

Soft Skills for Green Transition

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Abstract

Climate change is progressively changing the nature of work in various occupations and the skills required of many workers even in the STEM fields. Education at all levels, including higher education, should face with these changes, adapt to new challenges and conditions, and change its approach to teaching. Traditionally, hard skills have been considered essential, yet several studies highlight the crucial role of soft skills in rapidly changing working environments. Therefore, the ability to develop these skills as part of a holistic approach to the 'greening' of the economy is essential for educators, as their students are future workers and potential change agents in the green industry. At the same time, more knowledge about the context in which soft skills are used is of great interest.

The findings of this research provide some interesting insights for STEM educators: soft skills are widely recognised, but some of them, such as communication, empathy, problem solving, and metacognition are particularly useful as the green transition essentially involves changing mindsets, working in multidisciplinary environments and influencing employees and customers. The connection with industry stakeholders as codesigner or simply contributors of the learning experience, and collaboration between faculties, fostering transdisciplinarity, can be a leverage to develop such skills.

Keywords: Green transition skills, STEM education, Soft skills in green transition, Green transition skills gaps, Sustainable development

Extended Abstract

The research conducted within the SOFTEN project ('Embedding SOFT skills in sTEM academic curricula for the transition to sustainable grEeN economy' www.softenproject.eu - an international educational project co-financed by the European Union under the ERASMUS+) recognized that one of the major challenges our society must face is to adapt to climate change, meeting the requirements of the 'green transformation', intended as the transition of the economy and society towards achieving climate and environmental goals, primarily through policies and investments, and striving to develop the so-called 'green economy', described as management that helps improve human well-being and reach social equality, while reducing or eliminating environmental risks and ecological deficiencies.

In such conditions, 'green jobs' are also created, which include occupations that facilitate the achievement of net zero emissions goals and other environmental goals (e.g. restoring the balance in nature, adapting to climate change, caring for biodiversity, etc.). In this context, the concept of "green soft skills" becomes relevant, covering knowledge, skills, values, and attitudes important for human existence and social development, and consistent with sustainable development (Galani et al. 2023; Rieckmann 2018). This is not about special new soft skills, but rather about their adaptation and "interpretation" in a direction useful for implementing the principles of sustainable development in practice and building a greener economy.

Based on this research, green soft skills include teamwork, adaptability, communication, collaboration, open-mindedness, empathy, critical thinking, and problem-solving complementary to environmental awareness and social consciousness. The evidence obtained from the green industry shows that in various practical contexts, soft skills have a potential leverage effect, proposing them as an element of success in green transition. They enhance the ability to communicate, collaborate, innovate, and lead

effectively in the pursuit of a more sustainable future. As the world increasingly recognizes the importance of environmental sustainability, the value of these skills will continue to grow.

In the frame of the project, a university teacher-centered strategy has been formulated to address all the obstacles to the widespread adoption of green soft skills, such as the low importance attributed to soft skills by STEM university students, the reluctance of STEM university teachers to include these skills in their courses, and the lack of those skills among new young employees. One of the pillars of this strategy is teacher training.

“Green Soft Skills for Transition” is a Massive Online Open Course for STEM university teachers and educators. It aims at creating awareness of the importance of soft skills for students, not only during university years, but, in particular, when they start working. It offers an overview of those skills that can be useful in green industries or in green processes and describes techniques and methodologies that teachers can adopt in their courses, to let students develop soft skills.

The adopted soft skills classification is that elaborated by Schleutker, 2016, so the MOOC is organised in 5 weeks: the first one is a general introduction to soft skills for the green transition, then creativity, communication, team Working, and self-management are presented through methodologies and techniques that teachers can adopt during their lessons, to engage students and let them also acquire transversal skills.

So, the general objective of the MOOC is to present a set of tips and tools, applicable both in large and small classrooms, both with students in 1st university year and with students at the end of their curriculum, both in traditional context with static tables and chairs and with movable furniture. In this way, the MOOC is more focused on “how” to stimulate soft skills in students during university years, than on “what” soft skills and, in particular, green soft skills are.

The secret ingredient of “Green Soft Skills for Transition” is metacognition: starting from the beginning of the learning path, MOOC participants are involved in activities that gradually make them reflect about their learning choices, their learning styles, the level of comprehension of the topics; only at the end metacognition is revealed and explained - through a metacognitive process.

For each skill, participants pass through:

- a level of self-awareness, because talking about soft skills concerns everyone and sometimes one is very condescending towards oneself, convinced that it is not necessary to be trained;
- a level of awareness, about the real willingness to putting into practice and experimenting but also about the specific context assets;
- a level of knowledge, with the possibility to go deeper if they prefer to read some detailed explanation, and
- a level of action, thanks to some activities oriented to let instructors apply the concept in their specific context and design their new courses.

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