Think big, act small!
The first steps to sustainability education.

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***Centre of Expertise for Higher Education** (University of Antwerp)*

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This tip is based in part on the online learning module 'Lesgeven voor en over duurzaamheid' ('teaching for and about sustainability')[1] developed by Duurzaam Educatiepunt, the Flemish government's centre of expertise on sustainability education. The various examples are based on the brochure 'Duurzaamheid in de onderwijspraktijk' ('sustainability in educational practice')[2] published by UAntwerp in 2022.

'Sustainable development begins with education,' says UNESCO, emphasising the crucial role of education. But where do you begin, as a lecturer or assistant? In this ECHO Teaching Tip, we will discuss **the concept of sustainability**, some related **frameworks**, and the difference between **teaching *about* sustainability and teaching *for* sustainability**. Above all, we hope to inspire you with concrete **examples** and give you that extra nudge to put sustainability education on the agenda.

The concept of sustainability

Given the complexity of the concept of sustainability, various interpretations, movements and visions have emerged over time. Depending on the context, people may refer to either 'sustainability' or 'sustainable development'. The United Nations systematically use the term 'sustainable development'. **Sustainable development** was given its formal modern-day interpretation in the UN Brundtland Report in 1987. The main conclusion of the report was that major global problems were caused by poverty in one part of the world and unsustainable consumption and production in the other. In this report, sustainable development is understood as: 'Development that meets the needs of the current generation without compromising the needs of future generations.'

Figure 1. Sustainable Development Goals: Overview (sdgs.be)

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[1] Currently there is only a Dutch version available. **The English version is in preparation and will be included here as soon as possible.**
[2] Idem

The most widely known framework for sustainable development is that of the **Sustainable Development Goals (SDGs)**. In 2015, the UN launched the '2030 Agenda for Sustainable Development', comprising 17 Sustainable Development Goals (the SDGs) and 169 specific targets.

SDG 4 focuses specifically on education: 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.' This goal encompasses seven concrete targets. Target 4.7 again underscores the importance of sustainability education: 'By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including [...] through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.'

The SDGs provide a global framework that brings together the various **challenges in terms of economic and social development, the environment, peace and partnership**. All SDGs are related and intertwined, interacting with one another. This means that focusing on one goal or simply working our way down the list of goals one at a time is no guarantee for sustainability. Combined, integrated and interdisciplinary efforts focusing on all SDGs are necessary.

In addition to the SDGs, several other models are used to address the complex concept of sustainable development and to stimulate action, including the Donut model and the 5P model. More information about these models is available in the online learning module (in Dutch).

Sustainability education

Sustainability education can roughly be divided into:

- **Teaching about sustainability**: conveying knowledge and understanding to students.

- **Teaching for sustainability**: taking students to a higher level, where they create new knowledge and learn to look for sustainable answers to sustainability challenges themselves.

(a) Teaching about sustainability

In order to convey knowledge of sustainable development to students and to increase their understanding, you can start by adding **new 'sustainable content'** to your programme (component) or by making your **existing learning content more sustainability oriented**. This can be done in various ways. Below are some inspiring questions to help you on your way.

What sustainable theoretical content can be considered for inclusion in your programme (component)?
In the lectures on Ecological History (Bachelor of History, standard study programme part 2, Faculty of Arts, UAntwerp), students learn to look at sustainable development from their own historical backgrounds. They discover that today's actions do not always have the desired impact on the future.

Can you provide sustainable alternatives to the current learning content?
The Animal Hygiene, Housing, Economy and Animal Welfare programme component (Bachelor of Veterinary Medicine, standard study programme part 3, Faculty of Pharmaceutical, Biomedical and Veterinary Sciences, UAntwerp) focuses on such aspects as the sustainable and energy-efficient housing of animals and its ecological impact.

What sustainable practices from your discipline can you demonstrate?
In the Ecosystem-based adaptation to global change programme component (Master of Biology, Faculty of Science, UAntwerp), students are introduced to real-life implementations of ecosystem-based practices through field trips and case studies.

Which guest speakers can be invited to share sustainable insights?
In the Sustainable Construction programme component (Master of Civil Engineering Technology, Faculty of Applied Engineering, UAntwerp) students receive several guest lectures from professionals. They share what sustainable construction means to them, based on their own practical experience.

Which sustainable practical experiences can be incorporated?
Through a community service learning project for the Inequality and social exclusion: service learning programme component (Master of Sociology, Faculty of Social Sciences, UAntwerp), students investigate the

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> *exclusion of certain groups of people on the labour market.*
>
> ***Can you offer sustainable topics for bachelor and master dissertations?***
> *For his master dissertation on Product Development (Faculty of Design Sciences, UAntwerp), alumnus Arthur Boven designed a photobioreactor that allows sustainable cultivation of microalgae, under the Gr02 project.*

In addition, you can also discuss **sustainability challenges** in your programme (component) and link them to the SDGs, thereby strengthening your students' understanding of sustainable development.

> *SDG 3 – 'Ensure healthy lives and promote well-being for all at all ages' can be linked to a sustainability challenge such as reducing obesity. This challenge also ties in with other SDGs, such as SDG 1 – 'End poverty in all its forms everywhere' and SDG 4 – 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'.*

You can even take things one step further and explicitly include sustainable content in your **core and/or final competences**. This way, you can give sustainability a central and structural place in your programme (component).

> *In the Master of Multilingual Professional Communication (Faculty of Arts & Faculty of Business and Economics, UAntwerp), sustainability has been included as one of the core competences.*

(b) Teaching for sustainability

In addition to teaching *about* sustainability, you can also teach *for* sustainability. This means you gear your programme (component) towards sustainability competences. **Sustainability competences** are integrated sets of knowledge, skills and attitudes that enable students to constantly shape and re-shape the paths towards sustainable development in ever-changing contexts. As such, they are crucial levers that contribute to a sustainable future. Six different sustainability competences can be distinguished (Rieckmann, 2018; Wiek et al., 2011).

(1) **Systems thinking**: students recognise sustainability challenges and their complexity.

We want to impart students with knowledge about sustainability challenges and their **complexity**. We want

them to see connections between different elements of a given sustainability challenge. Systems thinking means that students think about the entirety of a problem, and not only about its individual aspects. They learn to look at dynamic relationships rather than linear cause-and-effect chains, and at processes as well as facts. That means systems thinking can be described as the study of hidden structures. Furthermore, this competence emphasises the importance of **interdisciplinarity**. The combination of different disciplines is necessary to understand the complexity of sustainability challenges and to create new connections and knowledge. This ECHO Teaching Tip (only in Dutch, 2019) takes a closer look at interdisciplinary higher education.

> *'Students can critically examine how a wide range of factors, including politics and power, impact the environment–social change nexus.'*
> *Global Environment-Development Nexus subunit in the Globalisation and Development module (Advanced Master of Globalisation and Development, Institute of Development Policy, UAntwerp)*

(2) **Normative competence**: students can critically examine commonly used systems.

Everyone has different ideas about the direction we should take and the choices we should make when addressing sustainability challenges. That is why we want students to develop the ability to question the prevailing norms and values within a given system, and to identify which ones correspond to sustainable systems. This also means they have to think critically about their own values and actions. Thinking about sustainability is therefore often done in a **context of dissensus**.

> *'Students can reinterpret human rights legislation from a development perspective with a focus on the Global South. They can make transversal connections to demonstrate the complexity of the three intertwined development policy regimes of aid, trade and investment.'*
> *Sustainable Development and Global Justice module (Master of Laws, Faculty of Law, UAntwerp)*

(3) **Anticipatory competence**: students can provide a well-founded vision of the future.

Our past and the choices we make today influence the future we will live in. We also want students to ask critical questions about that future and how it should evolve in the interests of sustainability. The ultimate goal is to collectively analyse, evaluate and shape very broad, yet

detailed **visions for the future** with regard to sustainability challenges. The more distant the future we want to depict, the more uncertain that future. An important aspect of anticipatory competence is therefore also understanding and learning to deal with **uncertainty**.

> *'Students can critically reflect on the potential of heritage to build a more sustainable community.'*
> *Heritage: Climate and Sustainability (Master of Heritage Studies, standard study programme part 1, Faculty of Design Sciences, UAntwerp)*

(4) **Strategic competence**: students can design a plan to change unsustainable elements.

Of course, we also want students to learn how to **tackle** sustainability challenges. They must learn to determine collective strategies for sustainability. This includes any attempts to change and (re)construct the system/the world/certain aspects of sustainability challenges, by changing what is not working well today or setting up a change path towards a better future. One way of honing this competence is by setting practical exercises, showing students that making decisions and devising sustainable transition strategies is no easy feat.

> *'Students can motivate in detail how ethical behaviour, together with ecological and economic principles, can and should be integrated into the strategy of organisations.'*
> *Sustainability Management (Master of Applied Economics: Business Administration, Production Management minor, Faculty of Business and Economics, UAntwerp)*

(5) **Interpersonal competence**: students can empathise and cooperate with others.

We want students to learn how to interact with other people, how to empathise with their positions and arguments, and **how to cooperate and negotiate** with them. Analysing sustainability challenges and coming up with solutions requires intensive cooperation between stakeholders, but also negotiations between scientists from different disciplines, politicians, entrepreneurs, artists, farmers, social movements, and so on. This requires very good collaboration skills, leadership skills and pluralistic and transcultural thinking. This ECHO Teaching Tip (only in Dutch, 2018) provides more information on cooperation competences. Understanding, recognising and facilitating **diversity** between cultures, social groups, communities and individuals is also part of this competence.

> *'Students can communicate in different settings (interdisciplinary, intercultural and international), they can discuss and negotiate, substantiate and defend positions, and cooperate respectfully.'*
> *Integrated Water Management 'Case River 21' (Master of Environmental Sciences, Faculty of Sciences, UAntwerp)*

(6) **Self-awareness competence**: students are aware of their own norms and values.

We want to teach students to reflect on their own unique role in society. In other words, if we want students to be able to change the outside world, they must also experience **personal and emotional growth.** This has an impact on their personal commitment to a sustainable society. Therefore, students need to be trained in emotional and psychological resilience, socio-emotional and relationship skills in order to get a sense of their own values and what drives them, and to develop a personal vision of what a sustainable world might look like.

> *'Students can assess their own thinking and support it with arguments.'*
> *Debating Development basket subject (Institute for Development Policy and University Foundation for Development Cooperation, UAntwerp)*

(c) Assessment in sustainability education

Given that the assessment of competences has a strong impact on student learning, sufficient attention must be paid to the testing and evaluation of sustainability competences. The specific assessment of sustainability aspects can help to ensure that students attach greater importance to sustainability.

Sustainability education often uses higher-order learning activities such as analysing, relating and creating. Students must learn to make integrated use of knowledge, skills and attitudes in these processes. A test that gauges this integration would be desirable, but this is difficult to achieve with classic assessment methods. More suitable (teaching and) assessment methods in this regard include observations, papers, presentations, etc.

As already mentioned, interdisciplinarity (ECHO Teaching Tip, only in Dutch, 2019) plays an important role in understanding and addressing the complexity of sustainability challenges. Social skills, such as cooperation and dialogue with others, are important here. Whenever such social skills are part of an explicit course objective,

they should also be assessed. This can be done through peer assessment, where students assess one another, or through self-assessment, where each student reflects on their own role in the group work. This ECHO Teaching Tip (2017) elaborates on peer assessment.

Want to know more?

The online learning module 'Lesgeven voor en over duurzaamheid' ('teaching for and about sustainability') is freely accessible, and you can complete it at your own pace. Every element of this module is based on scientific research, supplemented with quotes, videos, newspaper articles and various examples. The learning module is the result of intensive cooperation between the five Flemish universities and Duurzaam Educatiepunt.

Currently there is only a Dutch version available. **The English version is in preparation and will be included here as soon as possible.**

Good practices

Sustainability is one of the strategic policy themes at the University of Antwerp. The brochure 'Duurzaamheid in de onderwijspraktijk' ('sustainability in educational practice'), published by UAntwerp in 2022, contains several good practices on how sustainability can be addressed in the curricula of different study programmes. Both the good practices mentioned in this teaching tip and a number of other examples are explained.

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ECHO Teaching Tips

- Towards sustainable higher education (2016)
- Reliability of peer assessment (2017)
- Ondersteunen van samenwerkingscompetenties (2018) – only in Dutch
- Starten met interdisciplinair hoger onderwijs (2019) – only in Dutch

Sources

Rieckmann, M. (2018). Learning to transform the world: key competencies in education for sustainable development. In A. Leicht, J. Heiss, & Z.J. Byun (Red.), *Issues and trends in education for sustainable development* (pp. 39-59). Paris, France: UNESCO Publishing.

SDG's.be (2016, October). Duurzame Ontwikkelingsdoelen. Onze wereld transformeren. Dieter Vander Beke. https://www.sdgs.be/sites/default/files/content/brochure_sdgs_nl_nr.pdf

United Nations (1987, 20 March). *Report of the World Commission on Environment and Development: Our Common Future.* United Nations Department of Economic and Social Affairs Sustainable Development. Retrieved from Our Common Future: Report of the World Commission on Environment and Development (un.org).

Wiek, A., Withycombe, L., & Redman, C.L. (2011). Key competencies in sustainability: a reference framework for academic program development. *Sustainability Science, 6*, 203-218.