

### 3 Pedagogical reflection note

#### My journey through the agroecology learning landscape

A turning point in my journey as a university teacher was the exposure around 1990 to the experiences from a pioneering educational activity at the Hawkesbury Agricultural College (later University of Western Sydney). At this institution Richard Bawden, head of the School of Agriculture, introduced the combination of Soft Systems Methodology (Checkland 2006) and Experiential Learning (Kolb 1984) – the notion of a learning cycle – as the conceptual foundation for the educational activities (Bawden 1991). I later met Dr. Nadarajah Sriskandarajah from the Hawkesbury team at a conference in Seattle in November 1992, and arranged for him to give a seminar at NMBU during the winter of 1993. This activity kick-started the establishment of a Nordic network in agroecology (later called Agroasis), with emphasis on higher education in agroecology. In Seattle I also met professor Charles Francis from the University of Nebraska, Lincoln, a strong proponent of participatory research and education, arguing for the need to bring the farmer back on the educational scene. This meeting was the start of long-term continuous collaboration that still goes on.

I had my next profound educational experience when I organized a one-week residential Nordic PhD-course during three consecutive years, from 1995. Inspired by the ideas from Hawkesbury and the participatory tradition from the USA, we held these PhD-courses in Agroecology on a 100 ha organic farm close to the Lake Mjøsa in Norway. Supported by Sriskandarajah and Francis as outside facilitators, the students (ca 20 each year) were divided into teams that each explored one farming system, ranging from the initial rich experience, through analysis of findings, future oriented thinking up to initial plans for further improvement – in line with the learning cycle as developed by Kolb (1984) and the Soft Systems Methodology. The main learning from this experience was the necessity to shift the focus from the subject matter (discipline) to the student (the learner). What brought me to this realisation was that no subject-matter topic was lectured. Rather, the students were given 1) a short description of the farm they were to explore, 2) A set of simple but challenging questions for their case exploration: a) What is there? B) What does it mean? c) What is the desired future (for the farmers)? and finally d) How can we get there? They were then provided with a process for how to answer these questions. Through this approach the students were guided into a cyclical approach of learning about complexity and change in agriculture, that implicitly put them in the centre of the educational activity. As such, the overall emphasis was shifted from agroecology (the subject matter) to the agroecologist (the learner), and the subject matter was given a supporting role – supporting the learning of the agroecologist. Through this process of shifting focus there was in parallel a shift from teaching to learning, where the learning process had primacy over the discipline-based knowledge. Through this experience, I understood that a prerequisite for such a shift of focus is first to empty the learning landscape by removing all subject matter elements as well as teachers. This will be necessary to create space for placing the student (learner) in the centre. The next step is to provide the learner with a context, a phenomenon, a set of questions, and a process by which he/she can find answers. Then the subject matter can be brought back in, but in a supporting role. These insights became vital when I later became involved in MSc program and course development work at NMBU.

The work in Agroasis continued after these three PhD-courses, now as a network within the NOVA University Network. In 1997 the core members of Agroasis presented their educational ideas to the NOVA board in Copenhagen, and I was asked to develop plans for a Nordic master program in agroecology, to be situated at NMBU. In August 2000 the first (globally) MSc-program in Agroecology kicked off, with two new half-semester courses in agroecology. The courses were developed in collaboration between myself, Sriskandarajah, and Francis, with strong additional support from Lennart Salomonsson (Salomonsson et al. 2005) from the Swedish University of Agricultural Sciences. The courses were “Agroecology and farming systems” and “Agroecology and food

systems". A real-life case was the core in each course, and the students would work their way through the Kolb learning cycle in each, as in the Nordic PhD-courses. Our main thinking was that farms and food systems are phenomena that transcend disciplinary boundaries. They cannot be captured in a lecture or a book due to their multi-dimensional and transdisciplinary features (Francis et al. 2009). In such a situation the students obtain a key position as learners, who can be supported in their explorative process by their teachers (now as facilitators). Emphasis was in addition put on the contact with real stakeholders in the field. The students were asked to write two documents at the end of each eight-week period, one group document for the case main stakeholder ("Client document") and one individual reflection document ("Learner document"). The courses received very good evaluations from most of the students, but many experienced frustration during the first weeks of the initial course: "We are learning nothing". What I learned from this feedback was how dramatic our educational shift was, and how important it is to be aware of this, and always try to improve the facilitation of activities during the first weeks – "the culture clash period". One immediate positive outcome of the frustration was the idea that came from the students to set off at least two hours each week to jointly reflect on experiences during the past week. We had planned for them to write a reflection document at the end of the course, but not for putting reflection into the course schedule (!).

During January 2001, after the completion of the first cycle of the whole-semester agroecology courses, my colleague since several years, professor Edvin Østergaard in the Section for Learning and Teacher Education at NMBU and myself started conceptualizing core experiences from the autumn semester, through the writing of a concept note called "Shifting Focus" this note was later developed into the journal article "Becoming an agroecologist through action learning". Here we laid out the cornerstones of our educational approach, that still are valid, although further developed. We called them key characteristics of agroecological education: a) Real-life phenomena as the foundation for learning, b) Inclusion of divergent modes of learning, c) Students as the focus of education, and d) Explicit recognition of student contributions. (Lieblein et al. 2004)

In 1999, I joined the European Network of Organic Agriculture Teachers (ENOAT), and organized their yearly meeting at the farm where the Nordic PhD courses were held. During the 20 years since then I have, in part in collaboration with prof. Francis, facilitated more than a dozen workshops on experiential learning during the yearly meetings in the Network. Two other important outcomes of my ENOAT-participation were 1) The contact with prof. Fabio Caporali at the University of Viterbo, Italy, who invited me several times to give presentations and facilitate workshops on agroecology education at his university, and 2) The contact with Christophe David from ISARA-Lyon, France (member of the FESIA university network of engineering universities) who had had a wish to develop a FESIA MSc in agroecology. The result was that we started a double degree MSc program in agroecology between FESIA and NMBU in 2004, which is still running. We aim for a cohort size of 20 in the MSc program and half of these will be double-degree students.

The agroecology MSc program was evaluated by an international committee already after three years, and received favourable results:

*"The committee wishes to recognize from the outset the significant innovations that have been achieved by the programme in Agroecology. The successful design and conduct of the two courses PAE302 and PAE303 over a three-year period is, in the view of the committee, a major achievement that should not be underestimated. All innovation requires vision, personal commitment and enthusiasm. The fact that the (student-my insert) evaluations are, in general very positive is an indicator of the contributions made".*

The student evaluation scores for the whole semester agroecology course (PAE302) have since 2014 been (on a scale from 1 – 6): 2014: 5,3; 2015: 5,0; 2016: 5,7; 2017: 5,3; 2018: 4,3; 2019: 5,3.

During 2004 I was part of a Nordic group that developed and started to run a Nordic net-based course in agroecology, that was organized according Kolb's learning cycle with an experiential learning approach using a farm web-case at the core of the learning process (Lieblein et al. 2005;

appendix 2). This course is still given, with additions like peer-feedback activities, and the writing of a reflection document. Students have throughout valued the use of a case as a starting point for learning agroecology. Based on this achievement I was in 2007 invited to participate in the “Organic Edunet” project (“A multilingual Web portal for sustainable agriculture & environmental education”) an EU-project under the eContentplus program. The project period was 2007 – 2010, and I was leader for NMBU’s contribution. Partners in the program came from three different academic areas: IT, education and organic farming/agroecology. What met me at the project kick-off meeting was a large ball-room with tables in horse-shoe position, and large microphones on the tables where people would sit (“UN style”). I managed to persuade the project coordinator to leave such a position, and to set up tables for small groups inside the horse-shoe, where I could lead them through a process of sharing ideas around the question: “What characterises the ideal Organic Edunet web portal? Who are the users?”. One outcome of the session was that the learning community that will use the portal is more important than the portal itself. Such a user-oriented approach is in parallel to the student-centred approach, and to be successful the project consortium needed to work in a similar manner, in becoming a learning community. The realisation that in any pedagogical endeavour we must go through the same process as what we want the students to do, was one that I brought with me to the next large European project “Nextfood” (2018 – 2022), where we coined the consortium process “The 13<sup>th</sup> case” (in addition to the 12 educational cases in the project).

During 2008 – 2009 I developed, in collaboration mainly with professor Østergaard, an initial model for agroecological learning to enable conceptualisation of how this learning takes place in the interphase between academic and society. To identify what core competences are needed to succeed in the learning arena of agroecology was also a goal for the model development (Østergaard et al. 2010; see appendix 3).

Building on this learning model, and the aim to further operationalise Kolb’s learning cycle, I initiated a major revision of the first semester in 2009. The two existing agroecology courses were merged into one, and based on the recognition that competencies need to be practised if they are to be improved, I initiated a set of new learning activities linked to each of the five core competences:

*Observation* – Example of learning activity: I introduced observation walks as planned and organized activities in 2011. During these exercises the students practice observing, using all their senses while walking across the countryside and on farms. They are urged to suspend judgements about observed situations they encounter. This competence is valuable later when they are confronted with realities during their casework on farms and in community food system situations (Francis et al. 2012).

*Reflection* – Examples of learning activities: a) I initiated reflection sessions as highly structured, weekly classroom activities in 2011 (appendix 4). In these sessions, the students practice reflection on both content and process, and how to reflect individually, in small groups and in plenary settings. b) Individual student self-assessment of their levels of competence at the start and end of the first semester in the programme was initiated in 2013. This helps students understand better their individual needs, and leads them to take responsibility for their own learning, as well as becoming consciously aware of their own competence development.

*“This semester has been my first experience using this type of deep thinking and contemplation about the experiences I have had and I found it a challenge to do it well. It was easy for me to just recall a situation, but much more difficult to contemplate how it made me feel, what I had learned from it, and how I could connect it to my existing knowledge and experience. I have to say that in retrospect reflecting felt somewhat laborious at the beginning of the semester ... always thinking! But of course I very much recognize the value in structured thought and now I appreciate this concept and believe that it is actually essential to learning” (Katherine from USA 2012).*

*Participation* – Examples of new learning activities: a) I initiated work on farms in 2013 as part of

farming systems case work, based on the idea that working alongside farmers could a window into their situation that could not easily be replaced by other activities. b) Facilitation of a public workshop was included as part of the students' food system casework starting in 2009 (see appendix 5).

*Dialogue – Example of new learning activity:* I developed an introductory five-hour dialogue workshop that is followed up by practising a dialogue-based approach in all reflection sessions and in other relevant activities throughout the first semester (Lieblein and Francis, 2013).

*Visionary thinking – New learning activities:* a) I reshaped and expanded the visionary thinking seminar in 2011, with more emphasis on prerequisites for creativity and the practising of imagery (thinking in images), including the use of guided imagery, as a vital element in visionary thinking (Lieblein et al. 2011). b) I introduced collaborative visionary sessions between stakeholders and students as part of the public meetings from 2013.

*The visioning seminar was the main factor making PAE 303 very different from all the previous courses I have taken. Never before had I approached a situation from the perspective of what I wanted to see in the future. All other work had taken into account the current situation and then attempted to solve the problems to make the system better. The visioning seminar was particularly appropriate for a situation which is hard to divide into its smaller parts. The emergent properties of a food system are simply too complex to reduce into its individual parts. Visioning allowed us to look at the whole system without becoming bogged down in unimportant details (Michael from USA, 2005).*

As a result of previous results and these innovations we won the NMBU educational award in 2011. This model was further developed in a follow-up paper we wrote in 2012 (Lieblein et al. 2012), that we later called "An action learning model for sustainable development", for which we won the National Educational Award in 2016.

In 2011 I established collaboration with Dr. Paola Migliorini at the University of Gastronomic Sciences in Pollenzo, Italy, I have there facilitated the development of agroecology education, and have yearly facilitated several courses there as visiting professor. (Migliorini and Lieblein 2016, appendix 6). After completion of a course where we had introduced a strong experiential and student-centred approach a student wrote in her reflection document:

*"What a journey this course has been. It is only appropriate that a course tackling the complexities of sustainable agriculture would be inherently complex itself. For the past two months I have been learning more about my interests, skills, motivations, and myself, than I ever expected from a course with "agriculture" in the title. However, it makes perfect sense. Sustainability of the agroecosystem encompasses the whole organism, looking at the farm as the complex living being it is. So it is with great gratitude that I have come to realize this sustainable agriculture class has succeeded in going beyond my expectations of learning about farming to become a class that has challenged my vision of myself and of my life" (Student from USA).*

The fact that lectures can play an important role in a course that is primarily experiential was demonstrated by another student, who wrote:

*"With hindsight, the mission was clear. We started with Geir's lectures that had nothing to do with farming but all to do with the whole ecosystem. One of the main problems with agriculture today is people's mind-set toward it. The land is there for human use and human gain. We are missing the big picture. We cannot see beyond the limited scope of producing more and spending less. We need a paradigm shift before we can even begin to think about the food part of agriculture, and that is why it was perfect to start with a new paradigm in this class" (Student from USA).*

In 2015 we (the agroecology team at NMBU) started to collaborate with scholars at the University of Calcutta (appendix 7) and later (2017) also at Kerala University with the aim to support them in their work to develop agroecology education. What has been striking is how accessible the experiential, student centred learning approach is to scholars in completely different geographical and cultural settings, which I think might be due to the fact that this is how learning originally globally was developed, before the establishment of academic institutions

## My educational philosophy

### *An experiential and-action oriented approach*

John Dewey developed many of the basic ideas for experiential learning. He further emphasised that the ethos of learning is that it happens through and for action (Dewey 1916). His emphasis on doing *and* reflection as the source of learning focuses on our experiences and actions in the world as the point of departure for the learning process. It is however important to be aware of Dewey's warning that we do not learn by *doing* alone, the doing must be followed up by reflection on our experiences, what can be called *reflective practice*. The task of the teacher will then be to create the environment where the students' doing and experiencing can take place and then facilitate the reflective activity as a follow-up (van Manen, 1990).

Based on Dewey's initial ideas several other scholars, such as Bawden et al. (2000) and Kolb (1984) have developed experiential learning further. Kolb (1984) was inspired by Dewey, but also by other scholars like Kurt Lewin and Paolo Freire when he developed an experiential learning theory that states that learning is the process whereby knowledge is created through the transformation of experience. All these scholars placed purposeful action based on experience at the center of learning (Kolb and Kolb, 2009). As such, experience in itself does not lead to learning. For that to happen, the learner must reflect, and use the newly created knowledge towards purposeful action. Kolb (1984) viewed learning as a cyclical process that starts with an initial experience and ends with actions to improve the situation where the initial experience took place.



Figure 1. Students harvest carrots during farm exploration in the second week of MSc Agroecology (Photo: T.A.Breland)

Right from the start of the master program in Agroecology, experience, reflection and action have played important roles in my teaching. The manifestation of such an importance lies in the three

reports the students are asked to write as a result of their work in the initial autumn course, that make up 70% of the total grade: Two group reports to their key stakeholders at the farming and food system level, that should contain suggested action to improve the situation for the stakeholders, and one individual reflective essay. During the oral exam in the course, it is mainly the essence of the reflective essay that should be presented. I am further cautious when it comes to uncritically value the role of experience in education. Knobloch (2003) warns that although agricultural students have had many opportunities to experience field situations, there is a challenge for teachers to move beyond the 'doing', and ensure that the experiences are used as the basis for conceptualisation. What is mostly missing is the linking of experiences to reflection and further action. The risk is then that the students will disregard the value of experience and rather search for knowledge in books alone. Dewey further warns against the uncritical use of experience when he stated that

*"The belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative. Experience and education cannot be directly equated to each other. For some experiences are mis-educative. Any experience is mis-educative that has the effect of arresting or distorting the growth of further experience. An experience may be such as to engender callousness; it may produce lack of sensitivity and responsiveness. Then the possibilities of having richer experience in the future are restricted" (Dewey, 1938, p.25 – 26)*

Dewey further emphasises the importance of setting the educational stage so that each student can connect his/her different experiences. When I set up two distinct cases for the students to work with throughout the first semester, the aim is that these two cases provide a coherence building quality for the different experiences that the students will have, and further, that the continuous reflection sessions provide opportunities to connect the many experiences that the students have during their case-work.

*Transformative learning* is further part of my educational philosophy. According to Mezirow (2000), our ability as learners to reshape our assumptions about the world through reflection on our experiences is the focus of transformative learning. Mezirow (2003) defines transformative learning as "...learning that transforms problematic frames of reference—sets of fixed assumptions and expectations (habits of mind, meaning perspectives, mindsets)—to make them more inclusive, discriminating, open, reflective, emotionally able to change. Such frames of reference are better than others because they are more likely to generate beliefs and opinions that will prove more true or justified to guide action". As such, more appropriate action is the goal of the transformative learning process in the flux between reflection and action. I deal with transformative learning in many different ways in my agroecology teaching practice. Three examples are: In 2017 I initiated an activity where the students were asked to reflect on (as an assignment) the competences that we consider to be core agroecological competences, and to identify the competences that they could relate to the most, and further describe activities that could enable them to strengthen their competences. In 2013 I developed a self assessment rubric that the students fill in during the first and the last week of the autumn course (see Migliorini and Lieblein 2016). During this activity they assess their level of competence within the five core competences (observation, reflection, participation, visionary thinking and dialogue) through two-three questions for each competence. Further, I initiated a reflection session called "Identifying and suspending assumption", where the students get the opportunity to explore and question assumptions they carried with them to the case visits (see appendix 8).

#### *Phenomenology – learning from experience*

Phenomenology has provided an important additional conceptual foundation for my activities as a teaching practitioner. Phenomenology has in many ways its roots in Aristotelian thinking. In contrast to his teacher Plato, to whom the sensual world was merely a shadow of the real world, the world of ideas, Aristotle (384–322 BC) placed observation of the empirical world at the core of knowledge. This difference is illustrated in Rafael's painting "The school of Athens" (see Fig. 2), where Plato is pointing his finger up towards the world of ideas, while Aristoteles stretches his hand out towards the empirical world.

There is a line running from Plato's downgrading of the world as we perceive it with our senses to a shadow of what is real, to modern natural science where our sensuous experiences are regarded as subjective and non-scientific, whereas the "real world" is found in mathematical and model-based representations of the world. According to Husserl (1970), the German founder of philosophical phenomenology, a result of this scientific revolution was that science lost its contact with the lifeworld. Harvey (1989, p. 63) calls this an ontological reversal, because our immediate experiences of the world are replaced by abstract models from science in terms of what is real, from an ontological point of view. As a result, teachers will be less concerned about the students' immediate perception and experiences, and more concerned about providing them with the necessary cognitive content of a subject matter.

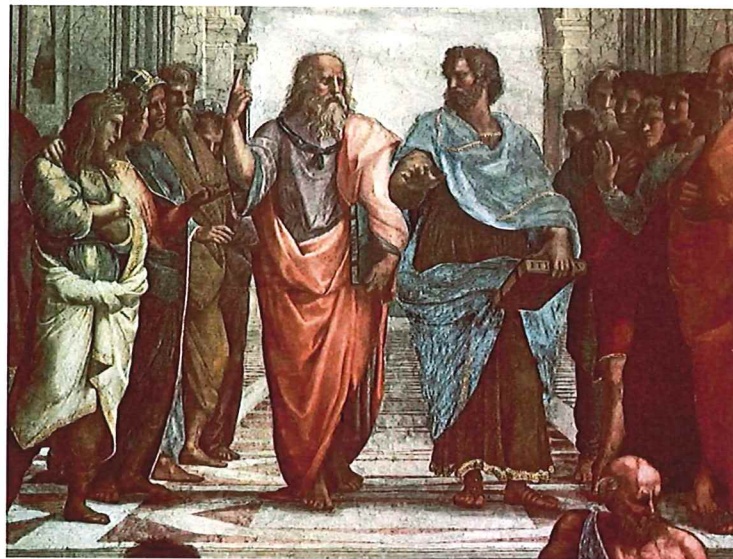


Figure 2. Detail from *School of Athens*, fresco by Raphael (1508–11). (Album/Oronoz/SuperStock)

On the other hand, there is a similar straight line running from Aristotle's upgrading of observation (by all senses) to the philosophy of phenomenology. For Aristotle, the sense-world and the world of ideas are not separated, as for Plato. According to Hegge (1978), neither idea nor observation represents reality in isolation, but are only there as in-process entities towards the completed human understanding. As such, only when "form" and "substance" in the Aristotelian tradition are united, we can refer to reality. The error made in the platonic approach is to establish a temporary object of understanding as a real existing entity. Rooted in the Aristotelian approach, phenomenology represents a call for "an ontological re-reversal" where primacy is given to sensuous experience and engaged action.

I therefore consider my teaching practice to be rooted in Aristotelian and phenomenological thinking, with the aim of creating an educational practice on the foundation of an ontological re-reversal that restores the value and scientific status of our immediate sense experiences. This means that students must observe and participate in farm and food-related practices, and use experiences from participation and observation to generate knowledge about these life-world situations. The action orientation should not be an add-on issue, but rather be viewed at the core of the educational activities. A basic principle in action learning is that action and learning can be viewed as one and the same thing (McGill and Beaty, 2001). Phenomenology as I have described it here, is well aligned with the works of John Dewey on learning and experience.

#### *A dual learning ladder*

When we reflected on our experiences as teachers during the first years of the whole-semester agroecology courses, we recognized the presence of an outer and inner space in the learning process

of the students. In line with Bloom (1956) we then developed the idea of a dual learning ladder (Lieblein et al. 2007). The external ladder is all about the students' learning how to deal with complex and dynamic challenges in the world of farming and food out there, whereas the internal ladder is one of personal learning, "learning about myself", see figure 3. In my work, the dual learning ladder has provided an important perspective to enable awareness of these two processes, and then try to support both of them, as well as their interaction. The writing of both stakeholder (external) and learner (internal) documents is one approach to not only deal with the farming and food system in agroecology, but also to cultivate personal growth and development.

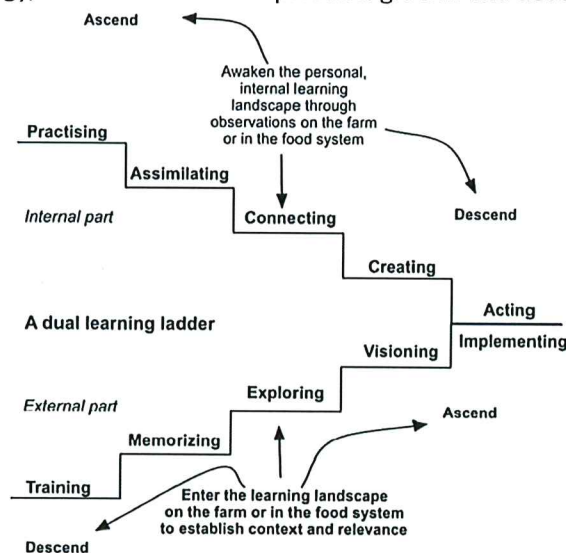


Figure 3. The dual learning ladder: Students' learning in the inner and outer world (Lieblein et al. 2007).

### *Learning towards the future*

One key lesson from the phenomenological approach is to recognise a need for renewed emphasis on our immediate sense experiences as basis for learning. Agroecology education starts with experiences on farms and in communities, and then build the learning process based on those shared experiences. This means that students must observe and participate in farming and food related practices, and use experiences from participation and observation to generate knowledge about farming and food systems through reflective activities. As such, experiential learning is an important approach to learning about agri-food issues, but there are some short-comings. Processes and patterns of the past do not necessarily contain what is needed to deal with the challenges of the present and the future. It is therefore not sufficient to learn from the past, we also need to develop a fundamentally different kind of learning, a learning towards the future. It is vital that students are not continually hung up with what happened yesterday or during the last weeks; they also need to focus on tomorrow.

Building learning on experiences is based on imagination (*phantasia*, from Hellenistic philosophy), an ability that is the basis for all cultural activities. One component of imagination is the ability to recall and remember, which is about the ability to bring forth an image of what happened, give it a name, a meaning, a concept. This ability can be called *empirical imagination*, of which science is a product. The empirical imagination relates to what is already there, and produces a worldview. Up against this ability is the human ability to create images of a reality that does not exist in the present, but is one that is desired (the will to create). This ability can be called moral imagination, and is the source for visionary thinking.

In my view, the development from a known past to an unknown future, where the sustainability of the human race is at stake, the competence that we have called moral imagination, or visionary thinking, will be of vital importance.



## The Nextfood project

The Nextfood project represents a culmination of our efforts so far. Our learning model is at the core of a 7 million Euro project, with educational cases encompassing 20 partners from 16 countries in four continents. I feel proud to see that the educational ideas and models that we have developed can be out-scaled into such a large, international scene. The overall aim of the project is to facilitate the transition from conventional, lecture-based education focused on knowledge accumulation to phenomenon-based and action-oriented learning.

In alignment with our learning- and learner-centred approach to education, the Nextfood project applies the same process in its research and development activities, using a case-based and action-oriented approach to development and generation of generic knowledge that can be used by others. The hindering and supporting forces for the intended change are explored, providing a foundation in each project site and basis for action plans for how to overcome the hindrances and build on the supporting forces.

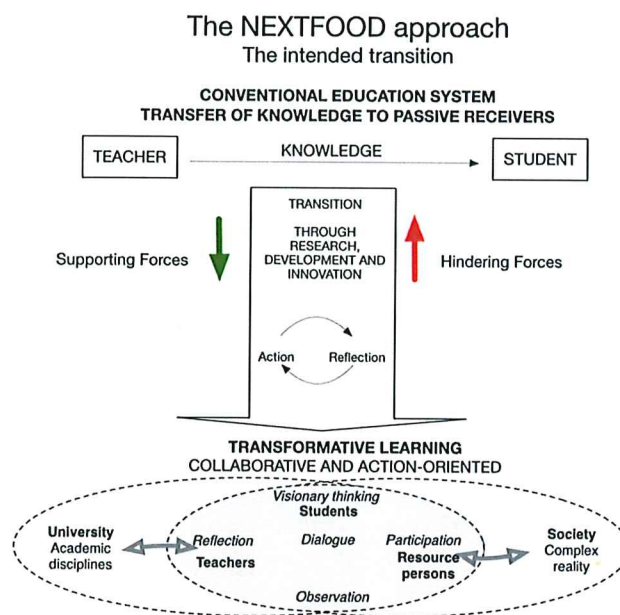


Figure 3. The Nextfood approach: The transition towards transformative and action-oriented Learning (Adapted from Lieblein et al. (2012))

Our main responsibility in this project is to facilitate the transition process of 12 educational cases, ranging from university courses, extension and vocational programs, towards transformative learning in 11 different countries: Norway, Sweden, Austria, The Czech Republic, Romania, Italy, Romania, Greece, Egypt, Ethiopia, India. As the leader of this transformation process I have so far (again) experienced how fundamental the above described transition is, in the sense that both teachers and students must redefine their roles, and that institutional structures including physical lay-out of learning arenas (class-rooms) often are not built to support student-centred, experiential education. Training the teachers through exercises of learning activities linked to the core agroecology competences as well as meeting the students to learn from their experiences have been important activities (see examples from workshop with teachers, appendices 7 and 8).

### Looking towards the future

#### The agroecology program at NMBU

On the last day of the course we ask the students to respond to the following two questions: 1) What did I really appreciate about the course?, and 2) If I was in complete charge of the next course,

what would I do differently? Their responses have guided my thinking around what I should be doing differently this year:

*Improve facilitation of student-centred learning.* Our students have learning goals when they come to our program that are seldom completely the same as what we would like them to learn. Based on this recognition I initialized the *Open Space*-approach during the course in 2019. Many of the students would have liked to have these sessions earlier, which I will organize this year. Further there is a challenge to find ways of recognizing the needs of all students when only a limited number of open space sessions can be held. I aim to find improved ways of organizing this part of the process.

*Organize time for individual meetings with students* to explore their path into the future, in line with the concept of the dual learning ladder.

#### *Develop education at NMBU in line with the learning philosophy*

I view the learning philosophy as a description of desired state, a vision: "This is how we see ourselves after the transition". The learning philosophy can therefore provide direction for the decisions to be made in the process of transforming education at NMBU to truly support sustainable development. I will continue to support the activity in the Learning Centre by responding positively to requests for contributions based on the experiences we have developed in the agroecology team.

#### *Research on competences in higher education*

In collaboration with professor Edvin Østergaard, I currently work on a paper called "Plato and Aristotle: bringing together theorizing and sensing in higher education". As a point of departure we use Rafael's painting "The School of Athens" (1509-1511) where Plato where Plato is pointing his finger up towards while Aristoteles stretches his hand out towards the empirical world. By using these two gestures – directed towards knowledge in the world of ideas and towards actions and phenomena in the experienced world – we discuss premises for strengthening the ability to bring together analytical conceptualization and exploring and sensing activities. How can these complementing skills further student learning in higher education? And what might be the implications of such learning for "the green shift"?

#### *Support globally the transition towards student-centred, action-oriented learning in higher education*

Based on the learning we develop through facilitation of educational initiatives in countries in Europe, Africa and Asia I will seek to expand our activities also beyond where we are involved at present. Our experience so far indicates that an educational approach that supports learning that is grounded in the immediate experiences of students in a well-planned learning landscape will enable cultivation of competences of importance of sustainable development.

The events during recent months also creates a need to explore on-line learning as being part of learning for sustainable development. The Nordic online course that I described earlier is a four-week, full-time course. I had agreed to teach a one-week, face-to-face course in agroecology to groups of 25 master students with little agricultural experience at the University of Gastronomic Sciences in Italy in May this year. In late April I re-designed the course, based on the Nordic online course, to run during just five days as an online course. We had students located in geographical groups, from the west to the east coast of USA, via Europe, to Japan. We met daily in real time from 3 to 6 pm European time, and students had first individual then group tasks with daily deadlines. To my positive surprise the result of their work was of high standard and the students gave us extremely good feedback, assuring me that it is possible to use an online course format based on student centred, experiential and transdisciplinary learning, and adapt the structure to different situations. The combination of highly structured tasks combined with live-session including intensive use of the chat-function worked surprisingly well in a learning, also a social learning, perspective. I was last week contacted from Kerala University with a similar request, and look forward to facilitate their adaptation of the core model that we have develop as result of Nordic collaboration, with the supplement of scholars from the USA and Australia.