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# Co-Creation in Sustainable Entrepreneurship Education: Lessons from Business–University Educational Partnerships

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**Abstract:** The world is facing numerous ecological challenges that require urgent attention. Interventions from policymakers and universities are becoming more frequent in order to facilitate the transition of society into a more sustainable world. This paper presents lessons learned from sustainable entrepreneurship education activities developed at the northernmost University of Applied Sciences in Europe that involved important business stakeholders in the local environment. The educational process aims to equip students with the skills necessary to develop new ideas and entrepreneurial projects that provide innovative solutions to pressing social and environmental challenges. It also promotes the sustainable transformation of local businesses and society through partnerships and collaborations. Two main questions guided the presentation of the case: How can students, professors, business managers/workers, and government officials collaborate to develop sustainable entrepreneurial ideas and what are the pros and cons of co-creating in the context of sustainable entrepreneurship education? The teaching–learning experience showed that addressing real, local business problems collaboratively and adopting the principles of the co-creation of knowledge can lead to sustainable solutions and experiential learning and contribute to transforming societies towards sustainability. The lessons learned can illuminate future adaptations and applications in other universities.



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**Keywords:** co-creation; sustainable entrepreneurship; sustainable entrepreneurship education; experiential learning; higher education; university

## 1. Introduction

Our global world is currently confronted with a multitude of pressing ecological challenges. For example, African countries that depend on rain-fed agriculture, such as Zimbabwe, Mozambique, or South Africa, are increasingly suffering natural disasters motivated by frequent droughts and floods that are threatening their food security [1–4]. Similar weather phenomena also affect the North; in fact, the United States is recognised as the world leader in weather-related catastrophes [5,6]; it has sustained 373 weather and climate disasters since 1980 where overall damages/costs reached or exceeded USD 1 billion [7]. These and other environmental problems such as air pollution, land degradation, and deforestation, to mention but a few, are causing catastrophes in both developed and less developed countries. Their complexity and global impact have raised them to the level where environmental problems are considered a priority; calls for solidarity and commitments on a grand scale have been made [8,9], along with demands for new knowledge and innovations [10,11].

In this scenario, sustainable entrepreneurship is being recognised as a proper conduit to provide the rapid innovations that societies need to face such grand challenges [11–13]. Particularly, in the last decade, there has been increased research attention devoted to

exploring sustainable entrepreneurship [14,15] or sustaintoentrepeneurship [16] as a new form of entrepreneurial engagement that involves a connection between conventional entrepreneurship, society, and the environment [13]. A range of disciplines are increasingly studying this topic and it is becoming a trend for specialised journals to publish special issues on sustainable entrepreneurship and several themes related to it [17] (e.g., *Sustainability, Entrepreneurship, Theory and Practice, Journal of Business Venturing*). A number of literature reviews have also been published to explore the concept and the evolution of the field and provide insights for future research [17–20].

Despite the ambiguous use of the term and its overlap with similar phenomena such as social entrepreneurship (centred on the creation of social value) or environmental entrepreneurship (centred on solving environmental problems while creating economic value) [10], there is a notable consensus among scholars in understanding sustainable entrepreneurship in terms of the triple bottom line: economic, social, and ecological [13,18,21]. Shepherd and Patzelt defined sustainable entrepreneurship as entrepreneurship that focuses on addressing significant challenges, such as preserving nature and supporting life and communities while pursuing entrepreneurial opportunities for gain, where gain is broadly construed to include economic and non-economic gains to individuals, the economy, and society [21]. Optimistic public narratives present these challenges as opportunities for new businesses to innovate and engage in transformative thinking [21–23], especially when compared to tardy and uncreative responses offered by public institutions and established companies.

The steady growth of sustainable entrepreneurship as an interdisciplinary research area has been accompanied by growth as a field of academic teaching. Indeed, in the increased interest in sustainable entrepreneurship, higher education institutions are playing an important role [24–27]. Knowledge and capabilities for creating and managing sustainable businesses have become an important component of diverse career paths and universities are turning out to be crucial pillars in developing the ethos of sustainable entrepreneurs [24,28–30]. Notwithstanding the recent increased attention to this phenomenon in higher education, issues concerning methodologies and pedagogical approaches remain compelling and research on the implementation and impact of sustainable entrepreneurship education (SEE) remains scarce [31–34]. In fact, most courses do not have a long tradition, and we still know little about how sustainable entrepreneurs could be educated most effectively to become global change agents of sustainability [34,35]. The specificity of the problem, when compared with related areas such as entrepreneurship or management education, lies in globality as a characteristic that affects the needs to be met [34–36], and, in this context, collaborations for the co-creation of knowledge, tools, and experiments seem to be crucial [37–40].

In this article, we present the experience from a multi-stakeholder partnership at Lapland University of Applied Science (Lapland UAS hereafter) in Finland, which has demonstrated to be a successful route towards higher education committed to the promotion of a more entrepreneurial and sustainable society. Specifically, this paper provides insights into a teaching–learning co-creation process for sustainable entrepreneurship education at Lapland UAS. The following research questions guide our presentation of the case to illustrate the co-creation process in SEE: What paths are made for integrating students, professors, business managers/workers, and public government into partnerships in order to collaborate in the co-creation of sustainable entrepreneurial ideas, sustainable entrepreneurship, or intrapreneurship? What are the strengths and challenges of a co-creation process in SEE?

The rest of this paper is structured as follows: We first review the literature about SEE and the co-creation of knowledge. This is followed by an explanation of the methodological design adopted in this research and the research context. Afterwards, a description of the programme developed to foster sustainable entrepreneurship making use of co-creation is presented to continue with the description of the educational experience and a discussion

of its main aspects. Finally, we highlight the most relevant conclusions, limitations, and future research directions.

## 2. Literature Review

### 2.1. Sustainable Entrepreneurship Education

SEE's contribution to the transition towards a more sustainable world has been acknowledged, especially in terms of raising the consciousness of ecological (e.g., scarcity of key natural resources) and social (e.g., social injustices) challenges [23,41–43]. Aligned with its mother field of entrepreneurship, SEE is aimed at developing knowledge and skills for creating, evaluating, and exploiting opportunities [13,21]. However, unlike conventional entrepreneurship education that was focused on developing capacities oriented to search for business' economic profit maximisation, SEE's role involves empowering learners with values and responsible attitudes such that they can think about ways of solving social and sustainable problems through business opportunities that generate new sustainable products, sustainable processes, or sustainable business models, to name a few, contributing in this manner to the achievement of the Sustainable Development Goals (SDGs) [20,21,33,42].

The recognition of sustainable opportunities is partly conditioned by prior knowledge of natural and communal environments and entrepreneurial knowledge [21]. In this context, the responsibility of higher education institutions in the progress towards sustainable development is clear [41–44]. However, one of the most debated issues is the question of who is endowed with the responsibility and ability to deliver sustainability education programmes [33,45,46]. On the one hand, although business schools have traditionally assumed the responsibility to train future entrepreneurs, they have recently been criticised for their profit-first mentality. Critics argue that this 'profit-first' mentality has no regard for moral considerations or social responsibilities, which makes the teaching of sustainability difficult [21,46,47]. On the other hand, given that education for sustainable entrepreneurship cuts across disciplines and addresses complex intermingled problems, it also raises questions concerning the methodological approach to teaching and learning [46–48]. While the old transmission models have been considered outdated for the 21st century, there is still an open debate about which learning approaches may be more suitable for implementing SEE successfully [46–49].

In the discussions around which pedagogies may support a transformational education that contributes to sustainability, critical thinking and a critical perspective of teaching and learning have been suggested [39,43,47,48]. Critical thinking is considered to be important in developing the critical minds of learners and their capacities to become more responsible actors. In this sense, it is said that SEE is transformational and emancipatory in character, with learners and educators as part of the process [46,47]. In this context, the use of authentic and meaningful problems is encouraged to raise questions and interactions, opening up room for dialogue and stimulating students' capacity to think for themselves, critically question the status quo, and provide alternative solutions for integrating the notion of sustainability into new businesses [38–40,48,50,51]. Educators' role has also been emphasised since they are responsible for shaping the relationship with learners. They are seen as 'awakeners of consciousness' who play the role of mediator in a space in which educators and learners teach and learn through a dialogical relationship, such that they both are protagonists in the co-creation of knowledge [37,38,46–48].

### 2.2. The Co-Creation of Knowledge for Sustainability

The co-creation of knowledge and learning experiences is premised on the principles of co-creation. This view supports the understanding of value creation as a function of experiences other than the product itself; it becomes the result of the participation and engagement of different stakeholders (e.g., customers, employees) [52]. Such diversity among participants in the creation of value is considered to stimulate the creative process to find innovative solutions through value co-creation practices [52,53]. In fact, value co-creation practices, along with the collaborative learning embedded in them, are based

on relational capital generated by the intersubjective relatedness shared among different actors interacting among themselves [52].

In the context of higher education institutions, co-creation can broadly be defined as the collaborative generation of knowledge [37,38,54,55]. Although universities—especially entrepreneurial universities that operate more entrepreneurially, commercialising the outcomes of their research [56]—often engage in collaborations with several stakeholders that facilitate the co-creation of knowledge, here, it is understood as learning processes that place students at the centre of the process of knowledge generation as opposed to the traditional teacher-focused view [54,55]. The role of teachers, however, is critical in developing the capacity to co-create knowledge, facilitating encounters with others, reinforcing co-creative mindsets, fostering internal and external collaboration, and supporting co-creation initiatives [38–40,55].

The importance of the co-creation of knowledge in universities has been specifically remarked upon in the context of education for sustainable development [38,39,54,57]. Universities around the world are increasingly adopting co-creation of knowledge patterns to develop initiatives and learning experiences aimed at providing solutions to sustainability-related challenges [39,43,47,54]. Particularly, when related to SEE, co-creation can be defined as an approach to collaboration and innovation that seeks to bring together students, businesspeople, and professors with different backgrounds and experiences in order to co-create sustainable entrepreneurial solutions for local environmental and social problems through new learning experiences [38,58]. It highlights the important attributes of emerging types of university-led collaborations with multiple stakeholders to advance societal sustainability in a specific geographic location [39,56,58]. Vertical linkages among formal learning institutions (universities and professional schools) along with lateral linkages between societal sectors and university experts make possible the increase in collective knowledge and regional capacity for the benefit of sustainable development [37,55]. The assumption is that in environments where co-creation takes place, better results in terms of knowledge and solutions can be obtained and results will be diffused with key societal actors to accelerate social learning and facilitate progress to greater sustainability [37,59].

The co-creation of knowledge can also be considered as experiential learning [57]. It is a transformative experience in which the learner is seen from cognitive, emotional, and physiological dimensions as participating in the learning processes [41]. Indeed, all the participants are seen not as receivers of knowledge but as co-creators of knowledge. Moreover, unlike more conventional learning experiences, knowledge is not considered an end in itself but a means to trigger social transformation towards a more sustainable society [41]. Some authors speak in terms of sustainability co-creation as a transformational mode where codified knowledge production is complemented by implementation-focused activities that include the joint design and application of sustainability initiatives and experiments with stakeholders in real-world settings [38,41,60].

In the following sections, we present the activities and lived experience of delivering technical and vocational education and training aimed at contributing to sustainable development through sustainable entrepreneurial initiatives at Lapland UAS.

### 3. Research Design and Research Context

#### 3.1. Methodological Approach

The case study we present in this paper was generated through a form of autoethnography. Autoethnography is a qualitative method used in social science research that involves reflection and activity [61,62]. Particularly, in the case presented here, the autoethnography drew on the first author's lived experience, such that one of the researchers became partially both the person who undertook the investigation and part of what was investigated [63]. Specifically, he was part of the team that designed the educational approach that we analyse here; in addition, he was also one of the instructors responsible for its implementation.

In this context, ethnographic fieldwork with participant observation became the main method employed to gather information. Over 17 years, the first author was immersed

in the different phases of the educational initiative, actively participating in formal and informal meetings with university policymakers, students, ex-alumni, and local business owners who were common collaborators with Lapland UAS through different programmes and activities (e.g., research, development, and innovation projects). In this respect, it is important to stress that for Lapland UAS, both bachelor and master programmes have a strong professional vocational character, such that their students have partial or full-time employment. In fact, the student networks, together with the teacher networks, became the main means of contact with the companies involved in the co-creation process embedded in the educational initiative described here.

Specifically, the experiences reported in this paper describe the activities that were integrated into the Business Design subject taught during the last 10 academic years at Lapland UAS. Their design and development involved several meetings and conversations with CEOs and/or functional managers from businesses (around 5–7 per course) and students (around 25 per course). Personal narratives that described significant events or moments that influenced the development of the courses were also included as data for this paper. In addition, autoethnographic interviews among the authors [63] and several personal informal interviews with six other colleges at Lapland UAS were conducted in November 2023. Through open and relaxed conversations, these interviews allowed us to contrast the details of our autoethnography and reflect on specific aspects of our personal experiences and interpretations of the university's educational co-creation initiative. All this information contributed to developing the ethnographic description and reflective analysis of the case that is presented in the remainder of this paper. In an attempt to facilitate a complete understanding of the co-creation academic activity, we first present the particularities of the context in which it took place, that is, the main characteristics of Lapland UAS.

### 3.2. Research Context: Lapland UAS

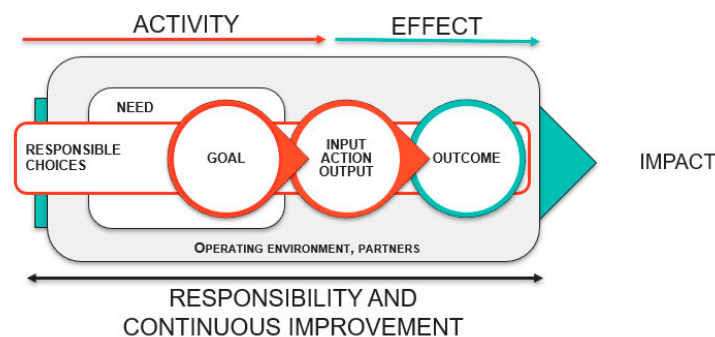
Lapland UAS is the northernmost university of applied sciences in Finland and the EU that focuses on higher education and research, development, and innovations. It was created in 1992 and re-organised in 2014 as a merger between Rovaniemi University of Applied Sciences and Kemi-Tornio University of Applied Sciences, becoming part of the Lapland University Consortium (LUC) [64].

LUC's mission is to generate new knowledge and expertise from an Arctic perspective to sustain life in the region. In this sense, LUC is committed to global arctic responsibility, sustainable tourism, future services, and governing distances. Specifically, the main goal is to promote prosperity and well-being for individuals and communities by encouraging responsibility and leveraging global networks focused on Arctic issues to achieve strategic objectives. Diverse teams work together to identify and lead change in all its complexities: social, cultural, ecological, industrial, and technological. In fact, Lapland UAS supports all of the United Nations' Sustainable Development Goals (SDGs) outlined in the 2030 Agenda and particularly works to promote six SDGs: Goal 3: good health and well-being; Goal 4: quality education; Goal 7: affordable and clean energy; Goal 8: decent work and economic growth; Goal 9: industry, innovation, and infrastructure; Goal 11: sustainable cities and communities [64].

The operations of Lapland UAS are governed by the Finnish Limited Liability Companies Act and the Universities of Applied Sciences Act [64]. These acts stipulate the tasks and management of universities of applied sciences and their organs. Lapland UAS is an example of a mid-range university [65,66] with around 500 employees, 5000 students, and almost 1230 partners. The Lapland University community operates sustainably, in constant dialogue with stakeholders and partners. It provides students with a learning environment characterised by connections to working life and entrepreneurial mindsets (e.g., creativity, a positive outlook, communicativeness, motivation, and openness to taking risks) and participation in research and education networks [64,67].

Lapland UAS provides higher education in the fields of agriculture and forestry, the arts, business administration, engineering, manufacturing and construction, health and welfare, information and communication technologies (ICTS), hospitality management, sports studies, and social sciences [64]. Currently, Lapland UAS has five international degree programmes leading to a bachelor's and two masters' degree programmes conducted in English. The studies are focused on Arctic competencies since Lapland UAS is characterised by its practical approach and work-oriented perspective [64]. In other words, the learning environment aims to facilitate the application of theoretical knowledge in practice [35,41].

Closely linked to teaching are research, development, and innovation (RDI) activities. RDI is characterised by its multidisciplinary nature. Teachers and RDI professionals are experts in innovative research and development, having extensive experience in business life. A part of RDI is the development of projects aimed at benefiting other entities: companies, associations, and organisations of the public sector [40,64]. Lapland UAS works with different partners to achieve impact through responsible, collaborative decisions (see Figure 1).



**Figure 1.** Responsibility at Lapland UAS. Source: <https://www.lapinamk.fi/en/Who-we-are/Sustainability> (accessed on 12 December 2023).

#### 4. Analysis, Interpretation, and Discussion of the Co-Creation of Knowledge in SEE at Lapland UAS

##### 4.1. The Experience of the Co-Creation of Knowledge in SEE

SEE at Lapland UAS involves the co-creation of knowledge among participants in the learning process [18,37,39]. Key participants are not only young university students, understood as bachelor or master students of around 20 to 25 years of age but also mature adults who are employees of local businesses, for whom the learning activities are designed. In fact, the latter group plays an important role throughout the development of the learning process since it is the need to meet the sustainable expectations of local companies that guides, to a large extent, the development of the knowledge, skills, and entrepreneurial competence of the participants in the Business Design course. With their professional experience, these participants bring practical wisdom and an innovative spirit to the classroom that enables the creation of a dynamic ecosystem for learning and innovation [38,41]. This is a very important aspect because, for Lapland UAS, as for other Finnish universities of applied sciences [35,38,40,43], education is understood as an engine of innovation for firms and organisations such that research, development, and innovation must be integrated into the learning process. This understanding of the educational and learning process is derived from the Finnish government's education policy of decentralisation, which provides a greater protagonism to municipalities and teachers in developing learning environments that can become catalysts of economic growth [67].

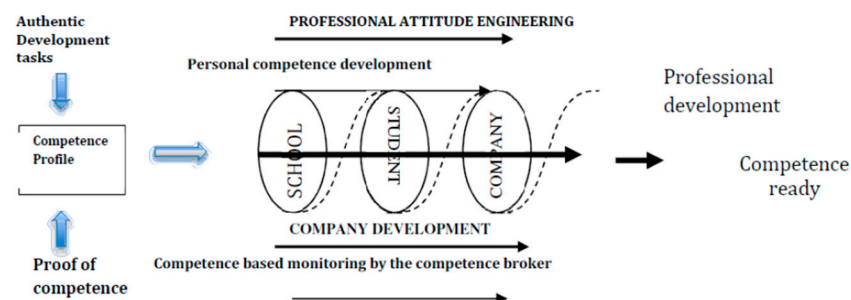
Problem-based learning is the pedagogical approach placed at the centre of the co-creation educational Lapland UAS model in SEE. In the educational context, it is understood as a strategy for developing knowledge and competence in the context of education and work [68]. This pedagogical practice provides students with the capabilities for solution-oriented thinking by using collaborative teaching methods in real-world settings from the

very start [39,43]. Specifically, the teaching–learning process takes place in collaborative teams including the following:

- Companies that are willing to engage in a global network and develop their business from a sustainable perspective.
- Students (young and mature adults who work as employees in local businesses) from any study field willing to increase their innovation and sustainable entrepreneurship competence.
- Business experts who might give feedback on business ideas and sustainable solutions.
- Business advisors who might evaluate the final result—the prototype of the product or process.
- Teachers who play the role of facilitators and brokers with consulting and business development skills as well as industry networking skills.

The collaborative process begins by selecting business cases among those employees who participate as students or as commissioners of a business case. Here, the co-creative process can take two different forms: (a) firstly, students, as a team, work with one company whose real sustainable problem has been chosen to focus on; (b) secondly, several companies work together and cooperate with students in order to analyse potential sustainable innovations to improve one particular sector. In any case, the main point for the co-creation process is the business case, which serves as a framework for further sustainable business idea development. The basic pedagogical approach is problem-based, in which learning-by-doing and practice-based experimentation are the norms. The learning process takes place by developing a joint innovative product, service, or solution that is premised on the resources of the company (or companies), considering their strengths and weaknesses for a market that allows for progress towards a more sustainable society.

During the process, young students (around 25–30 per class) are encouraged to act as consultants who are in charge of the innovative projects. They are supported in working together with students who come from companies (around five per class) to create knowledge, invent, explore ways to innovate, and seek the conceptual knowledge needed to solve local business problems [35,40,43,69]. This helps students to develop a practical and experiential way of creating innovations through various stages of experimentation and development that progress from success to failure, frustration, and then again to success and enthusiasm until a final solution is created. This embraces the discovery and creation of new innovations as well as the development of the developer [38,39]. During the collaborative process, students' personal competencies often grow as a feeling of mastery and being effective in one real business problem. They are monitored by the competence broker [65] (see Figure 2). Moreover, teachers involved in the co-creative learning process act as coaches by organising the learning activities that are carried out in the diverse steps of the problem-solving problem (see Appendix A) and providing tools to students whereby training on innovation and sustainable entrepreneurship can be developed [34,36]. They continue to guide the student groups throughout the duration of the project (3–4 months).



**Figure 2.** Competence development-based learning for professional education. Source: <https://www.lapinamk.fi/en> (accessed on 12 December 2023).

#### 4.2. Discussion

Table 1 provides an overview of the main strengths and weaknesses of the co-creation process in SEE at Lapland UAS.

**Table 1.** Strengths and weaknesses of the co-creation process in SEE at Lapland UAS. Source: Self-authorised.

	<i>Learner Level</i>	<i>Teacher Level</i>	<i>Institutional Level</i>
<i>Strengths</i>	<ul style="list-style-type: none"> <li>• Practical knowledge: learners (students and employees) are involved in the design of teaching and learning.</li> <li>• Teamwork skills are improved (e.g., communication) along with feelings of engagement and responsibility in education.</li> <li>• Self-confidence and responsibility in the learning process is improved.</li> </ul>	<ul style="list-style-type: none"> <li>• Stimulus of teachers' growth through practical knowledge.</li> <li>• Focus on the learning process instead of on teaching particular topics.</li> <li>• Motivation in addressing an original teaching–learning process that changes with every course depending on the participants involved and the business cases adopted.</li> </ul>	<ul style="list-style-type: none"> <li>• Improvement of relationships and trust of institutions involved.</li> <li>• Contribution to developing democratic and safe learning environments.</li> <li>• Facilitation of the open exchange of ideas that contribute to the improvement of the institutions involved.</li> </ul>
<i>Challenges</i>	<ul style="list-style-type: none"> <li>• Demand for working in teams (e.g., time required for building trust and collaborating).</li> <li>• Adjustment to the role of partners in the teaching–learning process, instead of the traditional role of consumers of education.</li> <li>• High workload and time constraints.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of time to provide necessary and frequent feedback to students.</li> <li>• Feelings of insecurity because the traditional power relationship has changed.</li> <li>• Searching for stakeholders and maintaining the commitment of all participants involved in the teaching–learning process.</li> </ul>	<ul style="list-style-type: none"> <li>• Extra effort and time to build relationships and confidence among participants.</li> <li>• Shared responsibility in the teaching–learning process.</li> <li>• Lack of standardisation and evaluation metrics.</li> </ul>

Involving learners and other stakeholders in the teaching–learning process in addition to teachers contributes positively to the quality of SEE as it enhances the strengths of learners, teachers, and stakeholders in acquiring the knowledge, skills, and competencies to identify and evaluate sustainable business opportunities [59,61]. Through co-creation processes of knowledge, all participants partake in collaborative reflection [37,40], which makes it easier to bring fresh ideas aimed at solving environmental and social problems. In addition, this contributes to developing communication and interpersonal skills, making it easier to deal with complex and conflictive situations [38,39]. Learners and teachers benefit from the co-creation of knowledge as dialogues with the business side foster their practical knowledge and professional development for improving the local environment from a sustainable, social, and economic perspective [56,58,60]. In addition, learners benefit in terms of teamwork skills and gaining confidence in themselves since they collaborate by sharing initiatives to provide real solutions for businesses. Teachers' motivation tends to increase since they face with every course new situations that stimulate their creativity while focusing on participants' learning. At an institutional level, where local businesses and the university are involved, co-creation in SEE means, as other studies have shown [36,37,39,40], creating networks and improving relationships, which, in turn, contribute to providing democratic learning environments that facilitate openness, transparency, and the trust needed for the flow of innovative ideas.

However, bringing the principles of co-creation to a sustainable entrepreneurship educational context can also be challenging, even though there is a formal procedure designed to identify challenges through regular meetings with students and teachers. For example, those who are involved as instructors are aware that the requirements of



the students, in terms of time, responsibility, and collaboration with partners, are higher than in conventional education and, if they do not maintain an open attitude towards the learning process, this can be problematic. To cope with this challenge, detailed information about students' personal characteristics is collected at the beginning of the course through different forms of assessment and conversations—the so-called 'personal development discussion with teachers'. In addition, before every problem-solving co-creation project begins, what is called 'proof students' competence', a study about students' leadership and other strengths, is conducted to understand their background and help them to discover and establish a development goal both in the project and to fulfil the requirements of the curriculum.

Teachers may also find themselves overwhelmed by the amount of time and responsibilities that are required to develop a problem-solving co-creation project. On the one hand, there is the issue of business choice. Decisions concerning how many local businesses will participate in the learning process or in which part of the process they will have more protagonism in the co-creation process are decisions that are necessary to take and that need to be reviewed every course and adjusted depending on the changing situations of local businesses. In this respect, it is worth mentioning that the search for a successful experience requires extra time to be invested in seeking an ideal situation in which representative participation of local businesses, for instance, in terms of sectors, becomes part of the co-creation learning experience. For teachers and those in charge of the initiative, this means dedicating time to nurturing their local networks by attending local business events, organising visits with students to the companies, and preparing institutional presentations to provide information about the courses premised on a co-creation experience and their benefits for continuing to develop collaborations with Lapland UAS, which is considered an important player in the regional economic landscape. Moreover, teachers need additional time to maintain long-term relationships with companies through continued conversations, even when there is no project activity, so that they get to know each other and build the trust that is required in each relationship. For this reason, generally, there is a positive response from local businesses to collaborate with Lapland UAS.

On the other hand, teachers need to provide continuous feedback to students. While there is no doubt of the important benefits that such feedback has for the students and their learning process, it also poses some challenges for teachers. Indeed, it adds tasks and responsibilities to teachers' already demanding academic and research work, which may lead to them feeling overwhelmed, especially if it is necessary to evaluate a large volume of assignments with a lot of qualitative information to evaluate (for instance, students' creativity or collaborative skills). Moreover, some feelings of insecurity may be generated as a result of the continuous interaction with students, who may have some expectations for immediate feedback that are not always possible to fulfil.

At an institutional level, we also identified weaknesses from the sides of both local businesses and the university. Firstly, it takes extra effort from both sides to fully commit to this different way of participating in a teaching–learning process. Secondly, there is also a blurring of responsibilities. This makes it difficult to identify who is responsible when things go wrong. For example, there may be cases where the balance between some political/institutional and business powers is not perfectly balanced, and potential conflicts of interest or tensions between academic and business objectives may arise. Thus, a strong leadership team that knows how to manage conflicts and create friendly relationships is vital. Thirdly, the lack of standardisation and evaluation metrics for the educational model poses challenges in comparing results, replicating experiences, or evaluating each other's work.

Despite the challenges, as we gain consciousness of them, it is possible to work to prevent the difficulties or at least mitigate them. Any co-creation work always comes with some difficulties in implementation [36–39] and, in this sense, clarifying the objectives of the co-creation process in SEE will be helpful for learners and other stakeholders involved in the educational initiative.

## 5. Conclusions, Limitations, and Further Research Lines

In this article, we discussed how co-creation has worked as a tool in SEE within the Arctic region. Our experience in this pedagogical approach shows that despite the extra effort and commitment that are required from all participants in the teaching–learning process, co-creation principles [36–39] positively contribute to the educational experience, especially in upskilling students’ competencies to boost their employability by inviting local businesses to participate as stakeholders in the educational process. In this way, this work adds to the few studies that have addressed SEE [32–34] by providing insights into co-creative experiential learning developed at a university in the Nordic region, presented and analysed as collaborative autoethnography [63] using personal experience and collective reflection. We also contribute by shedding light on how teachers, students, and businesses can engage with real challenges and work together in co-creative educational processes to develop learning and sustainable and innovative solutions.

Nonetheless, this research is not without limitations. Our work has been based on the presentation of a single case of a co-creation educational initiative on SEE developed in a particular context and described and analysed by adopting an autoethnography perspective. All this limits the possibilities of generalisability to other contexts and settings. Moreover, although collaborative reflections were conducted among the authors and other participants, the presentation mainly responds to the authors’ subjective interpretations and experiences. Future studies might examine similar cases from another perspective, using other methods. For example, it would be interesting to identify other relevant stakeholders, perhaps going beyond local companies and trying to involve international industries located in the area, to analyse how they can be involved in teaching–learning processes based on problem-solving co-creation projects; thus, longitudinal case studies or quantitative research might be used to evaluate their participation. In addition, the growing demand for online courses could also be considered to investigate how this teaching model poses new challenges to co-creating knowledge while continuing to seek the integration of research, development, and innovation with similar outcomes. For example, virtual teams with students who come from different countries and cultural environments may not involve physical contact and may develop different strategies to build the trust needed in co-creation projects. Future research could address how co-creation educational initiatives involving collaborative learning and knowledge production can be developed in the digital work context that is becoming representative of a digitally connected world context.

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## Appendix A. Curricular Plan

Steps	Learning Activities
Design (3–4 weeks)	<ol style="list-style-type: none"> <li>1. Participation in online lectures on the creation of start-ups and business planning aimed at addressing great challenges by adopting a sustainable perspective and emphasising group dynamics in learning.</li> <li>2. Student participants from the business side are asked to answer questions from other students about the companies in which they work in order to build a framework of potential business cases; this includes information about products/services, customers, business models, resources, and challenges.</li> <li>3. The selection of the business case (whether to respond to the challenge of one company or to the challenge of a sector of several companies) is made through a critical discussion among the students, who have to work as a class team, following brainstorming on potential business development areas and sustainable business ideas applicable to a business case (e.g., ecological re-use of raw materials).</li> </ol>
Preparation and development of problem-solving project (5–7 weeks)	<ol style="list-style-type: none"> <li>1. Research and analysis of additional references and information related to the business case chosen.</li> <li>2. Development of the idea and business model behind the project proposal (e.g., Lean Startup, Sustainable Business Design) to be carried out by the students working together in different teams, after responsibilities and roles have been distributed.</li> <li>3. Idea evaluation checkpoint by obtaining feedback from companies whose employees participate in the courses and from those within the Lapland UAS network.</li> </ol>
Presentation of solutions (3–4 weeks)	<ol style="list-style-type: none"> <li>1. Short presentations to several different invited business professionals to obtain feedback from experts.</li> <li>2. Critical discussion and reflection on the possibility of prototyping ideas and marked study.</li> </ol>

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