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Social Entrepreneurship Education: A Combination of Knowledge Exploitation and Exploration Processes

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Abstract: It is widely accepted that entrepreneurship education has become a key development priority for coping with uncertainty and for addressing various social, economic, and technological concerns related to health, living conditions, education systems, employment, and economic growth. In recent times we have witnessed a proliferation of Entrepreneurship Education (EE) programs and initiatives with the aim to promote the creation of new skills, competencies, and capabilities to deal with a wide range of social issues and for creating new societal. The COVID-19 pandemic situation has introduced radical challenges to the society and has impacted significantly, especially the process of entrepreneurial competencies, skills and attitudes development. This paper aims to provide insights into knowledge mechanisms and learning strategies that have been activated for the effective creation of entrepreneurship competencies. We have based our evaluation on an exploratory analysis of 10 program studies that deliver social entrepreneurship education. The paper presents elements of originality under two perspectives: it proposes a framework with the main patterns characterizing social entrepreneurship education (SEE), and it argues that the creation of an entrepreneurship mindset and competencies is an evolutionary process that combines dynamic knowledge exploitation and exploration mechanisms.



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Keywords: entrepreneurship education; social entrepreneurship; knowledge exploitation; knowledge exploration; case studies

1. Introduction

In the contemporary economy characterized by substantial changes caused by the COVID-19 pandemic, creating an entrepreneurial mindset among members of society (public sector, private sectors, academia, etc.), is considered as being of paramount importance (Liguori and Winkler 2020; Ratten 2020; Ratten and Jones 2021; Ratten 2020). Entrepreneurship is considered as a “means of transitioning from surviving to thriving” (Maritz et al. 2020, p. 1).

Equipping individuals with entrepreneurial capacities and capabilities, promoting technological change and innovation (Bramwell and Wolfe 2008), and creating favorable environments for entrepreneurship at all levels (Kirby 2006) has been widely recognized as essential to support effective entrepreneurial behavior (Gibb 2005).

Recently, entrepreneurship education has gained increased importance and interest among scholars, governors, managers, policymakers, and business people (Centobelli et al. 2019; Jones and Matlay 2011; Langston 2020; Liguori and Winkler 2020; Nabi et al. 2016; Ndou et al. 2018; Secundo et al. 2021; Ratten and Jones 2021; Ratten 2020; Vázquez-Parra et al. 2020), who have widely highlighted the significant role of Entrepreneurship Education (EE) in promoting more entrepreneurial mindsets, attitudes, and behaviors.

Though EE has been mainly a priority for management and business students, in today's environment, characterized by the rapid development of new technologies and the complexity of society, it has emerged as a relevant competence to be created at all levels of education and for different disciplines.

Therefore, today we are witnessing an expansion of EE to different disciplines (e.g., science and technology, art, culture, and social sciences, etc.) with the aim to promote the creation of new skills, competencies, and capabilities (Cassia et al. 2014; Fayolle 2008; Mian et al. 2016) for creating new societal ventures (Vázquez-Parra et al. 2020).

Recently, social entrepreneurship has also gained notoriety due to its potential to deal with a wide range of social issues (Barinaga 2013; Kenny et al. 2020) and due to increased cognizance of social inequalities and environmental issues (Hoogendoorn et al. 2010).

Social entrepreneurship's goal is to solve complex social issues in an innovative, efficient, and effective manner (Johnson 2000). The activation of powerful knowledge mechanisms able to renovate and reconfigure in an innovative way competencies, skills, capabilities, attitude, and knowledge assets, becomes imperative for sustainable social innovation. Therefore, interest in the creation and development of social entrepreneurship education (SEE) has acknowledged notable growth (Solomon et al. 2019).

SEE is a focal point in shaping entrepreneurial intentions, increasing the potential to undertake startups, and plan their growth strategies. In this scenario, universities are called upon to play an instrumental role in promoting entrepreneurial behavior (Liguori and Winkler 2020; Ndou et al. 2018; Secundo et al. 2016; Secundo et al. 2021) through tailored education and by managing the incubation of knowledgeable individuals who generate and disseminate novel ideas for social innovation and entrepreneurship (Solomon et al. 2019; Ratten and Jones 2021; Secundo et al. 2021; Venkataraman 2004).

As a consequence, in recent years a growing number of universities and colleges throughout the world have started to provide social entrepreneurship education (Basci and Alkan 2015).

However, diverse factors and challenges impact the effective development of entrepreneurial competencies, knowledge, skills, and abilities (Ndou et al. 2018) relevant for creating and proposing innovative ventures that have a social impact (Lawrence et al. 2012; Vázquez-Parra et al. 2020).

To address these challenges, there have been considerable efforts devoted to advancing our knowledge on efficient and performant education approaches by considering different issues.

It has been widely argued that the most relevant challenges of entrepreneurship education consist of the different dimensions of competencies to be created, the pedagogical approaches, learning strategies, and knowledge creation processes (Fayolle 2013; Lackéus 2020; Secundo et al. 2016); SEE requires innovative and multidimensional analysis (Vázquez-Parra et al. 2020).

As entrepreneurship activity is the result of new and existing knowledge used to facilitate economic development (Welter et al. 2019), a specific issue to analyze is to understand the knowledge processes (Vázquez-Parra et al. 2020) and the knowledge mechanisms of forming entrepreneurial skills, mindsets, and competences in the students.

With the aim to cover this gap, this paper provides insights on knowledge mechanisms and learning strategies that are activated for the effective creation of entrepreneurship competencies. This is achieved through a comparative case study analysis of 10 university programs that deal with SE.

The paper is structured as follows: Section 2 provides the literature review on entrepreneurship education, social entrepreneurship, and knowledge mechanisms for innovation; Section 3 describes the research method; Section 4 presents the main findings; Section 5 presents the framework elaborated from the findings. Finally, the conclusions and study limitations are presented.

2. Literature Review

2.1. Entrepreneurship Education

It is widely accepted that entrepreneurship and innovation are critical to the development and well-being of society thanks to their contribution to jobs creation and

structural changes in the economy as well as productivity through the introduction of new competition (Kuratko 2005).

Entrepreneurship education, in its various forms, can play a crucial role in creating entrepreneurial behavior that consists of the ability to deal with a series of tough issues, to imagine solutions by assuring the simultaneous handling of many tasks, to possess well-developed problem-solving skills as well as the ability to learn continuously (Byers et al. 2011). It provides a mix of experiential learning, skill-building, and, most importantly, a mindset shift.

Moreover, the European Union strategy highlights the importance of the development of an entrepreneurial culture by fostering the right mindset, entrepreneurship skills, and awareness of career opportunities (European Commission 2006). “Enhancing innovation and creativity, including entrepreneurship, at all levels of education and training” is one of the four strategic objectives of the DG Education and Culture—Education and Training 2020 (European Commission 2013).

In preparing the right skills and capabilities for the next entrepreneurs, it is necessary to conceive entrepreneurial ability as a form of human capital with specific and innovative mindsets, behaviors, competencies, skills, and capabilities (Schultz 1982). Extant literature shows how, in creating such human capital capabilities, the higher education sector has a crucial role to play as incubators of knowledgeable individuals who could bring novel ideas for development (Venkataraman 2004) as well as to develop an innovative entrepreneurial mindset. In recent years a growing number of universities and colleges throughout the world have provided entrepreneurship education (Centobelli et al. 2019; Kuratko 2005; Ndou et al. 2018; Secundo et al. 2016; Secundo et al. 2021).

While before there was a tendency of teaching entrepreneurship systematically just in the fields of economics, business administration, or public policy, (Etzkowitz 2004), recently, entrepreneurial teaching has emerged as vital for humanitarian careers and social studies (Huang et al. 2020; Smith and Woodworth 2012; Shu et al. 2020; Worsham 2012).

Therefore, social entrepreneurship education is gaining prominence in a wide variety of fields (Rey-Martí et al. 2016).

In addition, the COVID-19 global crisis has created disruptive effects on global society, economic activities, and social interactions for both public and private organizations, including schools and universities (Katafuchi et al. 2021).

Entrepreneurs, acting as opportunity recognizers, innovators, and risk-takers, are fundamental agents able to deal with COVID-19 societal and economic effects (Ratten 2020). As such, SEE is compulsory to handle the COVID-19 crisis. SEE aims to create the necessary multidisciplinary and transversal mindset and competencies for coping with complex social issues (Vázquez-Parra et al. 2020) and for enabling them to solve societal challenges with sustainable solutions (Huang et al. 2020).

2.2. Social Entrepreneurship Education

Social entrepreneurship (SE) has been defined by different authors as any venture that includes a social goal (Baron 2007); or the creation of economic and sustainable ventures that entail social value (Dacin et al. 2010); or any business activity that involves a social aspect (Zahra et al. 2009).

The most used definition of SE in the literature is that provided by Solomon et al. (2019, p. 6), which describes it as “the ability of individuals to identify, exploit opportunities, to create products and services that generate both social and economic value”.

This definition captures the different dimensions of SE and the transversal competencies that are necessary to be developed for creating the right skills and competencies for social entrepreneurs.

The literature widely argues that for creating an effective entrepreneurial mindset, skills, and abilities, it is essential to equip students with: creative, strategic, analytic, and reflective thinking capacity; the ability to build confidence in their abilities, self-efficacy, and emotional intelligence; the skill to develop collaborative abilities through participation

in communities of practice; the ability to develop soft, interpersonal skills, communication skills, and business context understanding (Byun et al. 2018; Daher et al. 2018; Gibb 2005; Hockerts 2018; Nandan and London 2013; Zat'ková and Ambrozy 2019).

Entrepreneurial traits consist of specific behaviors, attitudes, skills, values, and competencies. Table 1 provides a synthesis of these issues (NESTA 2008).

Table 1. The entrepreneurial traits.

Entrepreneurial Behaviour, Attitude and Skill Development	Entrepreneurial Values	Entrepreneurship Competencies
opportunity seeking initiative taking ownership of a development commitment to see things through personal locus of control (autonomy) intuitive decision making with limited information networking capacity strategic thinking negotiation capacity selling/persuasive capacity achievement orientation incremental risk taking	strong sense of independence distrust of bureaucracy and its values self made/self belief strong sense of ownership belief that rewards come with own effort hard work brings its rewards belief that can make things happen strong action orientation belief in informal arrangements strong belief in the value of know-how and trust strong belief in freedom to take action belief in the individual and community not the state	To what degree does the programme build the capacity to: find an idea appraise an idea see problems as opportunities identify the key people to be influenced in any development build the know-how learn from relationships assess business development needs know where to look for answers improve emotional self-awareness, manage and read emotions and handle relationships

According to García-Gonzalez et al. (2021), five dimensions entail social entrepreneurship competency, namely, personal characteristics, leadership, social innovation, social value, and entrepreneurial management. Such multiple dimensions call for a transdisciplinary approach for developing innovative entrepreneurship competencies (Lehner and Kansikas 2011) and for creating social entrepreneurs able to nourish a social need by transforming ideas into actions through the engagement and empowerment of social relations (Portales 2019) in an innovative, proactive, and resilient way (Vizcaíno et al. 2020). Creating and delivering such traits and capabilities requires specific knowledge mechanisms, appropriate learning strategies, and pedagogical approaches that go beyond the traditional education and teaching styles that are characterized by critical analysis, passive understanding, written communication, and neutrality (Gibb 2005). Therefore, for effective SEE a fundamental shift has to be realized that focuses on delivering educational programs and activities that enhance the students' creativity, original thinking, and leading qualities as well as a series of promotional and supporting activities.

These pose relevant challenges to educational institutions that need to define the different knowledge disciplines and skills for social entrepreneurship (Steiner et al. 2018), the different learning approaches and strategies, and the different knowledge management mechanisms to activate for the effective creation of entrepreneurship competencies and mindsets.

2.3. Knowledge Mechanisms and Learning Modalities for SEE

It has been argued that to realize an entrepreneurship activity, it is necessary to rely on new and existing knowledge (Centobelli et al. 2019; Welter et al. 2019). Internal knowledge creation by combining existing and new knowledge, and knowledge c-creation with external partners of the innovation ecosystem (e.g., suppliers, customers, enterprise group, universities) (West and Bogers 2014) as well as knowledge outsourcing or spillover through the creation of new ventures are the conduits to entrepreneurs activity (Audretsch et al. 2020). Existing and new knowledge are used in combination for spotting, sensing, recognizing, and pursuing new opportunities, thus minimizing the strategic risk related to venture creation. Therefore, creating effective entrepreneurship competencies requires both knowledge exploration and knowledge exploitation processes.

Knowledge exploration and exploitation processes have been introduced by [March \(1991\)](#) as essential processes for organizational learning. Knowledge exploration consists of the ability to search for new knowledge (for spotting and sensing the opportunities); while knowledge exploitation consists of the ability to use existing knowledge to act upon opportunities ([Centobelli et al. 2019](#); [March 1991](#)).

These two knowledge processes have been largely used in organizational learning literature, strategic management, technology, and innovation management literature ([Jansen et al. 2009](#); [McCarthy and Gordon 2011](#)). The relevance of the interplay between exploration and exploitation has been widely argued ([Wilden et al. 2018](#)). The literature has also dedicated great attention to finding the optimal mix between exploration and exploitation activities, as they compete for the same pool of resources ([March 1991](#); [Turner et al. 2013](#)).

Exploration is considered an essential process for extending toward new knowledge areas, creating new business opportunities, and for creating innovative products or services ([Randhawa et al. 2021](#)) through knowledge variety and creation of the necessary capabilities ([Ireland et al. 2003](#); [March 1991](#); [Siren et al. 2012](#)).

On the other hand, exploitation is paramount for grasping current knowledge and creating value from it ([Knight and Harvey 2015](#)) by combining and extending it into new products and services, or improved quality.

Recently, these two processes have also been the focus of investigation in the entrepreneurship education field. It has been argued that to achieve qualitative performance, an entrepreneurial university needs to find the optimal combination of exploration and exploitation activities ([Gibb and Hannon 2006](#); [Leitch 2006](#)). In addition, [Centobelli et al. \(2019\)](#), by investigating knowledge exploitation and exploration processes in entrepreneurial universities, conclude that “exploitation of existing capabilities is necessary to explore new capabilities, and the exploration of new capabilities also improves the university’s existing knowledge base” (p. 3313). Therefore, it is fundamental to twist between exploration and exploitation stages ([Centobelli et al. 2019](#)).

Knowledge exploitation and exploration processes require dealing with different learning strategies. The literature provides two different learning strategies: learning before doing and learning by doing ([Argote 1999](#); [Pisano 1997](#)). The learning before doing strategy is an appropriate strategy for developing the necessary knowledge needed for understanding the context, for sensing and recognizing new opportunities, and for learning and appropriating all required notions related to entrepreneurship activities. It has been defined as the process aimed at exploiting the existing knowledge base and to improve understanding of the existing situation ([Pisano 1994, 1997](#)).

On the other hand, learning by doing is the appropriate strategy for enabling students to act upon opportunities and develop new solutions, and it is defined as the process by which an individual or group increases its performance with experience in a task ([Arrow 1962](#)). The choice of the appropriate learning strategy depends on the “state of knowledge” ([Pisano 1994, 1997](#)), meaning that if there is a large body of knowledge already developed, then learning before doing is essential for improving the understanding and exploiting the existing knowledge base; by contrast, if the knowledge is scarce or in its infancy, then learning by doing is a more appropriate strategy to develop new knowledge and new solutions.

Moreover, the role of the external environment and social relations with different stakeholders is different in the case of knowledge exploration and exploitation processes ([Centobelli et al. 2019](#)). Collaboration with a range of external stakeholders is crucial for knowledge exploitation processes to establish a comprehensive and effective approach to a multidirectional process of knowledge sharing and creation ([Siegel et al. 2007](#)) of new opportunities and solutions. To this aim, different initiatives and activities that rank from workshops and meetings to more complex activities such as applied research, joint projects, and joint experimentation are fundamental to being activated for enabling effective knowledge exploitation processes.

This paper argues that creating social entrepreneurship competencies requires both exploration and exploitation knowledge processes, as well as new pedagogical approaches, new learning strategies, and diverse collaboration modes with the external environment and stakeholders.

3. Research Method

To analyze the different mechanisms and instruments used by universities to create SE competencies, the overall research methodology is based on exploratory analysis. In particular, in this research we adopted a web-based content analysis to collect data from relevant cases of university programs that deal with social entrepreneurship education. Web-based content analysis is considered useful in terms of time and cost efficiency as well as a valid research method to grasp, code, and analyze information (Navarro 2008; Wu et al. 2010).

According to Herring (2010), content analysis is an established social science methodology, which broadly includes, as Baran (2002) suggests, “the objective, systematic, and quantitative description of the content of communication”.

The web-based scanning was performed using keyword searches on major Internet search engines to find university programs that focus on social entrepreneurship. Following the literature review in the theme, the keywords used for searches consisted of “social entrepreneurship”, “social entrepreneur”, “social enterprise”, “social innovation”. As we aim to consider “dedicated” social entrepreneurship courses and programs, we considered in our study those programs that were focused on social sciences and provided focused social entrepreneurship courses or modules. Therefore, a first sample of 30 courses was obtained using these keywords. Afterward, the data collection consisted of running deep content analysis of the web pages and making a further screening of the cases using the following criteria:

- They are located in European countries;
- The program of study is available in English;
- The syllabus is available to be downloaded for further analysis;
- Information about learning approaches and stakeholders involvement is disclosed on their websites;
- They have been realizing their activities for at least five years;
- They offer learning initiatives devoted to a wide target audience.

The resulting final sample that matched our criteria consisted of 10 master studies (see Table 2).

Table 2. Sample description.

SEE Studies	Type of Program	Objectives	Learning Initiatives
Social Innovation design Social innovation management Social innovation and sustainability Innovation and entrepreneurship Social innovation and public management Social Entrepreneurship and change (2) Social Business and Entrepreneurship Social Enterprise (2)	MBA (7) Master of science (3)	Develop the next generation of social leaders; Give education and research about entrepreneurship to solve social problems and elaborate social innovation solutions. Create leaders committed to social challenges and sustainable practices Provide consultancy, training and business development support to Accelerate the entrepreneurial ambitions of students; Be a catalyst for entrepreneurship initiatives, providing inspiration, driving team formation, and facilitating venture development.	Education Research Community creation Access to local community Workshops Meeting with Entrepreneurs Experiential learning Experimentation Pitch Competition Business idea competition Support activities Mentoring by professors entrepreneurs Coaching by professionals Space and infrastructure for idea development virtual networking platforms business incubation support facilitation of access to financing Scholarships and awards

Afterward, following [McMillan's \(2000\)](#) guidelines, the web content analysis followed three phases:

Phase 1. Definition of categories for coding: Following the literature and to provide comparable cases for the SEE programs we proceeded with the coding of the variables and items to analyze. Previous studies have analyzed entrepreneurship education by focusing on components related to target groups, learning goals entrepreneurship contents, learning strategy, and stakeholders' involvement ([Alberti et al. 2005](#); [Cotoi et al. 2011](#); [Fayolle and Gailly 2008](#)). Therefore, we followed these pillars for coding of contents.

Phase 2. Web content analysis. For each SEE program, a detailed content analysis of the web pages of the SEE programs was realized. The analysis was realized manually by three researchers. The data were scrutinized to disclose pertinent features that characterize SEE programs, especially regarding the knowledge processes and learning strategies adopted. We extracted qualitative information from the syllabus and web pages of the programs to identify goals, contents, learning pedagogies and strategies, stakeholders' involvement, initiatives, and activities as well as their achievements. Being that the data collection was performed manually, and considering the qualitative focus of this research, the data extracted were recorded in an Excel file for further analysis. The data were structured according to the main coding categories defined.

Phase 3. Data analysis. This phase consisted of analyzing, categorizing, and interpreting the data collected to identify common similarities, traits, and features that characterize the SEE programs considered. A clustering of qualitative data relating to the cross-case comparisons was implemented to retrieve common patterns' distinguishing the development of entrepreneurial mindsets for SE.

The clustering of the content was realised following two criteria:

- The main traits for each coding category (goals, contents, approaches, stakeholders' involvement);
- The different stages of the SEE process (inspiring, exploring, developing) with the aim to define the evolutionary path of the learning strategy.

The interrelation between these two criteria permitted outlining of the main patterns characterizing different phases of the SEE. The three researchers realized a first clustering of these issues autonomously; later they come together to define a common clustering framework.

4. Research Results

4.1. Main Findings

The SEE program studies selected and analyzed in this paper are described in Table 2. As can be evinced, generally the programs offered consist either of MBA studies (7/10) or a master of science (3/10). All programs aim to achieve a common mission: to be highly focused on boosting and accelerating the social entrepreneurship attitude, create ambitions and mindset as well as develop the next generation of social leaders able to solve different societal problems in innovative ways.

The learning initiative spans out from education and research to venture creation, competition, incubation programs, experimentation, and experiential learning. The diversity of initiatives aims on the one hand to create the required entrepreneurial cognizance, culture, and mindset and, on the other hand, to create the conditions for taking actions through creativity, innovative thinking, and experimentation. Moreover, the high variety of initiatives relates to the prior knowledge of participants and, as a consequence, the varied set of needs and competencies to be created with the SEE.

As can be seen, there are a myriad and diversified typology of initiatives and mechanisms that universities promote in order to create entrepreneurial behaviors and mindsets. In order to find out which is the most used category of mechanisms as well as the extent to which universities adopt them, we classified these myriads of information into six broad/macro categories that consist of:

Entrepreneurship education—includes activities that are intended to create human capital skills and knowledge by promoting critical technical, scientific, and business aspects

skills, creative thinking and problem-solving capabilities, and interpersonal and human skills and experiences.

Research activities—includes all initiatives undertaken to link theory with practice, to comprehend and use tools, techniques, and frameworks for data collection and analysis, for identifying and analyzing opportunities, and research methods for designing and developing new solutions.

Community and Networking creation—maps all those activities aimed at orchestrating networking collaboration among the major contributors of the knowledge triangle: industry consortia, university linkages, and government agencies, to improve the conditions for innovation, productivity, and wealth in a knowledge-based society.

Competition activities—includes all types of competition organized by universities with the aim to increase the interest in entrepreneurship as a career option by contributing to the development of entrepreneur's ability to plan and prepare a business plan, as well as to increase their awareness for business idea detection and development.

Structural support—consists of those mechanisms aiming to provide students with infrastructure, a virtual networking platform, and organizational and technical support in order to accomplish the practical attitudes with the new venture.

Financial support—includes the instruments and approaches used by universities to give access to financial sources for the practical realization of the entrepreneurial idea.

Table 3 presents the main patterns characterizing Social Entrepreneurship Education.

In relation to entrepreneurship education and research activities, we found out that learning patterns in use vary considerably among universities, spanning from the development of entrepreneurial skills through lectures, focus workshops, and special seminars to problem solving, business simulation games, prototyping entrepreneurship education, and work on real practical cases.

The most common learning approach in entrepreneurship is confirmed to be class lectures; however, they are highly combined with other more experimental and innovative teaching methods. We also found that there is a tendency in almost all universities to combine curricula and extra-curricular activities. In some cases, the learning activities are highly innovative consisting of interactive learning, active learning, experiential learning, peer learning, reflective learning, and project-based learning, which emphasizes experience, action, and reflective practices. Through these learning models, learners experience entrepreneurial ways of thinking, behaving, and acting, and are directly responsible for solving the entrepreneurial challenges by cocreating, testing, displaying, and developing solutions to global social challenges

Community and Networking creation: The analysis of the specific SE program studies considered in this paper shows that almost all of them are highly concentrated in trying to create a sort of entrepreneurship ecosystem aimed at promoting networking in order to engage both internal and external stakeholders around a shared vision. The initiatives consist of: meetings with entrepreneurs, business owners, or business practitioners; networking with patent agents, researchers, financing institutions, business support organizations and research organizations; building and maintaining regional networks, events and conferences; scouting among research teams and technology transfer support; interactive exchange of tacit knowledge at both local and global levels. The stakeholder community created around them includes: university leadership and administrators; students and alumni; academic faculty and staff; entrepreneurship educators and support; local entrepreneurs; funders of all types; small and large businesses in the private and public sectors; government and regional, national, and international organizations. Another key point consists of initiatives on awareness-raising in the classrooms and research groups, aimed at spreading entrepreneurial values and identifying business opportunities. In this aim, an important initiative that emerges as key for developing the skills and abilities for the forthcoming entrepreneurship is the direct engagement of entrepreneurs and champions who serve as leaders and promoters of the entrepreneurial culture. This direct engagement on the one hand allows universities to align theory and practice by providing them with

the knowledge, experience, and abilities to link theory and practice, and on the other hand helps students cope with the reality.

Table 3. The main patterns characterizing Social Entrepreneurship Education.

Social Entrepreneurship Education Patterns				
AIM	Learning Goals	Entrepreneurship Contents	Learning Approach	Stakeholders' Engagement
Be acknowledged with the context and scenarios	Sense, seize, understand, analyze, discuss/reflect, become aware, acquire basic and fundamental knowledge on entrepreneurship and social innovation. Understand tools and frameworks	Fundamentals of entrepreneurship, creative thinking Human societies, Entrepreneurs and society, Social Entrepreneurship. Communication, and community design Nonprofit sector, philanthropy	Education through: Lectures/seminars Debates Discussions Inspirational seminars and lectures Entrepreneurs talk	Entrepreneurs and professional talks on invitation Awareness of social challenges by discussing with members of the community
Opportunity seeking and Idea generation	Develop knowledge, skills, competencies, capabilities for the entrepreneurial process exploration of social innovation ideas	Innovative Entrepreneurship Disruptive Design: Games for Impact Technologies for Designing Change Idea generation Trendspotting and Future Thinking; Business Model, Design, Plan; Project and research methods for entrepreneurship; Entrepreneurial Marketing; Entrepreneurship in the social Sciences Social Entrepreneurship Lab; Entrepreneurial Finance and Law	Case studies, problem based learning, exercises, discussions, and case studies, Project work in teams Business plan competition, Business trips; Start—up events.	Events for Networking creation Visits to businesses Visits to technological parks and incubators
Act upon opportunities by designing new ventures	Entrepreneurial journey. Design, Apply, Build, Launch, Develop, implement business ideas, new ventures, new business models for technology intensive business. Innovate, grow, and create value with the new venture.	Design of social innovations Leadership and creativity Strategies for enterprise and social change; social venture development Design viable start-up Elaborate sustainable and scalable business and financial plans Creativity and Enterprising Behavior	Learning by doing Experiential learning Action-based learning Industrial visits, Incubation, Mentorship, Pitching and Venture competition Venture creation project Practical coaching and mentoring experimentation	Coworking and cocreating knowledge joint projects for solving societal and business (with businesses, banks, public administration, technology research institution for creating new ventures) Tight collaboration with entrepreneurship ecosystem

The Competition activities are highly used by most universities as they are considered to be an approach for entrepreneurs to test themselves on a real case. For different types of competitions, initiatives are promoted such as an annual idea competition, a business plan competition, entrepreneurship competition, and innovation camps. Through the organization of these initiatives, the aim is to improve participants' ability to present a real case, to identify and evaluate business opportunities, and to better qualify and present their business plan as well as to help them gather the resources needed to start a new venture. Overall, these initiatives are critical for engaging students directly in an action-based learning context and by allowing them to experience how companies could be launched and developed in practice. It is worth noting, however, that in most cases these competitions are more confined to an experimental phase aimed at evaluating their ideas. In some cases, grants and awards are provided; however, the fund raising remains a challenge for most.

Support activities consist of providing students with a set of technical and practical support, besides consultancy services, to support the conception and realization of the new venture. The universities considered in this study try to support their students to develop confidence and practical attitudes with new venture ideas through the provision of a comprehensive support infrastructure, a virtual networking platform for joint-working on projects, space and infrastructure for idea development, business incubation facilities alongside institutional support, consultancy for the business planning process, ongoing coaching, and mentoring for start-up.

The provision of such technical and practical support is considered as crucial for the knowledge transfer among mentors, academics, entrepreneurs, private companies, and business incubators as well as for assisting students to think objectively and to realize a groundwork for entrepreneurial ideas. However, we found that universities use just a small set of these activities, and most are just confined to providing students with consultancy about business planning, and mentoring on entrepreneur ventures, while few provide them with technical and infrastructural support. This might be again related to the problem of funding. In cases where universities have start-up centers or business incubation these services are provided; in other cases supporting activities are limited to knowledge transfer and exchange.

Financial support consists of award and incentive systems that are essential for motivating and rewarding faculty staff, researchers, and teachers who are supporting the interest in entrepreneurship. Therefore, universities set up reward mechanisms aimed at furthering entrepreneurship and innovation, such as business start-up grants, the facilitation of access to financing, and scholarship for students as well as learners. Mainly, sources of funding for entrepreneurial activities comes from the government or from industry in the form of easy access to financial grants and seed/venture capital, either for developing a venture inside the university on-campus incubator or as a follow-up to a business plan competition. However, funding is still considered to be the most important impediment for educational scope as well as for the development of new venture ideas.

4.2. Patterns and Knowledge Processes Characterizing SEE

A more detailed analysis of the diverse SE programs allowed us to outline some specific patterns regarding the knowledge processes and learning strategies that allow the creation of effective and performant SE mindsets and competencies in participants. The program analysis revealed that in order to guide participants, from trendspotting to recognition of opportunities, cognizance of the practical design of social solutions, and the creation of feasible new ventures, it is necessary to activate diverse knowledge processes and learning strategies.

The wide range of learning initiatives developed in the programs demonstrate that it is necessary to adopt both knowledge exploitation mechanisms to handle and grasp existing knowledge as well as knowledge exploration mechanisms in order to undertake practicable and actionable initiatives that create new knowledge and new solutions for the social entrepreneurial process.

As the previous literature in organizational learning has argued, we also found that learning approaches are diversified due to the different prior knowledge of the participants in relation to entrepreneurship competence, social innovation, and societal problems and challenges. Therefore, learning approaches are diverse in the initial phases of the course or for those participants who have low levels of knowledge of SE.

The aim in the first phase is to enable participants to exploit the exiting knowledge, grasp first-hand knowledge of entrepreneurship aspects, and learn how to sense, seize, and recognize opportunities. Consequently, the focus is on delivering and creating knowledge related to scenario understanding, the fundamentals and principles of social entrepreneurship, and opportunity recognition in order to provide a general understanding about how to identify and recognize emerging opportunities and trends, and how to inspire the creative thinking for new solutions.

In the second part of the programs, however, the aim is to create more action-based and practical capabilities for designing, developing, implementing, and sustaining social entrepreneurship ventures by adopting experiential and practical learning approaches so as to turn ideas into actions, to develop their own ideas, and create ventures (Wright et al. 2009).

On this aim, knowledge exploration mechanisms are activated to stimulate participants to create new solutions (knowledge), in strict collaboration with a vast range of stakeholders, and through the adoption of applied and action learning approaches.

In addition, the extent of engagement of stakeholders changes over time and in relation to the goals, and they span out from seminars, talks, debates, and meetings to high involvement through the cocreation of new social entrepreneurial initiatives, financial support, incubation, entrepreneurial forums, and coaching and mentoring, etc.

Therefore, it can be summarized that creating entrepreneurship mindsets and competencies is an evolutionary process that combines dynamic knowledge exploitation and exploration mechanism.

The different learning approaches, entrepreneurial knowledge, and different extents of stakeholders of SEE programs aimed at supporting the development of entrepreneurial mindsets for Social Entrepreneurship can be enclosed in a dynamic, process-based framework, as depicted in Figure 1.

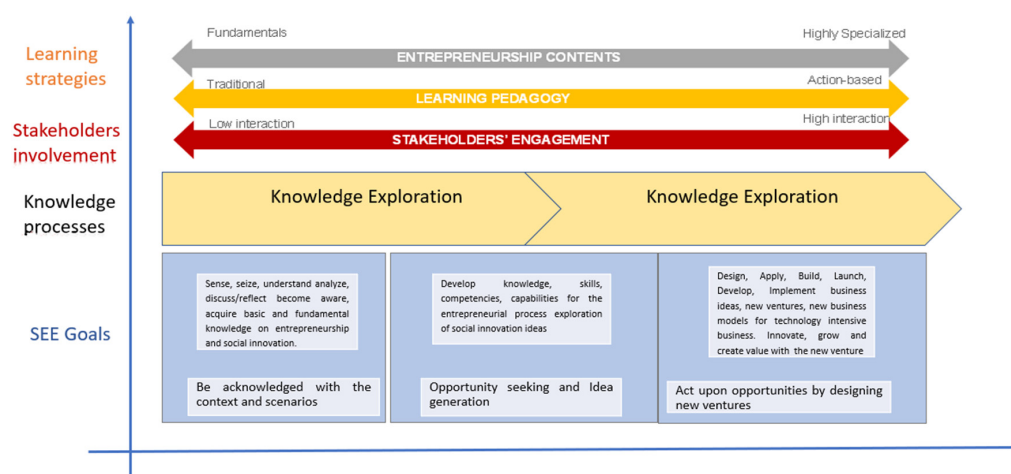


Figure 1. Knowledge exploitation/exploration for SEE Development.

Effective development of the SEE mindset requires the adoption of a multidisciplinary perspective and the activation of diverse knowledge processes to exploit and explore existing and new knowledge for solving innovatively and sustainably the different societal challenges.

5. Discussions and Conclusions

The main contribution of this paper is to explore, through a comparative analysis, the different knowledge mechanisms and learning approaches that need to be adopted by universities with the aim to develop the required mindset, competencies, and skills necessary for developing a social entrepreneurial mindset and behavior. To achieve such a goal, this paper follows a web content analysis of 10 study programs focusing on delivering social entrepreneurship.

The analysis of these cases provides various insights regarding the diversity of instruments, mechanisms, and initiatives that could be developed by universities in their attempt to promote entrepreneurial behaviors and attitudes. It emerges that there are a myriad of initiatives, processes, and knowledge mechanisms that are intertwined in different stages of the education program useful for creating the right human capital able to spur social innovative entrepreneurship.

In addition, the data analysis reveals that SEE programs are structured according to three main stages, which have different purposes in terms of learning goals, entrepreneurship contents, and stakeholders' involvement:

- Becoming aware and stimulating creativeness—this is the first stage of SEE programs that are intended to create the overall awareness and mindset of entrepreneurship as well as the general understanding and knowledge needed for starting and realizing a social entrepreneurial activity.
- Opportunity seeking and idea generation—this stage tends to stimulate students to identify new opportunities and to generate ideas that might respond to different social problems. In this stage, the focus is on creating the participants' specific entrepreneurship capabilities, competencies, and skills aiming for them to scan, sense, and act upon new opportunities and to capitalize on them in an entrepreneurial initiative, creatively and innovatively.
- Act upon opportunities by designing new ventures—the third stage consists of providing students with practical opportunities to develop their entrepreneurial abilities by designing new ventures and by solving specific problems through the ideation and management of new ventures.

These three stages are interlinked and structured in an evolutionary path that tries to guide the students toward effective development of entrepreneurial abilities, respond innovatively to new challenges, and accelerate and sustain the growth of their entrepreneurial ideas.

Therefore, according to the data analysis, we propose here a process-based framework for social entrepreneurial development that consists of a combination of exploitation and exploration knowledge mechanisms that seek, on the one hand, to create the initial and necessary cognizance, awareness, and comprehension of the specific scenarios and, on the other hand, to exploit multidisciplinary knowledge and competences in a highly dynamic and active way with the aim of turning opportunities into actions.

We argue that to create an effective social entrepreneurial mindset and competencies, the path toward entrepreneurial learning needs to be structured in a dynamic and evolutionary way where the first phases seek to inspire participants to comprehend the scenarios and to sense, seize, and recognize opportunities, and then, in a continuous and upgraded mode, it is necessary to evolve towards other phases where action-based activities become fundamental for exploiting the existing and new knowledge.

With regard to different evolutionary phases, the learning approaches change and are highly related to the prior knowledge/skills of participants and the goal they seek to achieve. Suitable approaches for instilling an entrepreneurial mindset consist of the active involvement of participants in practical and experiential learning projects.

In the same way, the extent of collaboration with the external environment is different. The role of stakeholders in knowledge exploration practices is mainly confined to seminars, debates, and meetings while their role and involvement becomes more essential and stronger during the processes that focus on knowledge exploitation activities.

In conclusion, this paper provides relevant insights regarding the main patterns that characterize SE education. Most importantly, this paper contributes to a clear identification of knowledge mechanisms and learning approaches that are intertwined in the aim to develop effective social entrepreneurial competencies.

Limitations and future research. As in all studies, this paper has its limitations. First of all, the adoption of a web-based content analysis of cases could constitute a drawback concerning the generalizability of its result. Another limitation of the study is the lack of integration of the data with field research (e.g., through interviews with the representatives of the universities). However, this could be the subject of further research.

Future research studies are necessary to reinforce the results of this study. First of all, future research is necessary to expand the sample and include other universities. From a methodological point of view, future research can focus on testing the goodness of the model proposed through focus groups and expert panels. Interviews with directors of the programs could be relevant to enrich the data as well as to validate with them the

framework here provided. Additionally, the realization of questionnaires with students will be an effective approach for measuring the long-term effect of the different phases of the process proposed and the outcomes of entrepreneurship education.

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