Integrating sustainable development into higher education at Karolinska Institutet

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The world faces great challenges to ensure good life of earth for future generations. This can entail a number of issues, ranging from fighting the Covid-19 pandemic to developing carbon-neutral energy systems and protecting endangered species (SDSN, 2020). In 2015, the world's countries adopted the UN's 17 Global Sustainable Development Goals, which aim, among other things, by 2030 to eliminate extreme poverty, reduce inequalities and injustice, promote peace and justice, and solve the climate crisis. All students who graduate from Karolinska Institutet, should be confronted with issues related to sustainable development and the UN's Global Goals during their education. The present working document was written in 2018 on behalf of the Karolinska Institutet's (KI) Committees for Education and for Doctoral Education. The overall purpose of the document is to clarify the relevance of Sustainable Development (SD) for KI's undergraduate, advanced level and doctoral education, and to propose a common frame of reference on the SD topic for courses and programs at KI. The basis for this document is a range of publications with suggestions on how SD can be integrated into higher education (Frenk et al., 2010; Iwinska, Jones, & Kraszewska, 2018; SDSN, 2017, 2020; UNESCO, 2011, 2017). The aim of this document is to create a basis for a future systematic mapping of programs and courses.

Broadly speaking, education for SD can be considered – "a continuing process of questioning, discussion, participation, planning and engagement into appropriate action in order to modify processes in nature, the economy and society" (Iwinska et al., 2018). In this respect, KI can be regarded as a "micro-society" characterized by its own environment, economy and culture, but which of course also affects society, nature and the economy as a whole.

What can be considered to belong to the topic "Sustainable Development"?

"In the course of their operations, higher education institutions shall promote sustainable development to assure for present and future generations a sound and healthy environment, economic and social welfare, and justice."

(Higher Education Act, Chapter 1, Section 5)

In the light of the Swedish Higher Education Act, the call is for universities to ensure that they orientate themselves in both the topics of sustainable development (SD) as well as in the didactics (education for SD). Therefore, education for SD encompasses that which is beyond merely campus-related questions around resource utilization and travel – even if these questions are also essential components of sustainable development (SDSN, 2020). However, this does not necessarily entail that all students should study a specific course in sustainable development or that specific courses should be set up on the subject area. Nor does this mean that every course in, for example, cell biology or psychology must contain aspects of sustainable development. The call can be interpreted as that *every student during their education should be confronted with questions about what sustainable development means and be able to critically evaluate and discuss the obstacles and drivers of sustainable development in order to actively contribute to global sustainable development in their future professional role.*

The list of the Sustainable Development Goals (SDGs) ratified by the UN Member States in 2015 is as follows:

- Goal 1. End poverty in all its forms everywhere
- Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3. Ensure healthy lives and promote well-being for all at all ages
- Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5. Achieve gender equality and empower all women and girls
- Goal 6. Ensure availability and sustainable management of water and sanitation for all
- Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 10. Reduce inequality within and among countries
- Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12. Ensure sustainable consumption and production patterns
- Goal 13. Take urgent action to combat climate change and its impacts*
- Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

Education for SD is much more than just learning about the content of the SGDs and is thus rather about preparing today's students to deal with unresolved and complex social, political, economic and environmental challenges (SDSN, 2020). Thus, education for SD aims to strengthen students to take responsibility for creating a sustainable future. In addition to subject-specific knowledge and skills, students thus also should be taught values and behaviors that are assumed to lead to a more sustainable society. Today's unsustainable situation can, according to UNESCO (1997), be defined as a civilization crisis; a crisis created by values and knowledge that has in some narrow way been aimed at maximizing economic benefit and technical efficiency, at the expense of nature, complexity, and the dynamic balance between various factors such as the political, technological, economic, ethical, cultural and environmental. The sustainability challenges that we are faced with are rooted in the structures of society, and the solutions for these challenges should according to Ottersen et al. (2014) involve the transformation of so-called political determinants of health, that support unsustainable and unjust societal structures (Ottersen et al., 2014).

Education for sustainable development

Education for SD within educational programs and courses thus entails both specialization and a holistic view. However, at present, higher education is characterized by a focus on specialization: the division into human and social sciences on the one hand and natural sciences including medicine on the other, may be practical from strictly scientific starting points but does not correspond to adequate learning objectives in education for SD (SDSN, 2020). There is probably no academic discipline that can claim to have a comprehensive solution or overall explanation for complex environmental and development problems. Although the division of education into specific subject areas is to some extent necessary, it should not be done at the expense of a lateral and integrated analysis across subject and faculty boundaries. Thus, various forms of interdisciplinary education are also necessary for SD.

In addition to lessons about "content", it is also important in SD contexts to learn about processes which can be called "transformative learning" (Frenk et al., 2010; SDSN, 2020; UNESCO, 2017). Sometimes the term "students as change agents" is used in these contexts. For society to be able to develop in a more sustainable direction, students, in addition to learning about the unsustainable practices that need to change, should also learn how to create this change. This is where process learning comes in.

Key skills that students need to learn through higher education to promote sustainable development, which may also be of relevance to students at KI, have been described in various relevant sources (Frenk et al., 2010; Iwinska et al., 2018; SDSN, 2017, 2020; UNESCO, 2011, 2017; WWF, 2008). General key skills for SD include:

• Being able to create visions - being able to imagine the future, with the basic idea that we need to know what we want to aim for, in order to be able to take the steps to develop in that direction.

• Critical and ethical thinking and reflection - the ability to identify and critically reflect on norm and value issues and to identify the basic assumptions on which knowledge, perspectives and opinions are based. These skills enable learning about how social, environmental, economic and cultural structures can be studied in relation to sustainable development.

• Self-awareness: the ability to reflect on one's own role in the local and global society; being able to continuously evaluate and motivate one's actions; and deal with one's feelings and desires.

• Systems thinking - the ability to understand and search for links and synergies in different parts of a social system while solving problems.

• Ability to create partnership, dialogue and negotiation - to be able to collaborate. A prerequisite here is an interprofessional and interdisciplinary education that dismantles professional silos and promotes collaborative and non-hierarchical group compositions.

• Empowerment.

As can be seen from the above, it is the ability to identify and reason on complex issues that needs to be taught in education for SD. In other words, SD should primarily be regarded as a skill topic where the skills-based goals are in focus. Since all human activities are permeated by norms and values, education for SD is related to almost all other teaching. However, the connections are more or less obvious or far-fetched, depending on the topic at hand.

Some examples of SD-related learning objectives within courses at Karolinska Institutet:

Below are examples of learning objectives within courses at Karolinska Institutet that are in line with what is described as "Learning Objectives for Sustainable Development" in a UNESCO document that identifies learning objectives, proposes topics and learning activities for each Sustainable Development Goal (UNESCO, 2017). The list below gives some concrete examples without by any means being a comprehensive list of all such course objectives in all KI programs.

Examples from doctoral education courses:

From the course "Social determinants of health":

On completion of the course the student should be able to:

- Reflect with a research mindset over major social determinants of health, and their relative importance in different contexts and settings
- Compare and contrast how social factors may influence disease and ill health and how diseases also may have social consequences
- Reflect with a research mindset over the social gradient in health
- Discuss some principal mechanisms by which health inequalities are generated.

From the course: "Health, gender and human rights: an introduction"

- Describe the core concepts of gender and human rights.
- Use relational, performative, intersectional or ecosocial theory to frame and discuss global health issues.
- Evaluate whether differences in global health outcomes in populations are influenced by biological factors, social factors or the intersection between both.
- Critically discuss the intersection between human rights and global health issues.
- Understand the links between gender and health (in) equalities from a human rights perspective.
- Design studies and analyse data using gender lens.

From the course: " Central concepts, designs and methods in epidemiological and sociological life course research"

After successfully completing this course you as a student are expected to be able to:

- explain and contrast central concepts in epidemiological and sociological life-course research.

From the course "The major global infectious diseases: tuberculosis and HIV"

At the end of the course the students should be able to:

- describe the disease mechanisms of TB and HIV infection and discuss important differences and similarities between these infections and their impact on global health.
- discuss and critically evaluate current issues in TB and HIV research including prevention and control in low-, middle- and high-income countries.

From the course: "Drug discovery and development"

After the course, students must be able to:

- account for the drug discovery and development process including the various scientific and business disciplines involved as well as the issues and challenges facing this industry

From the course "Sickness absence research: theories, methods, and concepts"

After successfully completing this course the doctoral student will be able to:

- have knowledge about the area of sickness absence, in terms of what research that is conducted in various scientific disciplines (e.g. economics, sociology, medicine, management, psychology, law, philosophy, public health) and to be able to relate own research project to this, according to a classification presented at the course.

Examples from courses at the basic and advanced levels:

From the course "Global toxicology in a sustainable society"

Upon completion of the course, the student should be able to:

- demonstrate understanding of the concept sustainable development and the UN sustainable development goals,
- identify toxicological problems in a global perspective and analyse their relations to sustainable development,
- account for international legislation and policy for chemical safety and demonstrate its importance for promoting sustainable development,
- identify and evaluate social and ethical aspects related to chemical safety in a global perspective

From the course "Human Rights and International Organisations in a Global Health Perspective"

The student should be able to:

- give an account of the international Human Rights system, its philosophical, political and legal basis and the 8 most important international conventions
- explain humanitarian law and relate it to the health field and the doctor's responsibility

From the course "Psychosocial Aspects on Illness and Treatment"

On completion of the course, the student should:

- have acquired advanced knowledge and understanding of psychological and social aspects that may affect disease development, disease experience and healing, and any importance of these aspects in connection with disease/injury and treatment

From the course "Infectious diseases-a challenge to global health: clinical, social and preventive aspects"

After completion of the course the student should be able to:

- Understand and describe the importance of the most burdensome communicable diseases in a global health perspective, including pathogenesis, treatment aspects, disease control mechanisms and research needs.
- Have knowledge on global epidemiology of the most important infectious diseases and the capacity to view and discuss prevention aspects from a social, medical and ethical perspective.
- Analyze factors affecting the use of anti-microbial drugs, both on macro and micro level, and analyze impacts of drug resistance on global health.

From the course "Nursing Care, Health and Illness in a Multicultural Society"

After completing the course, the student should be able to:

- explain how cultural factors affect nursing, the experience of illness, expectations about treatment, perceptions of the body and health, and meetings in the health care.
- identify and understand different cultural conceptions of gender and sexuality
- analyze and manage care meetings characterized by different cultural perspectives and expectations and to provide equal, individualized, optimal care for everyone regardless of cultural background.

From the course "Global Nutrition. Malnutrition and Obesity - Public Health Problems of Today"

After the course the students should:

- Be able to describe the most important connections between environmental factors, lifestyle and nutrition
- Be able to describe, compare and analyze important nutritional problems globally and nationally

Additional resources

https://sdgimpactassessmenttool.org/

https://www.humanrightscareers.com/un-sustainable-development-goals-courses/

https://sdgacademy.org/course/transforming-our-world/

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