INTEGRATING SUSTAINABILITY COMPETENCES IN EDUCATION THROUGH SERVICE-LEARNING

How will food discipline graduates address challenges such as climate change and food waste and meeting environmental sustainability targets?

1st NEMOS MULTIPLIER EVENT

WEBINAR REPORT

NEMOS - A new educational model for acquisition of sustainability competences through service-learning
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More information on the NEMOS project can be found at: www.nemosproject.com
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1. Introduction

The first NEMOS multiplier event on Integrating Sustainability Competences in Education through Service-Learning, was held online on 20 October 2022 and focused on the opportunities offered by experiential and service-learning for students to acquire sustainability-related skills. The webinar also stimulated debate on the challenges of effectively integrating those skills into students’ curricula.

Organised in the framework of the 9th Annual IGCAT Experts Meeting on Engaging Young Minds, the multiplier event included a presentation by NEMOS Coordinator, Dr. María J. Cantalejo on the initial results of the project, followed by a dedicated webinar session inviting the students’ perspectives on sustainability and how to imbed it into their educational path.

2. University and Sustainability: How to Define a Students' Sustainability Profile Based on the NEMOS Project

Associated Professor at the Public University of Navarra (Spain), Dr. Cantalejo provided a short introduction of the NEMOS project, which is focused on designing a new educational model based on the effective acquisition of sustainability competences through service-learning.

She then offered an overview of the methodology adopted by the NEMOS consortium to define a Food Sustainability Profile (FSP) for students, which identifies the main competences and skills that students should acquire to respond to current sustainability challenges. As the first Project Result of NEMOS, the FSP will be the basis to develop the subsequent phases of the project.

By following both a qualitative and a quantitative approach informed by focus groups and questionnaires, the NEMOS partners identified perspectives and attitudes related to sustainability and service-learning from the main actors involved in the research: food-degree students and lecturers in the consortium universities, as well as stakeholders in the agrifood sector (e.g. food companies, producers, NGOs).

As a result of this consultation exercise, some key needs and challenges were singled out that universities should try to address. Among them, the need to make sustainability more visible in the curricula; the lack of training and knowledge in sustainability (both
in the case of lecturers and students) and; the lack of contact with the business community working on sustainability.

In general, the need was felt for the university to engage more with stakeholders in community-building activities and facilitate students’ access to service-learning experiences to provide an education that is closer to reality.

See full presentation here.

3. Students’ Perspectives on Sustainability and Service-Learning

Moderated by Dr. Alessio Cavicchi, Professor at the University of Pisa (Italy), the following webinar session collected the voices of students and recent graduates from the universities of the NEMOS consortium and beyond.

Based on the main areas and challenges identified by the NEMOS research,¹ students were asked to explain their views on sustainability and the importance of experiential and service-learning, according to some guiding questions:

- Which areas would you prioritise to include in your degree?
- Into which modules / subjects / courses do you think they could be included?
- What types of learning activities and assessments would be interesting to develop student knowledge and competencies?
- How could working with a community partner, social enterprise, or not-for-profit organisation be embedded in the degree to develop these competencies? For example, what type of partner, what type of activity?

For a full list of the identified areas and main related challenges, see: https://www.nemosproject.com/wp-content/uploads/ME1-NEMOS_Integrating-Sustainability-Competences-in-Education-through-Service-Learning_Webinar-session.pdf

¹ Identified areas include: Farming Practices; Climate Change Direct Impacts; Agrifood Circular Bioeconomy; Waste Reduction; Measuring and Benchmarking; Food Safety, Law and Regulatory Affairs; Food Product Development and; Sustainable and Ethical Food Business.
3.1. Food Product Development area

Michael O’Neill, a student of Food Innovation at TU Dublin (Ireland), focused on the topic of Reformulation, the process of altering a food or beverage product’s recipe to make it healthier (e.g. reduction of saturated fats, salt, and/or sugar). He explained that, besides favouring the introduction of healthier and more nutritious food into people’s diets, reformulation can also help preventing overweight and obesity, as well as several related public health concerns (high blood pressure, coronary heart disease, high cholesterol, etc.). Therefore, investing in reformulation represents a sustainable investment into the health of people, preventing the far higher financial costs of treating diseases derived from unhealthy diets.

He reported that reformulation is also mentioned in the EAT Lancet report on Healthy diets from sustainable food systems from which two general strategies emerge:

1. To engage both nationally and internationally with a shift towards healthier diets.
2. To re-orient agriculture priorities to produce healthier food as opposed to higher quantities of food.

Michael highlighted how reformulation can be a relevant topic for several different modules in his degree including, for example, food production, food safety, food legislation, general science and product development.

For what concerns the engagement of stakeholders external to the university, he envisioned possible collaborations with the Food Safety Authorities, where students could work in data collection and monitoring of reformulation; or with suppliers, where they could contribute to reformulating products in practice, for example by searching for more locally-produced and healthier ingredients.

Sara Ging, a final year student of Food Innovation at TU Dublin (Ireland) addressed the topic of Food Ingredients Sustainability. She claimed that, as future product developers, students should be enabled to develop a responsibility to source ingredients from reliable, sustainable sources and use as sustainable processes as possible. To provide an example of how direct experience can help students reach this awareness, she reported about her work placement at a chocolate company and bakery that manufactures products for the retail market. The company had to rework one of their products using alternative ingredients, because their palm oil supplier could not provide an RSPO certification (Round Table on Sustainable Palm Oil), which retailers are increasingly asking for.

Sara also remarked that, in a world where the global population is always growing as is their need for food and water resources, good agricultural practices and sustainable food production should be supported by all members in the food supply chain, from
growers to retailers. Surprisingly enough, Ireland is the only country in the world that has a National Food and Drink Sustainability Programme (run by Origin Green) with over 55,000 member farms and including 92% of the beef produced in Ireland, 95% of the milk, 95% of eggs, and over 70% of all national horticultural production.

According to Sara, food ingredients sustainability and sustainability in the food industry in general could be easily integrated into several modules of her degree, such as New Product Development, Food Process Technology, Food Ingredients and Consumer Foods, to name a few.

### 3.2. Sustainable and Ethical Food Business area

**Camilla Viglierchio**, a student of the degree in Innovation and Sustainability in Oenology and Viticulture at the University of Pisa (Italy) focused on the topic of Gender Equality and Food. She highlighted how the courses in her degree are mainly focused on environmental sustainability and leave less space to talk about social sustainability, including gender equality and fair wages. During her internship at Banfi (Italian wine making company) she was positively impressed by the company’s yearly sustainability report that included data about gender equality in their workplace. She particularly appreciated their efforts to become more (socially) sustainable and their transparency in providing numbers about this ongoing process. Camilla suggested to encourage other companies to self-assess their commitment to sustainability in all its aspects (environmental, social and economic).

**Daniel Alpizar Rojas**, a PhD student in Agriculture from the University of Pisa (Italy), expressed his views on the topic of Social Issues, Equality, Unfair Wages and Fair Trade. Daniel has been researching equality in food systems in developing countries (e.g. Ghana, Kenya, Costa Rica) trying to answer a crucial question: how is there enough food to feed the world, but there are people who still have no access to healthy food? In order to establish sustainable food systems, we need to address social and equality issues. Social sustainability becomes thus a vital concept to ensure the livelihoods of farmers and people directly involved in agriculture.

In rural Costa Rica Daniel had the chance to work with a grass root organization called Cooperativa Los Higuerones, and get involved in their Manos Cambiadas (Exchanged Hands) initiative, whereby students, volunteers, people from the community and farmers help other farmers in vulnerable conditions, creating important bonds and a strong sense of community. This initiative is also an opportunity for students to learn about participatory farming and agriculture, and to experience first-hand how social, ecological and economic aspects work and intertwine. In return, students can get ideas...
of the reality surrounding them and come up with solutions during their academic path to ensure more sustainable food systems.

3.3. Climate change direct impacts area

**Brian Jordan**, President of TU Dublin Students Union and Food Science graduate pointed out that in his degree there is a lack of focus on the direct impact that the food industry can have on climate change, an issue that has great relevance in all food science modules. He stressed that awareness should be raised of how interconnected the food chain is, from the first seeds planted to the finished product (and until after its expiry date), and how all these different stages have an impact on the environment. He suggested that a more holistic and comprehensive education would make this topic more engaging for students by combining class activities (such as research assignments or kahoot quizzes) with practical experience involving community partners and social enterprises (e.g. visiting a farming area where different methods are used; experimenting in the lab to apply the theory; bring in social farms to provide talks). Brian also explained that the Students Union itself carries out activities to improve sustainability in the campus. They offer a part-time officer position for sustainability and the environment, and also collect feedback and new ideas from students on how the university can be more sustainable.

3.4. The importance of internships, traineeships and experience learning in general

Recently graduated in Agribusiness at the University of Siena (Italy) and currently enrolled in a master in Export and Marketing of the Wine Sector, **Niccolò Casini** focused on the topic of **Innovation Brokerage for Sustainability**. He reported about his internship experience at IGCAT, that strives to create connections between different stakeholders and sectors within the local communities, with the aim to raise awareness about sustainability and innovation.

Furthermore, he stressed the importance of long-term (6+ months) internships because they allow students to put into practice what they learn in class and be directly in touch with the real world for a significant amount of time. For him, being directly involved with the local communities and business sector for a long period of time during the academic years, represents a significant advantage for students to successfully access the labour market in the future.
Marco Bertilotti, a student in Agrarian Studies at the University of Pisa (Italy), explained his experience with the Circle U – European University Alliance summer school in Germany. Students from different European universities gathered to discuss about the EU Farm to Fork strategy and then had the chance to work on a farm where the concepts of the strategy were practically implemented. According to Marco, it was a valuable opportunity to directly experience what sustainability is, instead of just talking about it in the classroom. He also highlighted that every territory and farmer would benefit if more money was invested in this kind of practical internships that allow the exchange of best practices and knowledge between different areas and countries.

4. Webinar Conclusions

Rapporteur of the webinar session, Dr. Julie Dunne (School of Food Science and Environmental Health, TU Dublin) positively highlighted how students perceive sustainability as a holistic concept including social, economic and environmental aspects, and understand the urgency to consider all these elements together in order to build a truly sustainable food system.

She also stressed that the goal of a fair and equitable food system calls for the social responsibility of companies and other organisations that need to operate sustainably. Among them are the universities, that should not only integrate sustainability in their academic offer, but also strive to embed it in their daily operations. If universities do not present themselves as sustainable organisations, they will not be able to successfully transmit sustainability values and mindset to their students.

Finally, although work placement is already a very common practice for universities, it is crucial for them to ensure that the hosting companies and organisations understand that sustainability is expected to be part of the student’s learning experience.

About the NEMOS project

The NEMOS project acknowledges sustainability as an increasingly crucial skill for graduate and post-graduate students to tackle important global challenges such as climate change, food waste and the loss of biodiversity in their professional future. Therefore, the project aims to define a new educational model to integrate sustainability competences in the curricula of food-related degrees by means of service learning.
Co-funded by the Erasmus+ programme of the European Union, the NEMOS project is led by the Public University of Navarre and includes the following consortium partners: Technological University Dublin (Ireland); Technological University Graz (Austria); Rhône-Alpes Higher Institute of Agriculture (France); University of Pisa (Italy); and IGCAT.

More information at [www.nemosproject.com](http://www.nemosproject.com)