparing students to be "climate change professional agents". For this competence, trainers should aim to:

- **Facilitate Agency:** Support students in overcoming the cognitive dissonance between knowing about environmental issues and having the power to act on them.
- **Foster Institutional Scepticism:** Equip learners with the skills to identify unsustainable patterns within their trades and challenge the status quo at professional and political levels.
- **Bridge Technical Skills with Advocacy:** Show how professional expertise (e.g., in agriculture or social work) can be used to demand effective policies and political accountability.
- **Reflective Practice:** Use the manual as a tool to assess where they stand in supporting learners to develop these agency-based skills.

Appropriate Teaching Methods

Students participate in the WOVEN Business Challenge, designing projects that contribute to a just transition. This requires them to identify which political or social stakeholders must be influenced to make their sustainable ideas viable. Using the "Outdoor Approach," students investigate local sustainability challenges, such as illegal dumping, lack of recycling infrastructure, excessive water use, unsafe heat conditions, or poor land-management practice. They take an investigative attitude to identify who is politically responsible for the site's "dire state" and formulate a demand for action. Help students practice decision-making under uncertainty by simulating stakeholder dialogues between local government, industry representatives, and citizens to negotiate resource use or environmental regulations.

Debates & Case Studies

Facilitate discussions on principles like "polluter pays," requiring students to analyse which laws or policies assign responsibility for environmental damage in their specific trade sectors. Use the example of the teacher who reframes an underused local area as a sustainability problem, demonstrating how individual reflection can lead to identifying root causes and requesting collective change. Analyse visual reports of twenty

real-world practices where professionals successfully mobilized their communities to protect vulnerable community systems or improve climate resilience.

Reflection Questions for Students/Trainees:

- "Who is politically responsible for this environmental issue in my trade, and how can I demand they be held accountable?".
- "How can I use my professional skills to influence policies that protect the most vulnerable people in my rural community?".
- "Why is developing these sustainable competences valuable for my future professional career and job opportunities?".
- "Am I brave enough to challenge the status quo of my trade if it perpetuates unsustainable patterns?".

Reflection Questions for Trainer Self-Assessment:

- "Am I successfully moving my training from mere facts to helping students develop a sustainability mindset and a sense of agency?".
- "Does my teaching approach encourage students to question predominant narratives and explore multiple stakeholder perspectives?".
- "How well am I providing a space for students to practice political and civic engagement regarding the use of natural resources?".

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources, specifically designed to integrate this competence into VET workshops and classrooms. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 38 of the [ToolKit](#)**.

7.2. Competence 11: Collective Action

7.2.1. Definition & Theoretical Background

The GreenComp framework defines collective action as the ability to act for change in collaboration with others. In simpler terms: It is the practice of working together with peers, community groups, and organizations to achieve a shared sustainability goal. It recognizes that while individual efforts matter, coordinating our actions with others is

essential for effectively solving complex environmental and social problems at both local and global levels.

Collective action is a vital building block of the "Acting for Sustainability" area, symbolized by bees. Just as bees work as a collective organism to ensure the colony's survival, this competence is intended to move learners from passive awareness to active social participation. Within the overall vision, it acts as a force multiplier; it shows that collective mobilization creates new paradigms and consistent, long-term transformations that one-off individual actions cannot achieve alone.

This is Competence 4.2 of the framework, detailed in the European Commission's Science for Policy report: [*GreenComp: The European sustainability competence framework*](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022).

Associated Key Concepts:

- **Coordination, Collaboration, and Cooperation:** The core methods of working with peers to contribute effectively to sustainability.
- **Inclusive Visions:** Working with diverse participants to create a shared, fair picture of a sustainable future.
- **Community-Driven Processes:** Creating transparent and inclusive ways for local residents to lead and take part in change.
- **Democratic Participation:** Engaging in the "ability and will" to take part in democratic processes regarding how society uses natural resources.
- **Diverse Coalitions:** Building partnerships across different communities, sectors, and regions to address "wicked" problems.

Theoretical Foundations

Collective Action is grounded in the belief that individuals are active participants in society. It focuses on developing the will to participate critically in the democratic management of natural resources. This competence provides the foundation for moving beyond small, isolated actions toward a consistent and long-term approach. It teaches that individual initiatives must be linked to community collaboration to achieve systemic change. Because sustainability challenges are highly complex and "ill-structured," they are resistant to simple technical solutions. Theoretically, collective action is the necessary

response to these problems, as it combines diverse perspectives and knowledge cultures to "dance or cope with" complexity. Rooted in the "Hands" (psychomotor domain), collective action requires a change in mindset and behaviours. It involves reflecting on our interconnectedness with others and nature, leading to a shift from "knowing" to "acting collaboratively" to restore ecosystem health. It relies on the understanding that human actions have impacts across time and space. By acting collectively, individuals can better identify intervention points and trigger cascade effects that lead to broader global sustainability.

7.2.2. Practical Examples

To foster Individual Initiative, VET trainers must move beyond delivering technical instructions and instead focus on building a student's confidence and agency. Key changes in practice include:

- **From Instructor to Facilitator of Agency:** The trainer's role shifts from providing standard answers to helping students identify their own potential to bring about **positive environmental change** within their specific trade.
- **Addressing Cognitive Dissonance:** Educators actively support learners in closing the gap between knowing about climate risks and feeling empowered to take preventive action.
- **Nurturing an Entrepreneurial Mindset:** Trainers encourage students to act as "climate change professional agents" who can propose and lead sustainable projects independently.
- **Leading by Example:** Trainers build trust by modelling behavioural changes, such as adopting greener lifestyles or discontinuing unsustainable professional routines, demonstrating that individual actions have systemic impact.
- **Focusing on Vulnerable Community Needs:** In rural VET, the trainer guides students to align their professional initiatives with the protection of critical community systems like water, agriculture, and forestry.

Table 11 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
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"Business for a Just Transition" Challenge (Classroom/Competition)	Students participate in an open challenge to develop a original business project or service that specifically addresses a climate risk in their rural region.	Identifying Potential: Recognizing one's own ability to contribute to community prospects.
Sustainable Trade Audit (Workshop)	A student independently evaluates the waste production in their workshop and implements a plan to reuse resources or do "better with fewer resources".	Precautionary Principle: Taking preventive action when technical practices may damage human or environmental health.
"VET Student into Practice" Mobility (Work-Based Learning)	Students complete a 5-day intensive internship in a green enterprise abroad, culminating in a Capstone Project that proposes a sustainability improvement for that company.	Persistence & Initiative: Taking personal initiative to achieve sustainability objectives in unfamiliar contexts.
Community Resilience Heat-Action (Community Collaboration Project)	Students work with local residents, elderly citizens, municipal services, and SMEs to design a shared response to heatwaves, such as shaded rest areas, hydration points, adjusted work schedules, or check-in systems for vulnerable people.	Collective Action: Collaborating with diverse community actors to create shared responses to climate risks and protect vulnerable residents.

Brussels Experience Exchange (International Seminar)	Selected students travel to Brussels to pitch their sustainable project ideas to an international audience, acting as "ambassadors" for their rural communities.	Influencing Change: Developing the confidence to anticipate and influence sustainable shifts at a systemic level.
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7.2.3. Teaching & Learning Approaches

- Link to professional practice & Learning outcomes for trainers
- Appropriate teaching methods: project-based learning; problem-based learning; role-play
- Debates, case studies
- Reflection questions for educator, students/trainees; Questions for trainer self-assessment

Teaching & Learning Approaches: Competence 12 – Individual Initiative

The WOVEN project adopts a pedagogical model rooted in transformative and experiential learning, moving beyond the mere transfer of information to profoundly change a learner's perspective and behaviours. For Individual Initiative, this approach engages the "Hands" (psychomotor domain) to help learners move from a sense of knowing about environmental issues to having the personal agency and confidence to act on them. VET educators serve as the vital link between the classroom and the green labour market. For this competence, trainers should aim to:

- **Transition to Facilitators of Agency:** Shift from providing standard answers to helping students identify their own potential to contribute to community prospects and planetary health.
- **Bridge the Knowledge-Action Gap:** Support students in overcoming cognitive dissonance, the gap between knowing about a climate risk and feeling empowered to take action.

- **Nurture "Climate Change Professional Agents":** Equip students with the confidence to independently propose and lead professional projects that enhance the resilience of vulnerable rural environments.

Appropriate Teaching Methods

Students participate in the WOVEN Business Challenge (WP3 Pilot), where they must independently design an original business project or service that contributes to a just transition. Using the "Outdoor Approach," students investigate local site-specific challenges to identify where they can take preventive action (precautionary principle) before technical problems escalate. Facilitate exercises where students must practice decision-making under uncertainty, simulating scenarios where they must take prompt, self-initiated action to protect community health.

Debates & Case Studies

Analyse the use case of a teacher who uses an "investigative attitude" to reframe a local environmental challenge as a professional problem, sparking individual reflection on consumption patterns. Facilitate a discussion on when a professional should take preventive action even in the face of incomplete scientific data or unforeseen events. Use the report of twenty real-world rural jobs to analyse how specific individuals took the initiative to create green work opportunities in vulnerable environments.

Reflection Questions for Students/Trainees:

- "Why is developing these sustainable competences valuable for my future professional career?"
- "How must future jobs in my trade align with the adaptation needs of the most vulnerable people in my community?"
- "What specific improvements can I personally initiate in my workplace to reduce environmental risks?"
- "Am I confident enough to try to influence sustainable changes even when they challenge the status quo?"

Reflection Questions for Trainer Self-Assessment:

- "Am I providing a safe space for my students to take risks and lead their own sustainability initiatives?"
- "Does my teaching approach help learners overcome eco-anxiety by highlighting their role as agents of change?"
- "Where do I stand in my ability to support learners in moving from passive understanding to active professional engagement?"

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources, specifically designed to integrate this competence into VET workshops and classrooms. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 41 of the [ToolKit](#)**.

7.3. Competence 12: Individual Initiative

7.3.1. Definition & Theoretical Background

The GreenComp framework defines individual initiative as the ability to identify one's own potential for sustainability and to actively contribute to improving prospects for the community and the planet. In simpler terms: It is the recognition that you personally have the power to bring about positive environmental change. It involves having the confidence to start your own sustainable projects, acting as a role model for others, and choosing to act even when the "business as usual" path is easier.

Individual initiative is a vital building block of the "Acting for Sustainability" area, represented by bees in the framework's metaphor. Just as individual bees play a critical role in the survival of the entire colony, this competence empowers learners to become agents of change. Its primary intention is to help individuals overcome cognitive dissonance, the gap between knowing about an environmental problem and having the agency to act on it. Within the broader vision, it transforms sustainability from an abstract concept into a set of active professional and personal choices that drive systemic change.

This is Competence 4.3 of the framework, detailed in the European Commission's Science for Policy report: [GreenComp: The European sustainability competence framework](#) (Bianchi, G., Pisiotis, U., Cabrera Giraldez, M., 2022).

Associated Key Concepts:

- **Internal Locus of Control:** Having confidence in one's own potential to influence change rather than feeling helpless.
- **Entrepreneurial Mindset:** Empowering individuals to take the initiative in their lives and propose novel sustainability solutions.
- **Precautionary Principle:** Taking preventive action when technical practices or inaction may damage human or environmental health, even in the face of incomplete scientific evidence.
- **Leading by Example:** Acting as a role model in the personal and professional sphere to debunk myths about sustainable lifestyles.
- **Choice of Action:** Recognizing that maintaining the status quo or choosing inaction are also active choices with consequences.

Theoretical Foundations

Individual Initiative emphasizes the "Hands" (psychomotor domain) by moving the focus from "what we know" to "how we act". This foundation aims to profoundly change a learner's perspective and behaviours through reflection on assumptions and active engagement. Individual initiative is rooted in the understanding that humans are part of nature and must contribute to shaping futures within planetary boundaries. It prioritizes the needs of all life forms by ensuring human activity does not exceed safe ecological limits. This theory views the learner as an active participant in society who takes a consistent, long-term approach to solving problems rather than relying on small, one-off actions. It is founded on the belief that individuals have a commitment toward society and the environment. It involves the ethical courage to discontinue unsustainable routines and advocate for those in need. Theoretically, this competence relies on the knowledge that every individual action has an impact on environmental, social, and economic systems, even if that impact is not immediate.

7.3.2. Practical Examples

The integration of the GreenComp framework and the WOVEN project initiatives requires VET trainers to shift from technical instructors to facilitators of a sustainability mindset. The primary implications for pedagogical practice include:

- **From Information Provider to Facilitator:** Trainers no longer just transfer facts; they act as facilitators who nurture the knowledge, skills, and attitudes required for students to become agents of change.
- **Addressing Cognitive Dissonance:** Educators play a crucial role in helping learners bridge the gap between knowing about environmental crises and having the agency to act on them.
- **Emphasizing Transformative Learning:** Practice shifts toward the "Head, Hands, and Heart" approach, engaging cognitive, psychomotor, and affective domains to change perspectives and behaviours.
- **Focusing on "Wicked Problems":** Trainers move away from simple technical solutions to teaching students how to "dance" or cope with complex, ill-structured sustainability problems.
- **Reflective Practice:** The trainer's role involves using reflection tools to question their own assumptions and move the educational focus from "what we know" to "how we act".
- **Sustainability as a Cross-Cutting Skill:** Trainers must integrate these competencies into their specific trades, such as agriculture, social work, or emergency services, ensuring they are not treated as a separate "extra subject".

Table 12 - Practical Examples in VET Contexts

Example & Context	Activity Description	GreenComp Competence / Focus
"Business for a Just Transition" Challenge (Classroom/Competition)	Students participate in an open competition to design a sustainable business project or service that addresses climate risks (e.g., droughts or fires) in their rural community.	Individual Initiative (4.3): Identifying personal potential to contribute to community prospects.
Personal Sustainability Intervention	Each student identifies one unsustainable routine	Individual Initiative: Identifying one's own potential

(Workshop/Work-Based Learning)	in their workshop or workplace, such as wasting materials, leaving equipment running, or discarding repairable tools. They implement one practical improvement and document its impact.	to initiate concrete sustainability improvements in professional practice.
Circular Economy Hub Design (Workshop/Local Outreach)	Students investigate local business practices and propose incentives to build a hub that promotes the reuse of resources and reduces waste (e.g., "trash hacking").	Exploratory Thinking (3.3): Applying circular economy concepts and linking different disciplines to find novel solutions.
"Students into Practice" Mobility (Work-Based Learning)	Students complete an intensive 5-day internship in a green enterprise abroad and produce a Capstone Project analysing how their specific trade must align with climate adaptation needs.	Acting for Sustainability: Moving from theoretical knowledge to practical, experiential professional action.
Local Green Job Exhibition (Community/Regional Event)	VET centers host a community event where students pitch their sustainable project ideas to local council members and SMEs to advocate for	Collective Action (4.2): Acting for change in collaboration with others through inclusive, community-driven processes.



	a "just transition" in their region.	
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7.3.3. Teaching & Learning Approaches

The WOVEN project and the GreenComp framework emphasize a shift toward transformative and experiential learning, engaging the "Head, Hands, and Heart" to move learners from mere knowledge acquisition to active professional agency. VET educators serve as the vital link between the classroom and the green labour market. For trainers, the focus shifts from being information providers to becoming facilitators of a sustainability mindset.

- **Facilitating Agency:** Trainers help students overcome cognitive dissonance, the gap between knowing about environmental issues and having the agency to act on them.
- **Nurturing Agents of Change:** Educators prepare a workforce capable of thinking, planning, and acting with empathy and responsibility for the planet.
- **Transversal Integration:** Trainers learn to treat sustainability not as an isolated "extra" subject but as a cross-cutting competence embedded in specific trades like agriculture, forestry, or social work.

Appropriate Teaching Methods

Students participate in the WOVEN Business Challenge, where they must independently or collaboratively design original business projects or services that contribute to a just transition in rural areas. Utilizing "Outdoor and Local Approaches," students investigate real-world issues in their own communities (e.g., excessive workshop waste, unnecessary energy use, poor tool maintenance, water waste, or unsafe climate-related working conditions) to frame challenges and identify intervention points. These methods help learners explore different stakeholder perspectives and practice decision-making under uncertainty, ambiguity, and risk.

Debates and Case Studies

Trainers facilitate discussions on real-world dilemmas where no single solution exists, such as technological trade-offs (e.g., biofuels vs. biodiversity) or consumerism vs. sustainability (e.g., fast fashion vs. resource preservation). Using local context makes sustainability tangible. For example, the "Fatima" use case illustrates how a teacher uses

an "investigative attitude" (critical/exploratory thinking) to reframe an underused local area as a sustainability problem. Analysing reports of twenty real-world rural jobs helps students identify practical ways to protect vulnerable environments through professional action.

Reflection Questions for Students/Trainees:

- "Why is the GreenComp Framework valuable for my future professional career?".
- "How must future jobs in my specific trade align with the adaptation needs of the most vulnerable people in my community?".
- "How does my internship experience align with the broader goals of rural climate adaptation?".

Reflection Questions for Trainer Self-Assessment:

- "Am I moving the focus from transferring information to helping students develop a sustainability mindset?".
- "To what extent am I providing a safe space for students to explore alternative solutions to 'wicked problems'?".
- "Where do I stand in supporting my learners to become agents of change who prioritize the needs of the planet?".

To facilitate the transition from theoretical understanding to concrete professional action, trainers are encouraged to implement experiential and student-centered methodologies that address real-world socioecological challenges. The WOVEN project provides a range of practical resources, specifically designed to integrate this competence into VET workshops and classrooms. For detailed pedagogical guidelines and ready-to-use classroom materials for this competence, please **see page 45 of the Tool Kit**.

8. Conclusions & Next Steps

The transition to a greener economy requires more than just technical adjustments; it demands a fundamental shift in how vocational education is delivered. This handbook serves as the first step in a long-term process of aligning VET programs with the urgent needs of climate change adaptation and rural resilience.

Rather than being a static list of definitions, the GreenComp framework is designed to be a pedagogical framework and reflection tool for daily practice.

- **Continuing Professional Development:** Educators are encouraged to use the framework to assess where they stand in supporting learners and to critically reflect on their own teaching methodologies. This manual supports ongoing professional growth by helping trainers move from being mere information providers to facilitators of a sustainability mindset.
- **Communities of Practice:** To sustain this transformation, the handbook promotes the creation of **communities of practice** through the **WOVEN Professional Network**. This network, alongside official EU platforms like the *Education for Climate Coalition*, enables teachers, students, and rural professionals to co-create solutions and share best practices across borders.

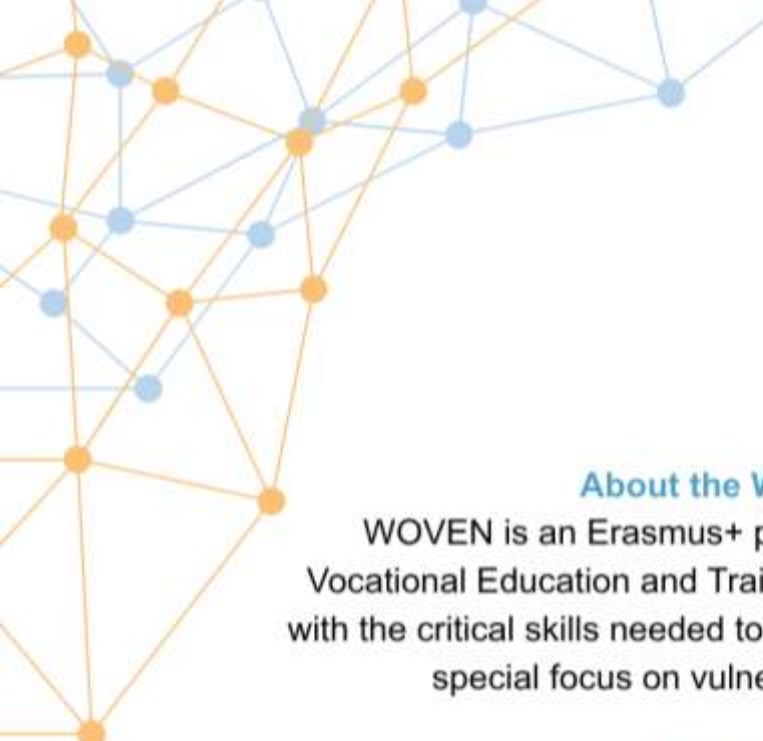
Key Takeaways

- **Sustainability as a Cross-Cutting Skill:** Sustainability must not be treated as an isolated "extra" subject but as a **transversal competence** embedded across all disciplines, from agriculture to social work.
- **Transformative "Head, Hands, and Heart" Learning:** To be effective, VET pedagogy must engage the cognitive, psychomotor, and affective domains, moving the educational focus from "**what we know**" to "**how we act**".
- **Overcoming Cognitive Dissonance:** A primary goal of these competencies is to bridge the gap between knowing about environmental crises and having the **professional agency** to build resilient alternatives.
- **Trainers as Change Agents:** VET educators serve as the **vital link** between education and the green labor market; they are responsible for preparing a workforce capable of protecting the most vulnerable community systems.

This handbook provides a pedagogical map that bridges the gap between high-level EU policy and the reality of the VET workshop. It supports the development of further resources by:

- **Linking to the WOVEN Tool Kit:** The manual provides direct links to ready-to-use classroom materials, activity templates, and detailed pedagogical guidelines found in the WOVEN Tool Kit.
- **Providing Realistic Applied Examples:** The tables of VET-context examples throughout this manual offer a foundation for developing trade-specific curricula tailored to the green transition.
- **Facilitating Replication:** The structured methodology and reflection questions are designed to be easily replicated by other trainers, ensuring the project's impact is scalable across different VET centers in Europe.
- **Informing Future Outputs:** The findings within this manual directly support the development of animated presentations, artistic videos, and analytical studies on job opportunities in climate adaptation.

By implementing the strategies outlined in this manual, VET centers can transform their students into "climate change professional agents" who are equipped to thrive in a rapidly changing economy while safeguarding the health of our planet.



About the WOVEN Project

WOVEN is an Erasmus+ project dedicated to equipping Vocational Education and Training (VET) teachers and students with the critical skills needed to address climate challenges, with a special focus on vulnerable rural environments.

Our Core Mission

The project aims to strengthen local community resilience against climate-related risks while fostering new pathways for sustainable green employment. By driving educational action in perfect alignment with the EU Strategy on Adaptation to Climate Change, WOVEN empowers educators and learners to become active catalysts for environmental and professional transformation.

A Transnational Partnership

This deliverable is the result of a dynamic European collaboration between Associació Cultural CRESOL & Instituto de Educación Secundaria Jérica-Viver, from Spain, MENTORTEC & Escola Profissional Amar Terra Verde, from Portugal, and Associazione ARCES, from Italy.

Learn more at

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