Network for Innovation in Life Sciences Higher Education

ICA-Edu Colloquium 2021
Action Summary

"Action to keep the entrepreneurial genie out of the bottle!"
Engaging students with sustainable entrepreneurial education

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ICA-Edu, the Network for Innovation in Life Sciences Higher Education of the Association for European Life Science Universities (ICA), introduces an annual ICA-Edu Colloquium. The Colloquia are designed to bring together staff from ICA Member institutions and external experts who have a particular interest in developing innovative approaches in teaching and their students' learning.

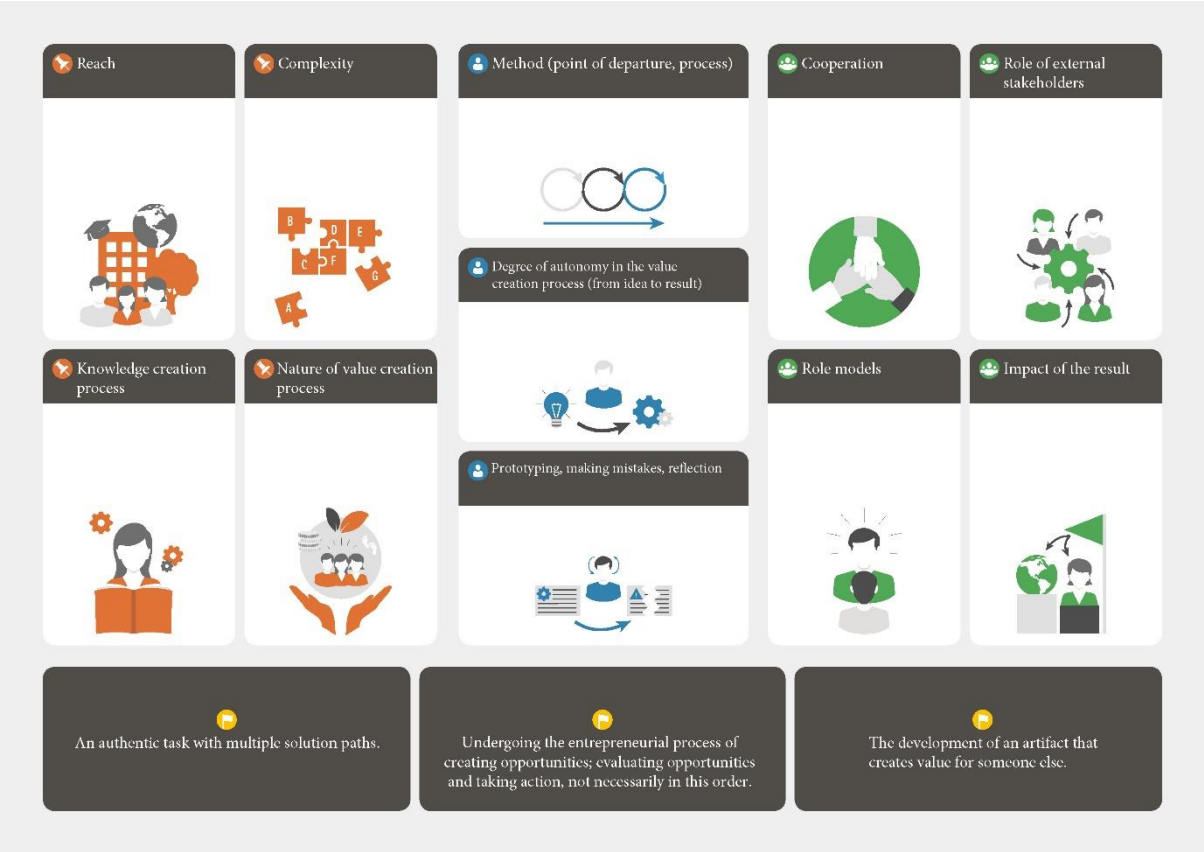
Entrepreneurship education is such a field in which innovative approaches to teaching and learning - like student challenges, innovation spaces, incubators and extra-curricular activities - go hand-in-hand with discussions on graduate profiles and professional identities. The new generation of Agri-food and Life Sciences graduates is expected to show creativity, resilience, pro-activeness and risk taking in a world that is characterised by uncertainty. In this action summary, we report on how to take steps to introduce entrepreneurship education in Agri-food and Life Sciences curricula. These insights are the result of the second ICA-Edu Colloquium on Entrepreneurship Education, named "***Action to keep the entrepreneurial genie out of the bottle. Engaging students with sustainable entrepreneurial education in your curriculum***". The three action points refer to the three main topics of the 2021 colloquium: a) designing wide entrepreneurship education, b) developing co-curricular programs, and c) finding novel assessment strategies. The three action points built upon the insights gained from the first ICA-Edu colloquium on Entrepreneurship Education held in 2019.

Designing curricula for wide entrepreneurship education

Scholars and educators are increasingly interested in so-called wide entrepreneurship education (EE). The main aim of wide EE is to activate the entrepreneurial mindset of students by developing learning opportunities to create value in uncertain, authentic contexts by allowing experimentation, risk-taking behaviour and failure. In such education, students participate in the chaotic, entrepreneurial process which contains all kinds of rich learning surprises.

Despite many initiatives for implementing such wide EE, most work focusses on the 'what-question' behind EE, depicting pre-defined learning outcomes for EE programs (Kamovich & Foss, 2017; Nabi et al., 2017). However, in a broad conception of EE, the learning process is as important as the learning outcome. Thus to meet this construct, a tool offering design principles focusing on the didactics underlying wide EE interventions, courses and programs (i.e., the 'how-question') that can be used across educational levels and domains has been developed (Lans, Baggen and Gulikers, 2020). The Entrepreneurship Education Canvas (EEC) consists of 11 design principles, which are

organized in concrete building blocks or 'categories', stimulating an entrepreneurial way of working (see the figure below). The 11 design principles are: 1) reach, 2) complexity, 3) knowledge creation process, 4) nature value creation process, 5) method, 6) degree of autonomy, 7) prototyping, 8) cooperation, 9) role of external stakeholders, 10) role models and 11) impact of results.



This canvas makes entrepreneurship education available to all, fuelling the discussion among educators on the design of EE programs, such as, for example: how can we design wide EE interventions and programs that stimulates the (sustainable) entrepreneurial mindset of students? In what way can existing entrepreneurial education programs be improved? For more information, access to the materials and consultation about the canvas please contact: yvette.baggen@wurnl.

The role of student incubation hubs – aiming for co-curricular programs

Student incubation (i.e., helping student-entrepreneurs develop commercial or socially oriented business ideas into early stage start-ups) has gained significant attention at European higher education (HE) institutions during the last two decades. This has followed an explicit policy push originating from the EU in the early 2000s and has led to a proliferation of extra-curricular projects and programs supporting HE students' entrepreneurial endeavours from problem solving, idea generation to start-ups launching. In the 2021 ICA-Edu colloquium, the experiences from three student incubator/ entrepreneurship centres were presented: the UCPH Innovation Hub at the Faculty of Science, University of Copenhagen by Frederik Nygaard; the DTU Skylab at the Danish Technical University by Mikkel Sørensen, and the StartHub Wagening at Wageningen University by Gitte Schober. The three incubators' development illustrated a similar three-stage evolutionary story.

Although, the incubators are at different stages today, the evolution and institutionalisation of the incubator (in a broad sense) seemed to initiate with a 'prototype' – smaller temporary initiatives in which the demand for incubation services among students could be nurtured and operational modes experimented with and refined. The DTU speaker expressed it this way: "Test small scale, fail fast,

adapt when necessary". At this initial stage, the three initiatives were largely driven by individuals with an extraordinary interest in the field (typically entrepreneurship educators or innovation consultants). The initial stage was typically made possible by external project funding, and received limited institutional attention and could operate 'under the radar'. As the organisation, emerging out of this first stage, showed sustainability and with growing internal demand from students (and in some cases also external pressure), these initial prototypes transformed into more formally institutionalized settings with more prominent physical presence (WUR: Centre of Entrepreneurship; DTU: Innovation House; UCPH: UCPH Innovation Hub).

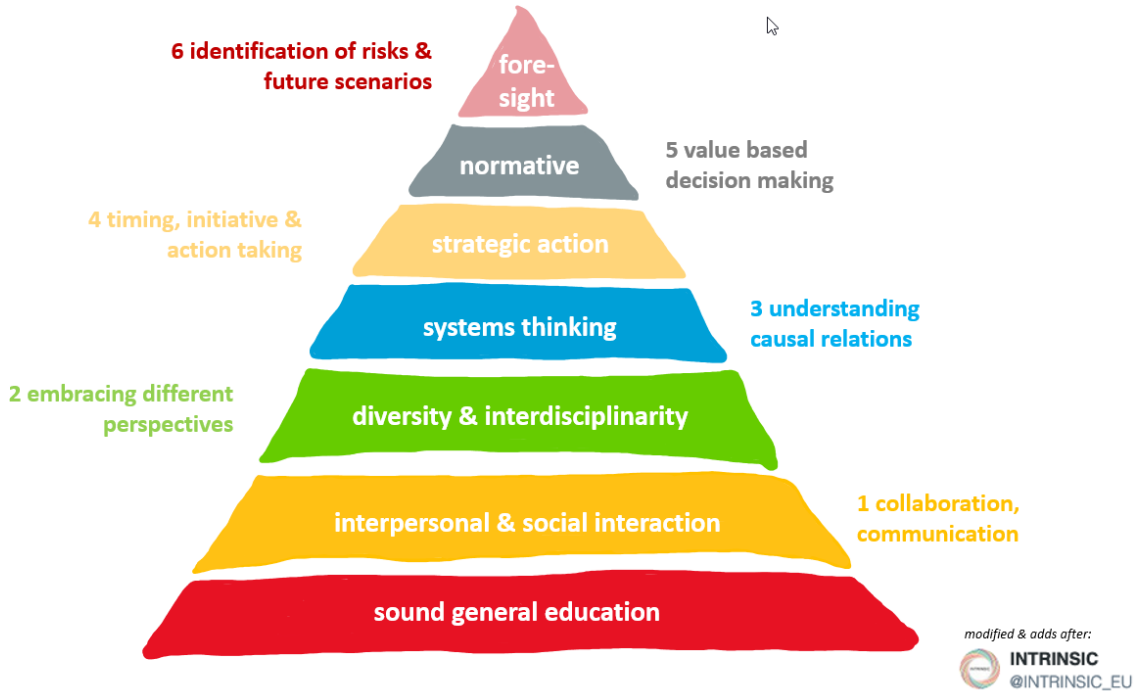
In this phase, operations were streamlined, and the focus broadened from purely extra-curricular activities to embracing core educational activities such as offering full or parts of BSc and MSc courses. Often, this is also the moment where the incubator organisation becomes more formalized and professionalized, and the staff increased. At this stage, finding ways of connecting to the educational staff became a priority. This happened, for example, by offering workshops in non-entrepreneurship course, participating as co-supervisors in student projects or theses, and by locating relevant teaching activities at the incubator. At UCPH, the Innovation Hub were allowed to offer a 'project-in-practice – in your own idea'. The project-in-practice modality is traditional way for students to engage in an internship with an external organisation under supervision of a university staff. The new 'in your own idea' allowed the students to be enrolled in the Innovation Hub and conduct a business development process on one of their own ideas while being supervised by an academic university staff. With an increasing alignment to the second mission of the university (teaching) and involvement of the teaching staff, incubators gain goodwill and build a rational for further integration. In HE contexts with entrepreneurship research scholars, these may also increase their involvement with increasing institutionalization, which will also have a positive impact on the general recognition across the organisation of the incubator activity. With the increased capacity, the incubators are also able to make a more serious company engagement effort during this second phase. Thus, the DTU speaker expressed the incubator organisation's focus during the second phase, as "to engage users, build a community, and be part of an ecosystem".

In the third development stage, the incubator organisation takes aims to establish itself along two lines: a) as a core activity of the university as a central element in the third mission, i.e., transfer of knowledge through societal engagement; and b) as an integral part of the broader entrepreneurial ecosystem around the university. The third phase is marked by significant physical expiations of the three incubators, which allows them to take on new activities and serve as hubs or ecosystems intermediaries. These hubs provide physical workspace, meeting facilities and basic office services for students and established start-ups or young firms in the acceleration phase. They provide access to FabLabs and other workshop facilities. They facilitate mentors and help start-ups test their idea with expert panel. They facilitate networking and cooperation between start-ups and established firms. They link innovators to scientists at the universities, and the revers, and they facilitate access to capital and other types of resources. At WUR, the ambition to move beyond the university setting is evident from the fact that the StartHub Wageningen is located at Wageningen Research, which is a commercial oriented organisation independent of the university. At this stage, the DTU speaker argues that the aim is to "focus on people, mindset and building a culture".

Concluding on the three stage evolutionary model outlined above it is important to recognise that establishment of a vibrant incubator environment requires time, resources, top-management support, modes of integrating curricular and extra-curricular activities, and that long-term success requires the establishment of an entrepreneurial culture and integration with the broader entrepreneurial ecosystem. Finally, as illustrated by StartHub Wageningen's ambition to develop an incubator for sustainability, it may be worth considering a mission-driven approach where the UN SDGs are given a prominent role in the knowledge transfer chain from research to education to incubation.

How to assess learning outcomes, if it's all about the process?

One of the points of the first ICA-Edu Entrepreneurship Education colloquium (in 2019) was to reconsider assessment. Wide entrepreneurship education, in general, and learning trajectories for graduates in particular, require capturing the development of entrepreneurial competence at regular time intervals. As discussed in the previous colloquium, the overview of relevant competencies for sustainable entrepreneurship to map the curriculum and potentially assess students includes six competencies, see the figure below for an overview and the detailed listing of the competences in the Annex (Ploum et al., 2018). Competence includes knowledge, attitudes, skills and experience, therefore requiring more advanced assessment methods beyond traditional cognitive, knowledge-testing.



The ICA-Edu partners came up with some key points to consider when it comes to assessment. First of all, assessment should be used to monitor and enhance learning (formative assessment), rather than focusing on whether students have obtained certain competences solely at the end of the program (summative assessment). This means that assessment methods must allow for the mapping of learning progression, which can be different from student to student. Second, reflection has a major role in the assessment of entrepreneurial competences. Reflection is a learning activity in itself, in which students critically look into their own work and actions. As such, it opens up possibilities for assessment as a form of learning. In addition, reflection reports are an important means to gain insight into the skills students have obtained during a course of program. Third, a variety of assessment methods (e.g., portfolio's, presentations, self-tests, and knowledge tests) and assessors (self-assessment, peer assessment, teacher assessment and assessment by people from practice) should be applied as a way of capturing diversity and avoid biased evaluation.

Next to these key considerations, several examples were discussed during the colloquium. For example, in the program Innovative Entrepreneurship from the Czech University of Life Sciences, coaches and students are central to the assessment. Together they define the criteria and modes of assessment. Innovative methods were also presented, such as comparative judgement, retrospective pre-test / post-test as reflection exercises, situational judgement tests and story lining.

Call to action

1. Start mapping the whole curriculum of a degree programme for opportunities to embed entrepreneurial outcomes and take the opportunity to redesign degree programmes and courses accordingly, implementing the competencies for sustainable entrepreneurship and design principles for wide entrepreneurship education.

2. Make use of the existing infrastructure of the entrepreneurial ecosystem, including the student innovation hubs and other entrepreneurial entities.

3. Reconsider assessment by including reflection and formative assessment strategies and enhance teachers' assessment competences.

What is planned next?

To keep the conversation about sustainable entrepreneurship going and keep sharing best practices between the life sciences universities, you are kindly invited to join the first European conference on Sustainable Entrepreneurship Education organised by the INTRINSIC project team. For more information about the program and upcoming registration, please visit https://www.intrinsic.eu/. Here you can also find relevant resources like games and cases to implement in your teaching, a teacher training course and inspirational webinars explaining relevant topics in the domain of sustainable entrepreneurship.

After the Colloquium 2021 the participants indicated that they would like to continue the discussion of embedding sustainable entrepreneurial education across the curriculum in the degree programmes of life science universities by share experiences and good practices. The Executive Committee of ICA-Edu has decided to set up a special interest group (SIG) focusing on Sustainable Entrepreneurship Education and this SIG will be led by Lisa Ploum who is a member of the ICA-Edu Executive Committee. An event is being planned for 2022 and the SIG will also take forward the outcomes of the INTRINSIC project after the end of the project.

ICA-Edu aims to provide the opportunity to discuss, evaluate and deliver innovative approaches in higher education in the life sciences. This aim is pursued against a European and global agenda for a prosperous bioeconomy for the protection of biodiversity and environment, the mitigation and adaption to climatic change and the maintenance and the continued development of vibrant rural communities. For more information about ICA-Edu see https://www.ica-europe.info/ica-board-committees/ica-edu-committee or contact Simon Heath ICASecretariat@ica-europe.org

References

Baggen, Y., Lans, T., & Gulikers, J. (2021). Making Entrepreneurship Education Available to All: Design Principles for Educational Programs Stimulating an Entrepreneurial Mindset. Entrepreneurship Education and Pedagogy, 2515127420988517.

Kamovich, U., & Foss, L. (2017). In search of alignment: A review of impact studies in entrepreneurship education. Education Research International, 2, 1-15. doi:10.1155/2017/1450102

Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. Academy of Management Learning and Education, 16, 277–99. doi:10.5465/amle.2015.0026

Ploum, L., Blok, V., Lans, T., & Omta, O. (2018). Toward a validated competence framework for sustainable entrepreneurship. Organization & environment, 31(2), 113-132.

Annex

Detailed list of the competences for sustainable entrepreneurship (Ploum et al., 2018):

Interpersonal competence: *I see that working on complex issues like sustainability is in most cases not something you do alone, it demands working with people who have very different backgrounds (e.g. entrepreneurs, government officials, activists, scientists).*

Diversity competence: *I realise that sustainability issues are per definition issues that concern more disciplines (e.g. maths, biology, science, social science) to solve the problem or minimize the impact of the problem. I cannot solve challenges such as energy saving, waste management, labour conditions or reducing carbon footprints on my own.*

Systems thinking competence: *In my daily routines I apply a systems-thinking approach, meaning that before I start working on a sustainability issue I first identify the system(s) it may concern by examining the linkages and interactions between the elements that compose the system.*

Strategic action competence: *I realise that working on sustainability related issues involves the design and implementation of my intervention. More specifically it involves arranging tasks, people and other resources, inspiring and motivating others and an evaluation of my project. I realise that in the end, dealing effectively with sustainability issues also requires taking action and initiative.*

Normative competence: *I understand that sustainability issues are surrounded with lack of clarity. I know what trustworthy sources are and realise that facts and figures need translation to my own practice, because they cannot be applied on a one-to-one basis. The decisions I make or the initiatives I take are based on these insights.*

Foresighted thinking competence: *I realise that dealing with sustainability issues in my future job means that I have to be able to deal with uncertainty, I can make future prognoses, I am aware of others' expectations and am able to make, and when necessary change, plans.*