
# D3.3: Report on educational strategy, year1

WP3 – Future curriculum, education and training system

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# Executive summary

In this document, we report on the outcomes of implementing the Nextfood educational strategy during the first year of the project. By conducting action research in the cases, data on the outcomes of the application of the strategy was gathered and reported through the Case development report (D2.5). Throughout the first year, the selected cases have been engaged with initiating their case work, primarily through planning the initial steps of employing the Nextfood approach. The initial reports from carrying out the educational activities suggest that the Nextfood approach is well suited for developing students' required competences in dealing with a complex reality. However, we also observe signs that the approach may be less successful if the implementation is not performed in a comprehensive way. For the coming cycles, we expect to gain a better understanding of the necessary steps needed to successfully implement the Nextfood approach in the selected cases.

# 1 Introduction

## 1.1 The Nextfood educational strategy—'the Nextfood approach'

The sustainability of future agrifood and forestry systems depends on managing them in better harmony with the ecological processes of nature while still meeting economic and social needs. The goal of the Nextfood project is to aid this shift by developing and implementing an educational strategy for the future agrifood and forestry professionals that fosters their competence in dealing with sustainability challenges—'the NEXTFOOD approach'. This approach includes shifts in focus from disciplinary to systems thinking, from theory to action-based experiences as the starting point for learning, and from knowledge to competences needed to take informed action. It can also be described as a shift from teaching to learning. In order to contribute to such transition of the education systems, an action research strategy was developed and implemented in 12 selected cases. In this document we will report the outcomes of handling this strategy for implementing and researching the NEXTFOOD approach during the first year of the project.

## 1.2 The Nextfood action research strategy

Throughout the duration of the project, the 12 cases will implement the Nextfood approach as described in the D2.2 Master manual for case development, and gather data for research as well as case-internal development as described in D2.1 Research protocol. The Master manual for case development (D2.2) describes an iterative, cyclical process for implementing and further developing the Nextfood approach. Ideally, each case should run one cycle of case development each year of the four-year project, seeking to improve the educational activities in the case and collect data on the process. Each cycle consists of three phases; planning, implementing and reflecting. The phases are further described in the supporting documents (D2.1 and D2.2). To assist and guide the case leaders in developing their respective cases, the NMBU team, leading the WP2 and WP3 work, have the role of facilitators for the implementation of the educational strategy on a consortium level. They provide support in the form of documents describing the development and research processes (the action research strategy), co-host planning and reflection workshops, and are a "help-desk" for the consortium partners who are responsible for developing each case.

## 1.3 The first cycle of action research

The NEXTFOOD project was launched in May 2018, and the start of the first action research cycle is considered to be at the WP2/WP3 workshop in Pollenzo, Italy, in September 2018. Ideally, in each case the first step of a cycle is supposed to be a planning workshop that should result in an action plan for scheduling and implementing the educational activities. However, given that the cases run in several countries with their respective academic/educational calendars not lining up, some cases had to

conduct the initial planning workshop in the middle of, or even after the educational activities of the first cycle. This means that some of the cases have not yet

had the chance to complete all three phases of the action research cycle by the end of the first project year. However, the planned work has been successfully initiated in all but one case (Egypt).

A crucial step in initiating the case work in the selected cases was to conduct an initial planning workshop. As indicated in Table 1, this activity took place throughout the first project year. The workshops were aimed at understanding what implementing the Nextfood approach would entail for the specific cases. The main outcomes of the workshops were action plans that should lead to further employment of the Nextfood approach in the following cycles of educational activities. The details from the workshops are reported in the first version of the Case development report, year 1 (D2.5).

Table 1: Overview of initial planning workshops held in the selected cases of the Nextfood research project.

| Case | Time |
|---|---|
| Norway | August 2018 |
| Austria | October 2018 |
| India – UoC | December 2018 |
| Sweden | December 2018 |
| Italy – UNISG | February 2019 |
| Romania | March 2019 |
| Ethiopia | March 2019 |
| India – UoK | March 2019 |
| Italy – CIHEAM | April 2019 |
| Czech Republic | April 2019 |
| Greece | May 2019 |

Because of the efforts put into initiating the case work, and as the research protocol guiding the data collection (D2.1) has been under co-construction throughout the year, a complete set of data from implementation of the educational activities planned in each case has not been obtained. For the same reasons, data on the final phase of the cycle, which focuses on reflecting on the implementation of the educational activities, are so far incomplete.

# 2 Findings from the first action research cycle

To get an overview of the progress of implementing the NEXTFOOD educational strategy the available data from the cases were used. We read the case development reports (located in D2.5) both in isolation (case-specific) and thereafter by topic (cross-case). Some key themes and outcomes from the first cycle of implementation emerged and will be reported in this chapter.

Student group projects are a central feature in most of the cases. The students' reports from projects in India-UoK and UoC, Norway and Italy-UNISG provide evidence that the phenomenon-based approach is effective in promoting transdisciplinary thinking about sustainability challenges. Rich picturing (see chapter 2.1 in D2.2), sometimes further developed into more structured system models, stood out as particularly useful tools for obtaining and communicating an understanding internally among students and externally to other stakeholders. The reports from these student projects also documented that most student groups obtained good to very good internalization of a structured case inquiry process guiding observation and analysis of the current situation, visioning of the desired future situation and planning for action.

Positive experiences in the Norwegian, Italian (UNISG) and Indian cases from students' writing of reflection documents strengthen our decision to make this mandatory in all cases (cf. D2.1 and D2.2). Particularly for students, this proved to yield insights into development of the competences that are core to the Nextfood approach as well as refinement of thought processes supporting the shifts in mindset that are vital to the future generation of professionals in agrifood and forestry systems. The documents provide evidence that most students' achievement of key learning goals, including improvement of core competences (observation, participation, dialogue, visioning and reflection) ranged from good to outstanding. Moreover, the usefulness of the introduction of facilitators' reflection documents in leading to a successful implementation of the Nextfood approach should be tested in the next cycle. Our assumption is that an education strategy that incorporates reflection by several (if not all) participants, particularly teachers and students, on a regular basis throughout the educational activity (including planning and reflection), will be beneficial for all participants' learning process and further development of both the educational activities and the educational strategy.

In Norway, the oral exam, at which the students present and answer questions about their learning, largely reinforced the conclusions drawn above and additionally provided evidence of good to very good progress when it comes to oral and visual communication, which as a matter of necessity is intensively trained during the action learning course.

Self-assessment of competences gives a rough indicator of whether or not the educational activity changes learners' perception of their own competence level with regard to the five core competences in the Nextfood approach. Given that learners have voiced other ideas about how their competences could be developed further or better during the educational activity, it might be useful to complement the self-assessment with a group discussion on why the self assessments' average values increase over time and how these increases could be even bigger.

Due to the emphasis on initial planning of the case work in the first project year, several cases have not yet had the chance to fully implement action learning in their cases. It may seem that some of the cases have partially implemented the strategy for instance by giving priority to adding phenomenon-based elements (e.g. field visits) in their courses without having developed a comprehensive way of integrating it with the rest of the course. A partial implementation of certain aspects of the approach is maybe not the way to proceed. As an example, one course in the Czech case received negative feedback from the students on phenomenon-based elements of the course. The students in that course expressed that they wanted to return to the traditional learning style. Conversely, another course in the Czech case included a more comprehensive, integrated, phenomenon-based action-learning element. The students in this course were very appreciative and positive towards the action learning style of education. It seems likely that a more profound implementation of the NEXTFOOD approach will be needed for an effective pursuit of its core learning goals, e.g., the core competences considered necessary to promote sustainability in agrifood and forestry systems.

In Norway, India – UoK and Italy – UNISG, most students embraced the new approach even though many come from very different educational backgrounds. In several cases, however, some students showed poor motivation, passivity and preference for lectures. Some students seemed to persistently expect a theory-first, almost entirely

knowledge- and fact-oriented approach to teaching and oral or written exam for assessment. This is understandable in those cases where the students do not choose to be part of an action learning experience, but less so where clear information has been given about the shift in educational approach before the course and practicing and reflecting on it takes place during the course. This phenomenon poses a challenge for the entire co-learning community of fellow learners, course facilitators and key stakeholders in the students' action learning projects. As such, it may be considered a hindering force that should be addressed to promote a successful shift in educational approach. Ensuring that learners become fully aware of and motivated for the action learning approach, which is new to most of them, at the very start of the educational activity appears to be crucial for positive learning experiences and successful accomplishment of learning goals.

In three cases (Norway, Greece and India – UoK), it was pointed out that more communication before and throughout the learning process might help to avoid confusion amongst learners and others about what the course is about as well as to improve the learning process through co-creation of knowledge (which in large part depends on communication and motivation).

In conclusion, several preliminary findings indicate the positive value of action learning in improving the students´ abilities for systems thinking and developing core competences for taking informed action in agrifood and forestry systems. Important achievements have been the inclusion of group work in collaboration with extra-university stakeholders to produce an action-oriented report, an individual document where students reflect on their course experiences, and student self assessment activities. Other preliminary findings point towards the need for having a fully integrated action learning approach, and the importance of establishing a shared understanding between teachers and students of action learning as such. Such a shared understanding seems to be crucial for avoiding frustration and a perceived need among students to return to a lecture-based mode of learning.