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Lesson Zero for Sustainable Development by the University of Florence.

Sustainability Skills for Professional Development in Higher Education.

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AGENDA

Introduction: the commitment of Higher Education to sustainable development

- *Education for Sustainability in Higher Education*
- *"Lesson Zero for Sustainable Development"*
- *Conceptual framework of Lesson Zero*
- *Methodological criteria & Structure of Lesson Zero*
- *First findings and development of Lesson Zero*

Conclusion

Introduction: the commitment of HE to sustainable development

The 2030 Agenda and the Sustainable Development Goals represent an opportunity for development and innovation that many universities have not yet fully embraced.

Higher Education Institutions are called to:

- support students in acquiring critical and systemic competencies to understand the sustainability challenges they will face as future professionals and citizens (Finnveden, Newman & Verhoef, 2019)
- guide the transition toward a sustainable and just society (Kohl et al., 2022)

In practice, this commitment is still limited, with most attention focused on training sustainability specialists (Finnveden & Schneider, 2023)

Introduction: the commitment of HE to sustainable development

The **complexity of sustainability challenges** requires HE to expand their scope of action in order to:

- preparing tomorrow's leaders, professionals, and citizens (First mission);
- supporting the development of solutions and methods capable of addressing a sustainable future (Second mission);
- ensuring that universities provide a concrete and meaningful contribution of knowledge to society (Third Mission).

Introduction: the commitment of HE to sustainable development

Overall, higher education must also address the complexity of sustainability challenges by:

- Training professionals capable of applying the principles of sustainable development in their future workplaces.
- Expanding sustainability education beyond the training of green jobs to include non-specialist professionals operating in diverse contexts.
- Promoting a deep reflection on the meaning of education for sustainable development in higher education, as well as an organizational change that enables universities to effectively implement sustainability principles.

Acosta-Castellanos, Queiruga-Dios, Camargo-Mariño, 2024

Education for Sustainable Development in Higher Education

Environmental education

It aims to protect the environment by changing individual and collective behaviours
It is developed in response to environmental problems arising from industrialization, consumerism, and urbanization
It promotes awareness and environmental care through contact with nature.

Education sustainable development

It provides knowledge and skills to contribute to integrated sustainable development
It adopts a global and lifelong approach
It goes beyond content transmission, promoting critical thinking and individual and collective responsibility;
It facilitates the shift from passive learning to conscious action.

Education for sustainability

- It adopts a transformative perspective
- It requires innovative pedagogical approaches
- It must be integrated not only into curricula but also into management practices and community relations.

Education for Sustainable Development in Higher Education

Established as a reference for **Sustainable literacy** and social responsibility — including within universities — as well as the competencies needed to face future challenges, Education for Sustainable Development is recognized as:

- a broader conceptual framework that integrates environmental challenges with the social, economic, and human dimensions of sustainability
- a holistic and transformative process
- a primary means, supported by the United Nations, to promote and implement the 2030 Agenda

Despite this, its full integration into HE curricula remains a goal that has not yet been fully achieved.

Education for Sustainable Development in Higher Education

Lack of resources, qualified staff, and adequate skills to plan and implement sustainability projects and to support faculty development programs (Bertone et al., 2025; Abo-Khalil, 2024; Chankseliani et al., 2021)

Resistance to change among established academic staff, to innovation in university teaching practices, and to cooperation with other social actors (Abo-Khalil, 2024; Chankseliani et al., 2021)

Limited capacity to engage and involve students and local stakeholders in initiatives for Sustainable Development (Chankseliani et al., 2021)

Limited understanding and appreciation by faculty and students **of the concepts of sustainability and sustainable development**, and of their role in fostering positive learning environments (Bertone et al., 2025; Alfathy et al., 2024; Abo-Khalil, 2024)

Education for Sustainable Development in Higher Education

- Difficulty in **translating the Sustainable Development Goals into learning outcomes** within study programs, as well as in **designing educational activities based on teaching methods aligned with sustainability** (e.g., experiential, active, interdisciplinary, and project-based approaches) (Bertone et al., 2025)
- Need to develop and adopt **teaching frameworks** capable of addressing sustainability from **an inter- and transdisciplinary perspective** (Abo-Khalil, 2024; Liu, J., et al., 2022)
- **Ineffectiveness of assessment systems** related to programs, initiatives, and learning outcomes on sustainability (Bertone et al., 2025)

Sustainability Competencies for Professional Development

UNIFI Lesson Zero for Sustainable Development.

Lesson Zero for Sustainable Development: «Sustainability Competencies for Professional Development»

What: A General course of University of Florence for master's degree students in all disciplinary fields. It offers a 3-ECTS online program for totally 18 hours

Why: to foster Sustainability Literacy as the knowledge, skills, and mindsets needed to build a sustainable future and make informed, effective decisions (UNESCO, 2017).

Who: The Italian Network of Universities for Sustainable Development (RUS); UNIFI TLC & UNIFI Green Office; prof. Glenda Galeotti ,UNIFI referent for education in the RUS & prof. Marco Pierini, Vice-Rector for the Third Mission; 26 UNIFI Professors.

Lesson Zero: Conceptual framework

Grounded in the notion of sustainability as *"the capacity to prioritize the needs of all forms of life and the Planet, ensuring that human activity remains within planetary boundaries"* (Bianchi et al., 2022, p. 12).

Promotion of **Sustainability Literacy**, defined as the knowledge, skills, and mindsets necessary to build a sustainable future and make informed, effective decisions (UNESCO, 2017).

Higher Education Institutions (HEIs) are called to empower students **as agents of sustainable change** yet often fall short in providing the necessary tools (UNESCO, 2022; OECD, 2021; Holdsworth & Thomas, 2021).

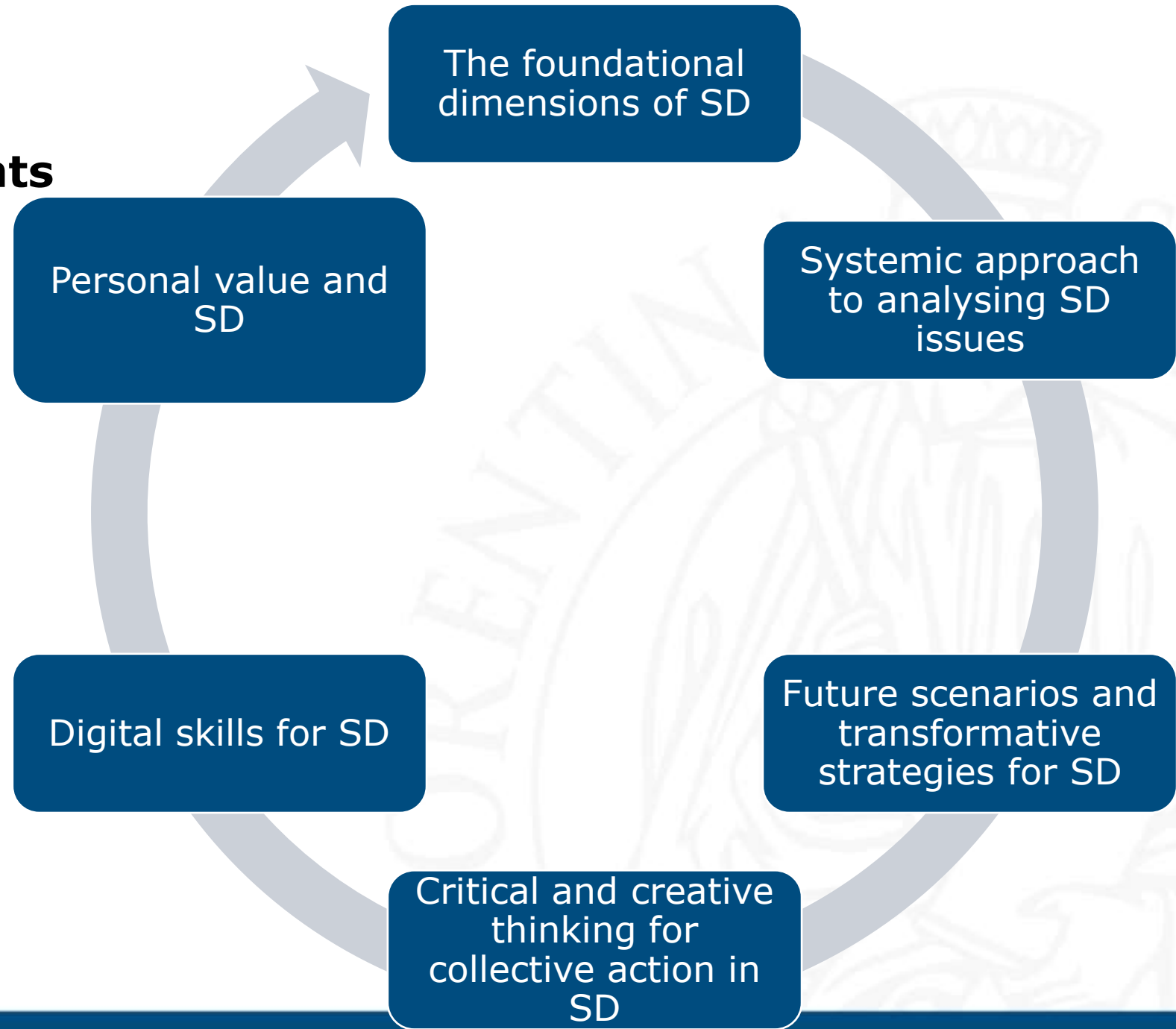
Adoption of pedagogical approaches that meaningfully connect learning experiences with students' needs, interests, and potential (Schleicher, 2019).

Going beyond simply raising awareness of the urgent challenges of our time, it fosters the development of professionals capable of taking concrete action through a sustainability-oriented lens.

Lesson Zero: Methodological criteria

- Course design aligned with the intended learning outcomes, inspired by the European *GreenComp Competency Framework*
- An interdisciplinary approach adopted in the development of modules and learning units, which include exercises, assessments, case studies and a final project work
- Integration of research findings from across academic disciplines into the teaching process
- Creation of an academic community with expertise in sustainability-related topics and didactics for sustainability development (Community of practice)
- Integrated evaluation system that include self evaluation, project work and micro-credential

Lesson Zero: Contents



Lesson Zero: Learning structure

6 cross-cutting modules consisting of **26 learning units (totally)**
1 module with 5 disciplinary learning units for in-depth study **(1 for each scientific area)**

Each **learning unit** includes video lectures, supplementary materials, and activities.

Each **module** concludes with a formative assessment (multiple-choice test).

Tow **senior teaching tutors** support the students

Lesson Zero: Evaluation system

- Tests for the assessment of the learning units
- Final project work on applying the topics covered to one's field of study or future profession.
- Final self-assessment questionnaire.
- Micro-credential for awarding all participants who successfully complete the course

Some data about the testing phase

Academic Year 2014–2015 (2nd semester): Testing phase — 82 participants, 37 completed the course.

Students come from seven disciplinary areas: Humanities, Agriculture, Architecture, Economics, Law, Engineering, and Political Science.

Academic Year 2025–2026: Ongoing — 371 participants

Some data about the testing phase

	Nothing	Little	Enough	Much
General satisfaction	-	3%	43%	54%
Didactical materials	-	-	32%	68%
Professional growth	-	5%	49%	47%

Students' suggestions

Increase student interactivity and engagement.

Integrate practical cases and real-world applications.

Improve teaching materials, especially slides and downloadable resources.

Reorganize lessons and video lectures for modularity and clarity.

Expand or deepen specific disciplinary content.

Optimize assessment methods and timing.

Challenges and development

Not all master's degree courses can attend Lesson Zero because some are taught in English, while others do not allocate 3 ECTS.

Next steps:

Opening the Lesson 0 course to UNIFI PhD students (2025–2026)

Short version of Lesson 0 for UNIFI administrative staff (2026)

Lesson 0 in English version

Conclusion: lessons learnt

The role of Education for Sustainable Development in Higher Education is to foster critical engagement with the root causes of unsustainability and the connections between current socio-economic models and environmental injustice (Mochizuki, 2016).

Sustainability-oriented educational work is based on contextualized knowledge, real-world issues, and active student participation, supporting critical thinking, meaningful learning, and personal and professional development (Sterling, 2013).

Education for Sustainable Development requires the proactive role of Higher Education Institutions (HEIs) in promoting inclusive and innovative teaching, fostering a culture of sustainability, and contributing to social, cultural, and economic progress through research and its practical application across disciplines.

Conclusion

The contribution of HEIs must go beyond offering an innovative course; it requires the creation of a true learning ecosystem that engages both the internal structures and external relationships of the institution, integrating pedagogical innovation, interdisciplinary collaboration, and active engagement with societal challenges.

Only in this way can we create a sustainable academic community capable of collaborating with the local community and society at large.



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Thank you

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