Project No: 2022-1-DE01-KA220-HED-000085694

ENTREHUBS

Creating Value Co-creation Hubs between Universities and Enterprises to foster the infusion of Entrepreneurship Education in Europe

Transnational Report on Entrepreneurship Education and Value Co-Creation

Karlshochschule International University

STIMMULI for social change

RESET

C4E CENTRE FOR ENTREPRENEURSHIP

BOSEV 2009 BÜYÜK ORTADOĞU SAĞLIK VE EĞİTİM VAKFI

HELLENIC REPUBLIC UNIVERSITY OF MACEDONIA RESEARCH COMMITTEE

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ENTREHUBS

Introduction: The ENTREHUBS project in a nutshell

ENTREHUBS project aims to provide concrete support for increasing the offer of Entrepreneurship Education (EE) in Higher Education Institutions (HEIs), especially in departments outside of business and economic faculties. The project through its training programme aims to support HEI educators in understanding and integrating effectively EE in their teaching activities enabling entrepreneurship with each wider meaning to find its place among and within the disciplines and become genuinely mainstream.

To this end, the project sets 4 strategic objectives:

- To develop an interdisciplinary and collaborative educational model for embedding EE in HEIs based on value cocreation processes and the establishment of strong links between academia-industry.
- To develop and deliver a flexible and easily adaptable EE training programme for HEIs educators that will stimulate their entrepreneurial understanding and skills.
- To develop teaching and learning resources for supporting HEI educators to foster the entrepreneurial attitudes, skills, and potential of their students.
- To support the development of student-oriented EE curricula that will empower students develop their entrepreneurial mindsets and competences.

In order to achieve the above-mentioned objectives, a mixed research approach has been followed consisting of a literature review on the state-of-the-art of EE and value creation in partner countries, an online survey and focus groups across the four partner countries of the ENTREUBS consortium (Germany, Greece, Cyprus, Turkey).

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Chapter 1: Research Methodology

Preparation

A mixed methodology approach was followed by combining qualitative with quantitative data collection mainly through online surveys and focus groups with HEI educators and students, as well as business owners and/or employees across the four countries of the ENTREHUBS consortium (Germany, Greece, Cyprus, Turkey). The proposed target groups included 100 HEI educators (25 educators per country) and 120 HEI students (30 students per country) to be reached to participate in the online survey. On top of that, the opinion and perspective of 20 HEI educators and professionals working in the business sector (business owners or employees) were considered through focus groups that were implemented either online or face-to-face.

The online survey questionnaires were created with the goal of exploring how EE is perceived and how (and if) EE is delivered across different disciplinary areas apart from the business-oriented ones (e.g. Faculty of Economics/Finance/Entrepreneurship, etc.). Each survey went from looking into the general understanding when it came to Entrepreneurship Education and Value Co-creation approach, as well as to the structure of existing Entrepreneurship Training Programmes.

The focus group was organized with the goal of tapping into the depth of knowledge of HEI educators and business representatives in each country, as well as putting emphasis on identifying the already established cooperation links between universities and the business community with the aim of capturing the nature and impacts of current collaborations towards EE diffusion. Since, HEI educators in different countries have different levels of familiarity with Entrepreneurship Education, and even more the business representatives, partners conducted the focus group discussion in an inclusive way to ensure that all participants can make valuable contributions and share their experiences based on their academic background and teaching experience.

All the findings are compiled in a cross-country study report showcasing the most important findings, to be able to categorize how Entrepreneurship Education is delivered in different disciplinary areas, and if there are cooperation links between universities and the business sector. This is a key result because a well-designed research procedure will inform with the most relevant data the design of an effective educational framework and training programme tailored to HEI educators' and students' needs.

Data collection

The target numbers for data collection were 100 HEI educators' and 120 students' online questionnaire and 20 educators and business representatives participating in the national focus groups. The participants of the focus group were selected with criteria of prior knowledge and experience of Entrepreneurship Education, academic background from non-

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business-related departments (e.g. Humanitarian Studies), business representatives willing to share their working experience and knowledge with university students.

The table below will present the planned versus actual results in terms of target group participants.

			Online Survey		***Focus Group***	
	HEI educators		HEI students		HEI educators & business representatives	
	Planned	Actual	Planned	Actual	Planned	Actual
Germany	25	25	30	30	20	14
Greece	25	25	30	41	20	20
Cyprus	25	27	30	61	20	20
Turkey	25	53	30	80	20	20
Other		1		1		
Total	100	**131**	120	**192**	80	**75**

Data analysis

Once the data were collected, STIMMULI, as the WP2 leader, analyzed and compiled the research findings and extracted the most important conclusions that will feed up the ENTREHUBS Educational Model.

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Chapter 2: GERMANY

State-of-the-art of Entrepreneurship Education and Value Creation in Germany

Introduction: Entrepreneurship Education in German Higher Education Institutions

Entrepreneurship education is a dynamic force shaping the future of higher education institutions (HEIs) in Germany. With a profound impact on innovation, job creation, and economic growth, the significance of fostering entrepreneurial mindsets and skills cannot be overstated. In a rapidly evolving landscape characterized by technological advancements, global interconnectedness, and shifting business paradigms, it has become imperative for institutions to define and continuously redefine the understanding of and approach to entrepreneurial education.

Germany's economy, known for its industrial prowess, thrives on innovation and technological advancement since the 19th century. Entrepreneurship education played an essential role over the decades. Wadhwani and Viebig (2021) give a historical overview of German entrepreneurship education: "From the 1820s onwards, many of the commercial schools were transformed into higher polytechnical schools, the birthplaces of early modern entrepreneurship education in Germany. The curriculum of the new schools initially entailed a combination of technical and commercial subjects, such as political economy, commercial geography, commercial history, bookkeeping, commercial correspondence, commodity composition, and calligraphy. […] Entrepreneurship education reappeared in German higher education with the formation of the higher trade schools (Handelshochschulen) […]. Funded primarily by the business community, the higher trade schools initially aimed at educating entrepreneurs and business leaders with a combination of broad humanist subjects and practical business knowledge […]. Their early curricula included courses in established academic disciplines such as law, economics, history, and geography, and more practical subjects such as bookkeeping, commercial technique, arithmetic, and correspondence […]. […] Alarmed by the decline of Mittelstand firms throughout the 1960s and 1970s, chambers of industry and trade (Industrie- und Handelskammer) re-introduced entrepreneurship education programs in the 1970s. […] Besides the chambers of industry and commerce, it was most notably German banks that offered entrepreneurship education. The German banks, especially the government-sponsored Sparkassen (savings banks), had a long tradition of supporting the small- and medium-sized companies of the Mittelstand […]. […] German universities were hesitant to integrate entrepreneurship education into their curricula. While the more practice-oriented universities and colleges (Fachhochschulen) began with entrepreneurship education in the 1980s […], it was not until 1997 that the first entrepreneurship chair was established at a university. […] Since the turn of the century, entrepreneurship education has proliferated rapidly in higher education in Germany. […] education courses can be found at almost all German universities […]. Large numbers of accelerators, incubators, consultancies, and other private entrepreneurship support organizations entered the scene by providing a mix of educational formats related to entrepreneurship" (Wadhwani and Viebig 2021).

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In terms of structural opportunities for entrepreneurship education, there are currently more than 420 universities in Germany compared to almost 330 universities in the mid-1990s (BMBF 2020). Private universities in particular are responsible for the significant increase in the number of universities on offer, especially in the technical college sector. In 2000 there were only 32 private universities of applied sciences, today there are almost 90. Private universities, especially private universities of applied sciences, are primarily aimed at people who want to study part-time and for reasons of further education, explicitly targeting entrepreneurs and people with an entrepreneurial mindset. As a point in case, more than a quarter of the programs on offer are designed as distance learning courses at private universities of applied sciences (compared to 3% at public universities of applied sciences). 41% of the bachelor's and 51% of the master's programs at private universities of applied sciences can also be completed on a part-time basis (compared to 7% or 18% at public universities of applied sciences). And: the proportion of courses that can be studied part-time is also higher at private universities than at public institutions (20% compared to 12%). This is one of the primary examples of how boundaries between academia and industry are increasingly blurring.

Beyond these hard facts on educational structure, the Global Entrepreneurship Monitor project has produced data on perceptions and attitudes towards entrepreneurship, enlightening the state of entrepreneurship and its role in and for education further. The survey from 2014 specifically examines social attitudes towards entrepreneurship, asking, for example, whether respondents see entrepreneurship as a good career option, and generally measuring several individual attributes, such as entrepreneurial intentions and perception of opportunities and of own capabilities.

Overall, the study shows that the desirability of entrepreneurship as a career choice is linked to the economic development of a country and to the availability of job opportunities. Particularly, it highlights that people in factor-driven and efficiency- driven value entrepreneurship much more than those in innovation-driven economies[1] (like Germany), hence entrepreneurial intentions are highest among the former and lowest among the latter. This is reflected in individuals starting their own business when other ways of earning an income are limited (EACEA 2016, p. 29 f.). Accordingly, in Germany 52% respondents between the ages of 18 and 64 answered that Entrepreneurship is a desirable career choice, but only 6% in total have entrepreneurial intentions (EACEA 2016, p. 30).

Adding nuances to these findings, the Eurobarometer survey from 2014 indicates that for many young Europeans (aged 15 to 29) entrepreneurship does not even seem to offer an alternative solution in the face of a job crisis. In the survey, more than half of the young respondents declared they had no wish to start their own business (52%). Just one out of five (22%) would like to start a business but still considered it too difficult. Generally, only a quarter of young Europeans are proactive about starting a business. The lowest values are recorded in Germany (11%), paralleling Greece. In contrast, the highest percentage of respondents aged 15 to 29 willing to become entrepreneurs were registered in Romania (33%) and Lithuania (32%) (EACEA 2016, p. 29).

In terms of actual entrepreneurial activity, Eurostat data from 2014 corroborates these insights by showing that only 1.8% of Germans between the ages of 20 and 24 are self-employed, between those 25- to 29-year-olds it is 4.4%. To put these numbers in context, Italy has the highest rate in Europe, with 13.7% and 16.2%, respectively (EACEA, 2016, p. 32). Exhibiting a slight improvement, but still limited entrepreneurial motivation, the Global Entrepreneurship Monitor 2022/2023 that reports a total early-stage entrepreneurial activity (TEA) among all ages and sexes of 9.1% ranks Germany 30th out of 49 countries (GEM 2022,

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p. 136). Experts rated Germany in terms of entrepreneurial education post-school 4.9, pushing that score below sufficiency (<5.0) for the first time since collecting the data (GEM 2022, p. 137). The GEM-Website also states: "According to GEM's 2021 survey results, only 5.8% of Germans plan to start a business in the next three years, third lowest among GEM Level A economies. […] Germany had among the lowest rates for Level A economies in response to the questions "There are good opportunities to start a business where I live" (48.2%), "It is easy to start a business in my country" (38.2%) and "I personally have the skills, experience and knowledge to start a business" (37.1%). The lower rates in these indicators of future entrepreneurial activity are also an acknowledgement of Germany's generally strong economy, with high employment rates and wages. When this is the case, many would prefer not to pursue entrepreneurship (GEM 2021)."

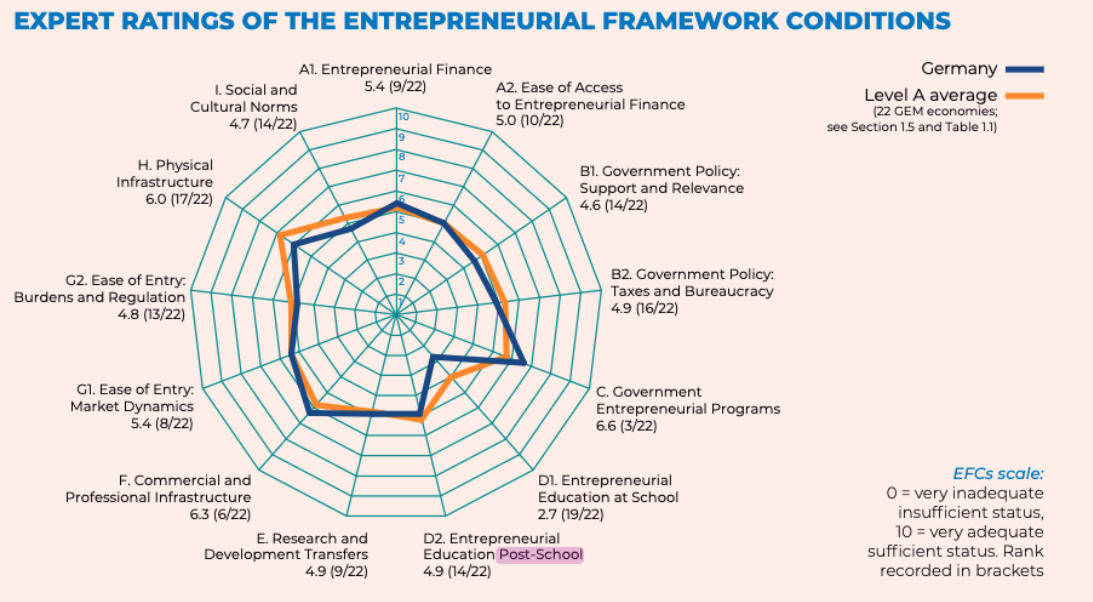

Figure 1 Expert ratings of the entrepreneurial framework conditions for Germany (GEM 2022)

Key Components-Teaching Approaches of Entrepreneurship Education

The landscape of entrepreneurship education in German HEIs is quite diverse. Aspiring to cultivate a new generation of entrepreneurial thinkers and leaders, HEIs recognize that traditional approaches to education fall short in preparing students for the dynamic entrepreneurial ecosystem. This section delves into the core elements that define the situation of entrepreneurship education in Germany, accentuating the symbiotic relationship between theoretical knowledge and practical experience, with experiential learning opportunities emerging as a beacon guiding students toward the realms of innovation and impact.

A state-of-the-art entrepreneurship education program comprises a holistic blend of theoretical foundations and practical skills. While theoretical knowledge establishes groundwork by introducing students to entrepreneurial concepts, frameworks, and business strategies, it is the practical application that transforms this knowledge into actionable wisdom. Equipping students with skills ranging from market analysis, financial planning, and risk management to communication, negotiation, and leadership, the program ensures they are armed with a versatile skill set that empowers them to navigate the multifaceted entrepreneurial landscape.

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Central to modern entrepreneurial pedagogy is experiential learning. The traditional lecture hall gives way to interactive workshops, case studies, immersive simulation games, and real business experiences that replicate the challenges and decisions entrepreneurs face. Students are tasked with making critical decisions, allocating resources, and devising strategies that mirror the challenges faced by entrepreneurs in the real world. This hands-on approach imbues students with practical wisdom, honing their ability to think on their feet, adapt to uncertainties, and devise innovative solutions. The experiential component instills the resilience necessary for entrepreneurs to persevere in the face of setbacks and pivot when circumstances demand. German state universities and technical colleges are therefore increasingly introducing mandatory internships to give students the opportunity to get to know everyday business life.

German HEIs recognize the value of bringing industry experts into the classroom. Guest lectures, workshops, lecture series (so-called “Ringvorlesungen”) and mentorship sessions featuring accomplished entrepreneurs, investors, and industry leaders provide students with insights that textbooks cannot convey. Direct interaction with individuals who have navigated the entrepreneurial journey enriches the educational experience, offering students firsthand knowledge of the trials, triumphs, and lessons that define the entrepreneurial narrative. A common way for HEIs is to have students write their final theses in cooperation with companies.

The integration of incubators and accelerators within entrepreneurship education programs creates an ecosystem where theoretical learning converges with practical implementation. These platforms offer students the opportunity to transform their ideas into tangible ventures, benefiting from mentorship, resources, and a supportive community. Incubators provide a nurturing environment for fledgling startups, while accelerators propel existing ventures toward rapid growth through intensive mentorship and networking.

Exploring the Integration of Entrepreneurship Education in Interdisciplinary Studies in Germany

The integration of entrepreneurship education with interdisciplinary studies goes beyond business boundaries. By incorporating disciplines such as technology, design, social sciences, and humanitarian studies, higher education institutions offer a holistic approach to entrepreneurship. This approach encourages students to think beyond conventional paradigms, fostering innovation and the creation of solutions that address multifaceted challenges. German HEIs are increasingly recognizing that interdisciplinary collaboration enhances graduates' ability to tackle complex problems in the entrepreneurial sphere of a VUCA world.

As of 2018, 24% of all degrees in higher education are in engineering, 25% in economics – this means that around half of all students majored in a subject or a combination of subjects in the technical-economic field (BMBF 2020). In theory this should underscores the critical role of entrepreneurship in higher education and in driving progress, as startups and new ventures contribute substantially to introducing novel products, services, and business models – fields of activities for technicians and economists.

German HEIs have embraced the interdisciplinary spirit, recognizing that the most impactful solutions arise from the convergence of diverse fields. This is supported by the increase in the number of students at universities of applied sciences. In particular, there is increasing

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demand for programs offered by private universities of applied sciences. In 2018, 22% of first-year students at universities of applied sciences decided to study at a private university – 10 years earlier this proportion was 14% (BMBF 2020). Private HEIs with a focus on applied sciences, like the Karlshochschule International University for example, focus on widely interdisciplinary studies to educate students towards a more holistic entrepreneurial approach.

Technology stands as a linchpin in today's entrepreneurial landscape, acting as a catalyst for disruptive innovations that reshape industries and societies. German HEIs, renowned for their scientific rigor, are intertwining entrepreneurship education with technology-related disciplines such as engineering, computer science, and information technology. This fusion not only equips students with the skills to develop innovative products and services but also instills an entrepreneurial mindset that enables them to identify market gaps and capitalize on emerging technological trends.

Innovation is inherently linked to design, where solutions are crafted with user-centricity and human experience in mind. German higher education institutions recognize the synergy between design thinking and entrepreneurship, offering programs that infuse design methodologies into entrepreneurial curricula. By encouraging students to empathize with users, ideate creative solutions, prototype rapidly, and iterate based on feedback, institutions nurture entrepreneurs who are adept at conceptualizing products that resonate with their target audiences. The Hasso-Plattner-Institute of the university of Potsdam for example founded the HPI School of Design Thinking (https://hpi.de/en/studies/design-thinking.html).

Knowledge Exchange and Collaboration with the Business Sector and Industry in Germany

Mentorship, networking, and collaboration with industry experts are integral to enhancing students' entrepreneurial skills and mindset. By partnering with established entrepreneurs, students gain insights into practical challenges and strategies. Notable collaborations include industry-academia research centers like the Fraunhofer-Gesellschaft, which exemplifies how academic institutions collaborate with industry to foster innovation. This mentorship-driven model of German entrepreneurship education ensures students are exposed to real-world scenarios, making them better equipped for entrepreneurial endeavors. Often students find external second examiners for their bachelor or master thesis, which is often suggested and promoted by professors.

The mentorship, networking, and industry insights that result from such collaborations and other politically incentivized programs provide students with a unique vantage point into the realities of entrepreneurship. One successful example: Under the umbrella of "EXIST-Gründungskultur", the Federal Ministry for Economic Affairs and Climate Action (BMWK) has conducted four funding competitions in recent years. EXIST has been successfully supporting start-up networks, universities, and non-university research institutions up from 1998. Since 2000, EXIST has also supported university graduates, scientists and students in the development of their start-up projects with financial grants and know-how. Currently, the EXIST-Potentials competition round is underway, supporting a total of 142 public and private universities (BMWK 2023).

German educational institutions cultivate partnerships with businesses, allowing students to engage in real-world projects, internships, and experiential learning opportunities to sharpen problem-solving skills, hone decision-making abilities, and equip students with the acumen to navigate challenges that extend beyond the confines of textbooks. These collaborations

embody the essence of learning by doing, a prominent example being dual study programs. Based on the German dual education system, dual study programs get more and more popular at universities of applied sciences. Like dual education job training, dual study programs divide study time at the HEI and training on the job at usually one employer. Students continuously apply and put theoretical knowledge on real business situations to the test, not the least to the benefit of fostering entrepreneurial thinking.

Finally, networking is the bedrock upon which successful entrepreneurial ventures are built. German HEIs are cognizant of this reality, fostering an ecosystem where students can establish connections with peers, professors, industry experts, investors, and potential collaborators. Entrepreneurial education transcends solitary classrooms, offering students opportunities to attend workshops, seminars, conferences, and networking events that expose them to a diverse array of perspectives. These connections not only facilitate the exchange of ideas but also lay the groundwork for potential partnerships, investments, and strategic alliances. Organizations like the Fraunhofer-Gesellschaft are collaborating with universities all over Germany (https://www.fraunhofer.de/en/about-fraunhofer/profile-structure/cooperation-with-universities.html).

Exploring the Concept of Value Creation in the Higher Education Institutions' Curriculum

In response to growing demand, German higher education institutions are integrating value creation, social entrepreneurship, and sustainable business practices into their entrepreneurship curricula. This approach reflects the increasing emphasis on socially responsible entrepreneurship. By teaching students how to align their ventures with societal and environmental needs, institutions promote sustainable business practices. Incorporating value creation and social entrepreneurship into the curriculum instills a sense of purpose in aspiring entrepreneurs, contributing to a more ethical and sustainable business landscape.

In this context, the concept of value creation has been extended beyond traditional profit-centric paradigms, particularly within the entrepreneurship education landscape of Germany. It goes beyond financial gains to encompass the multifaceted impact of a business on stakeholders and society at large. German higher education institutions recognize that teaching entrepreneurship solely as a pursuit of profits is no longer sufficient, hence programs are tailored to imbue students with the understanding that entrepreneurial ventures have not only the potential, but also a certain obligation to generate social, environmental, and cultural value in addition to economic value. This holistic approach fosters a mindset that transcends conventional business boundaries, prompting students to consider the broader implications of their ventures. Especially by infusing the curriculum with case studies, projects, and mentorship that emphasize the impact of business on social and environmental issues, institutions empower students to create ventures that drive change while generating sustainable profits.

Sustainability has shifted from being an optional consideration to a fundamental requirement for entrepreneurial success. German higher education institutions are weaving sustainability principles into entrepreneurship education, highlighting the importance of ecological responsibility and sustainable business practices. Students are exposed to multiple concepts and approaches in this realm, such as circular economy, responsible supply chain management, or environmental stewardship.

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An exemplary case of combining social entrepreneurship and sustainable businesses in an educational context is the collaboration between HEIs and the Economy for the Common Good Movement. Two study programs emerged from the partnership focusing on sustainable entrepreneurship (https://www.ecogood.org/ma-applied-ecg/), as well as courses a several HEIs in Germany – e.g. the University of Applied Sciences Münster (https://www.oekonews.at/?mdoc_id=1113443) or the University of Applied Sciences Kempten (https://www.hs-kempten.de/praxisprojekt-zur-gemeinwohloekonomie-ein-voller-erfolg-854).

Innovations and Best Practices in Entrepreneurship Education

Leading German HEIs are driving innovations in entrepreneurship education. They establish successful incubators, accelerators, and entrepreneurship centers that provide resources, mentorship, and funding opportunities for aspiring entrepreneurs. These initiatives create an ecosystem where budding entrepreneurs can refine their ideas, access funding, and receive guidance from experienced mentors. Notable examples include the LMU Entrepreneurship Center at Ludwig Maximilian University (https://www.iec.uni-muenchen.de/index.html) and the HHL Leipzig Graduate School of Management's Center for Entrepreneurial and Innovative Management (https://www.hhl.de/faculty-research/competence-centres/ceim/).

These incubators and accelerators have become integral components of the entrepreneurship education ecosystem, often directly harvesting practitioners' knowledge, networks, and other resources by partnering with established companies and institutes. In Germany, examples of such include the Munich-based UnternehmerTUM (https://www.unternehmertum.de/) and the Berlin-based Axel Springer Plug and Play (http://www.axelspringerplugandplay.com/), offering tailor-made programs that guide startups through every phase of development, from ideation to market entry.

Venture competitions represent another avenue through which German institutions foster a culture of entrepreneurship. These contests challenge students to develop comprehensive business plans, pitch their ideas to seasoned investors and entrepreneurs, and receive valuable feedback. Competitions like the German Startup Awards (https://germanstartupawards.de/) not only provide a platform for students to showcase their innovative ideas but also grant them exposure to potential investors, collaborators, and mentors.

Finally, innovative approaches to entrepreneurship education generally redefine the conventional classroom. German institutions are leveraging technology to create virtual entrepreneurial ecosystems, allowing students to collaborate on projects, access resources, and engage with industry experts from across the globe. Moreover, gamified learning experiences transform mundane exercises into engaging challenges, cultivating critical thinking and problem-solving skills. By embedding innovation within the very fabric of education, institutions foster an entrepreneurial mindset that thrives on curiosity, experimentation, and adaptation.

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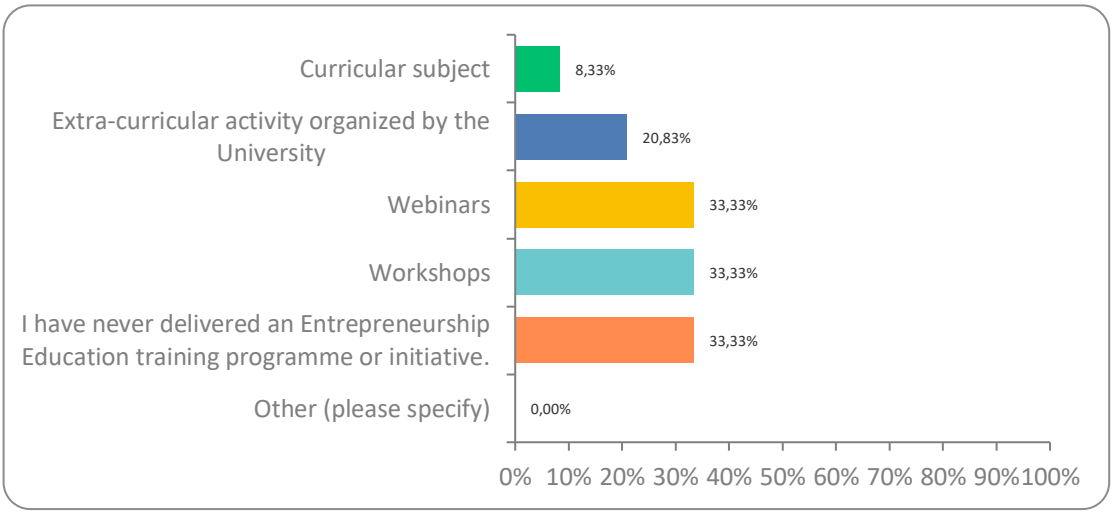
Online Survey for HEI educators

The survey was deployed by Karls International University in collaboration with STIMMULI using Survey Monkey between March and May. In total 25 educators answered the survey in conformity with the GDPR regulations.

Educators' profile

The participants are employed as lecturers, educators, researchers, associate professors, managing directors and trainers from Kalrs University, FAU, and Humbolt University. Out of the 27 participants, 16 are male, 10 are female, one participant, who preferred not to mention, with their teaching experience to vary from 2 to 25 years old, which means that some of them have 'witnessed' the transformation of Higher Education in Germany, and the progress of entrepreneurship education teaching through different approaches. Finally, the research sample consists of educators representing different faculties, such as Cultural Studies, Business Administration, Social Sciences, International Relations, Economics, Technology Department, German as a foreign language, Sociology, and Human Resources; as indicated, most of the respondents teach in non-business-oriented departments, which will give us a clear overview



of the state-of-the art on EE in non-business faculties.

Introduction of Entrepreneurship Education and Value Creation Pedagogies

As part of the survey, we investigated the experience of educators in delivering entrepreneurship education programmes, as well as the approaches that they apply. More specifically, only 8,33% of respondents indicated that they have delivered EE training as part of a curricular subject. This relatively low percentage suggests that, for most educators, EE is not formally integrated into the standard curriculum. It indicates that while entrepreneurship

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is gaining attention, it remains largely underrepresented within the core academic programs at many institutions.

A larger portion, 20,83%, reported having delivered EE training as an extra-curricular activity organized by the university. This suggests that universities are providing students with opportunities to engage in entrepreneurship training outside of their regular coursework. While extra-curricular activities can offer flexible and informal learning environments, they may not reach all students or be as accessible as curricular offerings.

33.33% of respondents have delivered EE training through webinars, making this one of the most common formats. Webinars provide a flexible, scalable platform for delivering content to a broad audience. The popularity of webinars suggests that educators and institutions are leveraging digital tools to provide entrepreneurship training, particularly in response to the increased demand for online learning environments.

Similarly, 33,33% of educators have conducted EE training through workshops, indicating that hands-on, interactive sessions are also a common approach for entrepreneurship education. Workshops provide students with the opportunity to engage in practical, experiential learning, which is often essential for developing entrepreneurial skills. The hands-on nature of workshops aligns well with the goals of EE, which focus on problem-solving, creativity, and innovation.

A notable 33,33% of respondents indicated that they have never delivered an EE training program or initiative. This suggests that a significant portion of educators have not been directly involved in EE, which could point to either a lack of demand within their institutions or a need for more professional development opportunities for educators to engage with EE programs. None of the respondents selected the "Other" option, indicating that the categories provided in the survey cover the primary ways in which EE training is delivered by educators.

In terms of collaboration with external stakeholders for delivering such EE programmes, the majority of the educators responded that they have never collaborated with stakeholders beyond the university campus. However, they were 11 educators, who have relevant experience from engaging representatives of the business sector, such start-ups or small and medium enterprises, and from inviting entrepreneurs as guest speakers, mentors or coaches for the students, participating in hackathons, designing service-learning activities, bringing talented students & businesses together (Circles of Excellence) to co-design labs addressing real-world challenges. One of the educators shares *“I've collaborated with companies as use cases an examples for entrepreneurship. Also, I've worked with non-profits from the area of sustainable economics, non-financial reporting and degrowth”*, while another one shares “Company projects where external organizations got solutions to real world challenges like marketing, strategy, business models etc.”

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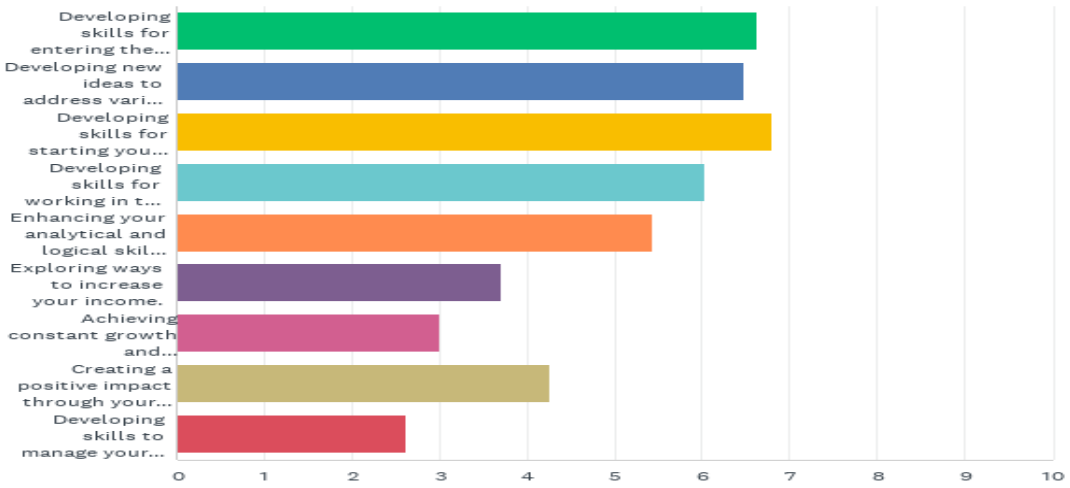

When educators were asked to rank a set of statements on what they consider that Entrepreneurship Education is on a scale from 1 (what it is) to 9 (what it isn't), the average responses are ranking as follows:

1. Developing skills for starting your own business.
2. Developing skills for entering the labor market.
3. Developing new ideas to address various problems/issues.
4. Developing skills for working in the business sector.
5. Enhancing your analytical and logical skills for enabling problem solving.
6. Creating a positive impact through your work.
7. Exploring ways to increase your income.
8. Achieving constant growth and development.
9. Developing skills to manage your time.

The rankings provided by university educators suggest that Entrepreneurship Education (EE) is seen as a broad, multifaceted discipline focused primarily on developing skills for entering the labor market and generating new ideas to solve problems. While traditional aspects such as starting a business and working in the business sector are acknowledged, they are not viewed as central to the purpose of EE. Instead, educators place greater emphasis on fostering problem-solving abilities, creativity, and creating a positive impact through entrepreneurship. Interestingly, increasing income and achieving constant growth are ranked as less important, reflecting a shift away from purely profit-driven goals towards more sustainable, socially impactful outcomes. This broader view of EE highlights its relevance not only in business but across various fields, aligning with modern perspectives that entrepreneurship should equip students with transferable skills for diverse professional and societal contexts.

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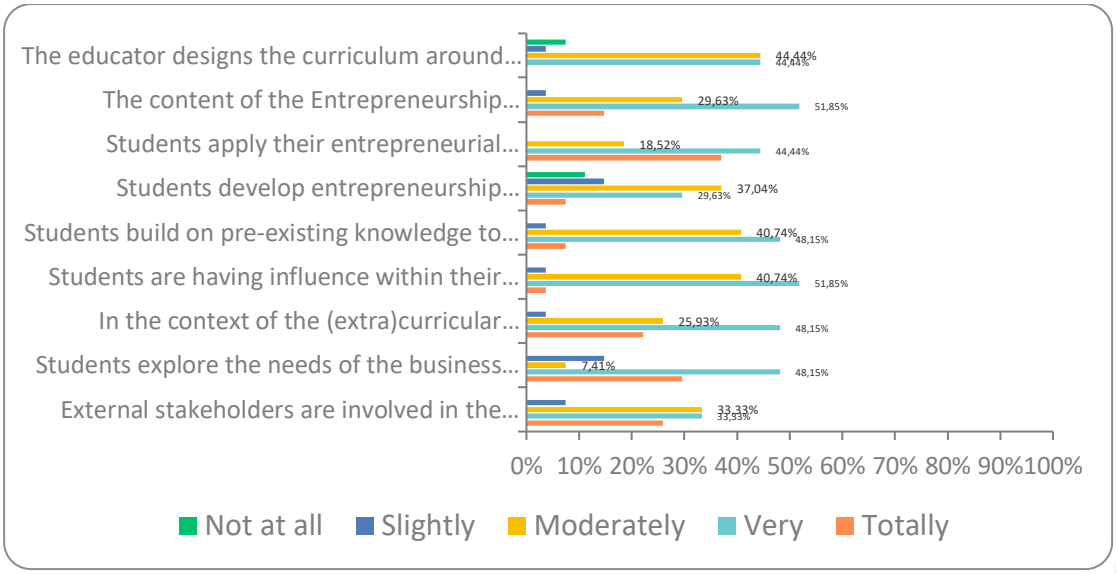

The responses to the question about the value co-creation approach show strong agreement that Entrepreneurship Education (EE) programs should derive content from students' and business sector needs, with 66.67% of respondents either "very" or "totally" agreeing. There is also considerable support for students applying their entrepreneurial knowledge to create social, cultural, or financial value, with 81,48% strongly agreeing (44,44% "very" and 37,04% "totally"). However, the idea that students should focus on creating economic value for business owners received more varied responses, with only 37,04% suggesting a broader interpretation of value creation beyond profit. There is a strong belief that students should build on pre-existing knowledge to generate value, with 88,89% agreeing "very" or "totally". Similarly, collaborating with business stakeholders and having influence within the community are seen as essential. The responses indicate broad support for the value co-creation approach, focusing on both business and community engagement, but with a more nuanced view on profit-driven entrepreneurship.

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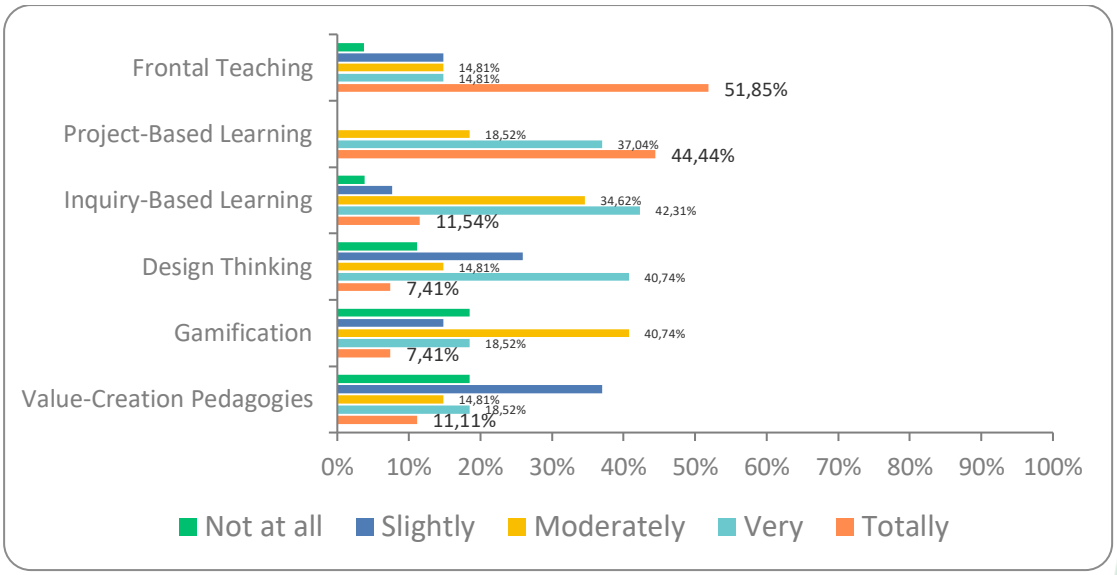

Educators' familiarity with various teaching approaches reveals that Project-Based Learning is the most familiar method, with 81,48% of respondents rating their familiarity as "very" or "totally". This suggests a strong preference and awareness of this method's potential in fostering practical, hands-on learning experiences. Frontal Teaching, a more traditional approach, is also widely recognized, with 51,85% reporting they are "totally" familiar, indicating that while it remains popular, it may not be as favored in modern educational contexts. Inquiry-Based Learning follows closely, with 53,85% of respondents familiar at higher levels ("very" or "totally"), demonstrating its relevance in encouraging critical thinking and independent exploration in EE.

Design Thinking is moderately familiar to educators, with 48,15% rating their familiarity as "very" or "totally", suggesting that while recognized, it might not be as fully integrated into teaching strategies. Gamification shows a mixed response, with 40,74% familiar to a moderate degree but less adoption at higher familiarity levels. Finally, Value-Creation Pedagogies rank lowest in terms of familiarity, with 37.04% of respondents reporting slight familiarity, highlighting a potential gap in educators' understanding or use of this approach despite its relevance to entrepreneurship education. This suggests the need for greater exposure or professional development opportunities in integrating value-creation methodologies into educational practices.

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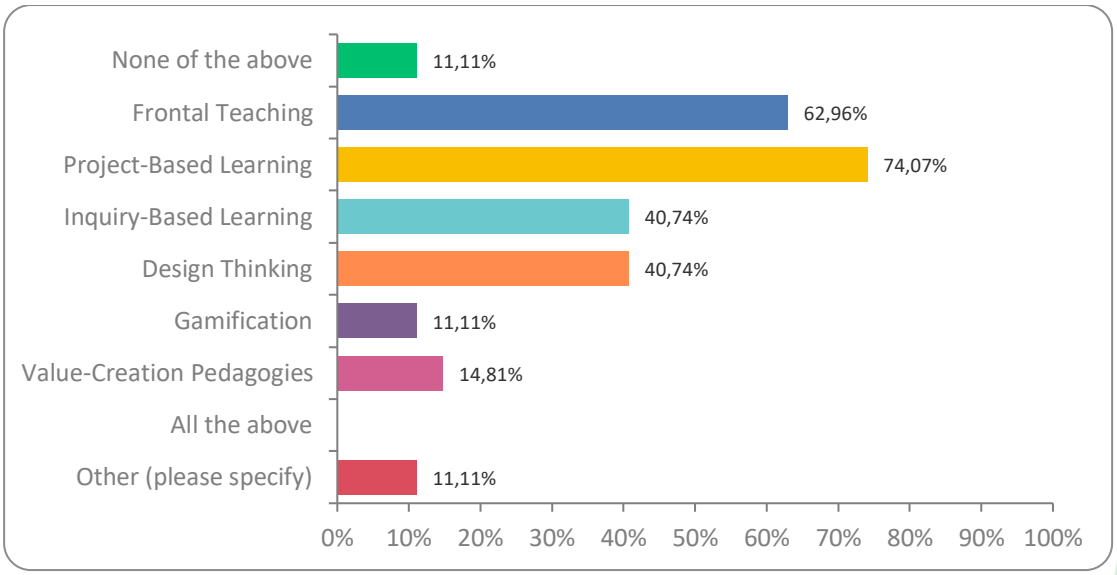

When it comes to educational approaches that respondents have used in their teaching, the data reveals that Project-Based Learning is the most commonly used approach in teaching Entrepreneurship Education, with 74,07% of educators reporting its use. This indicates a strong preference for hands-on, experiential learning where students actively engage in real-world projects to develop entrepreneurial skills. Frontal Teaching, though more traditional, is still widely employed by 62,96% of educators, suggesting that many still rely on lecture-based methods, possibly in combination with more interactive approaches. Both Inquiry-Based Learning and Design Thinking are used by 40,74% of respondents, indicating that these creative and problem-solving methodologies are gaining traction but are not yet as dominant as project-based approaches.

Value-Creation Pedagogies, which are specifically relevant to fostering entrepreneurial mindsets, are used by 14,81% of educators, suggesting there may be a gap in integrating this method more widely into EE programs. Gamification, with only 11,11% of respondents indicating its use, seems to be less popular, potentially due to its perceived complexity or limited applicability in certain contexts. Interestingly, 11,11% of respondents have not used any of the listed approaches, while an equal proportion chose "Other," suggesting that some educators may rely on alternative methods, such as service learning based on one responses, or are not as actively engaged in EE instruction, as two educators reponded. The variety of methods used reflects a balance between traditional teaching approaches and more innovative, student-centered techniques in entrepreneurship education.

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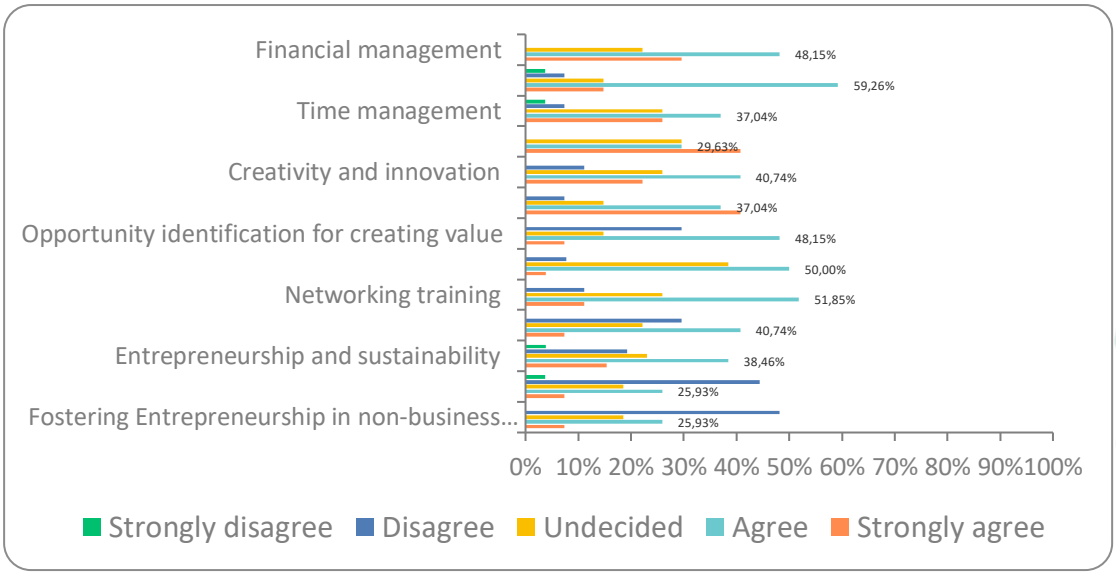
Planning and implementation of existing EE programmes addressed to HEIs students.

At this part of the survey, we investigated educators' perceptions on the structure, planning and implementation of existing EE training programmes addressed to HEI students, in order to explore potential connections of the current projects with the value co-creation approach as per methodology, purpose and application.



Educators' responses regarding existing Entrepreneurship Education (EE) programs highlight several key components that are widely included in such programs. Financial management and marketing training received strong agreement, with 77,78% and 81,48% of respondents agreeing or strongly agreeing, respectively. This suggests that both financial literacy and marketing skills are considered crucial elements in entrepreneurship education. Establishing your own startup was also well-supported, with 77,78% of educators indicating that this is a key focus, aligning with the practical outcomes expected from EE. Creativity and innovation were emphasized by 62,96%, though 25,93% were undecided, reflecting the growing but still variable integration of these skills into curricula. Leadership and time management training also received similar levels of agreement (59,26% and 62,96%), highlighting their importance in developing well-rounded entrepreneurs.

However, some components were less emphasized. Entrepreneurship and cultural diversity and entrepreneurship and sustainability received lower agreement, indicating that these areas may need greater focus in EE programs. Networking training was viewed positively by 62,96%, but with 25,93% undecided, there may be room for enhancing networking opportunities in curricula. The lowest area of agreement was fostering entrepreneurship in non-business

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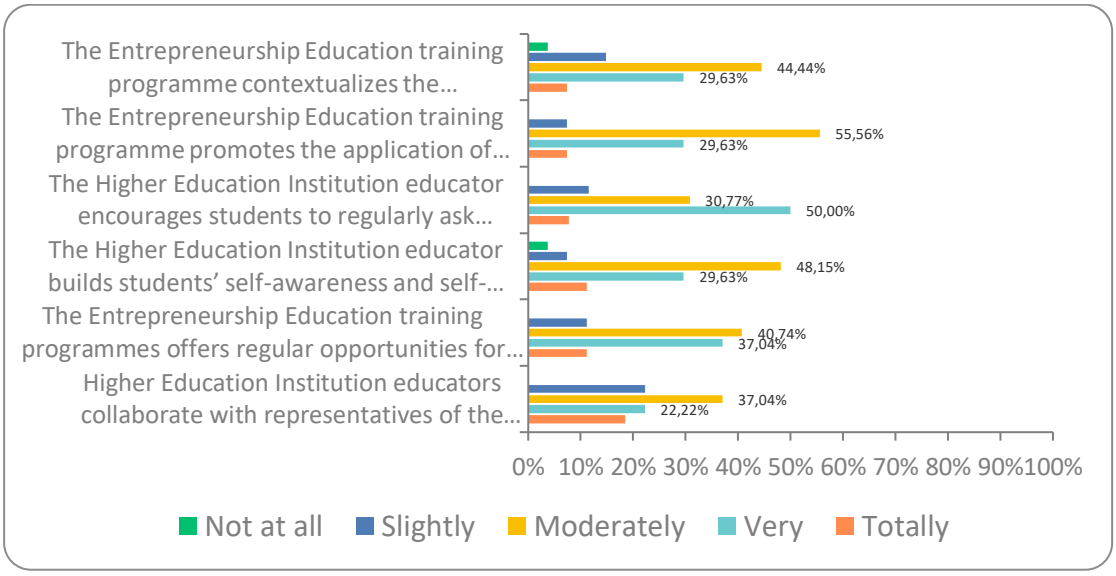
sectors, with 48,15% disagreeing, suggesting that current programs are still largely business-oriented, and expansion into non-business disciplines remains an area for improvement. Overall, the data highlights that while core entrepreneurial skills are well-covered, there is potential to broaden the scope of EE programs to include more diverse, interdisciplinary approaches.



When educators were asked to what extent they agree on the structure of existing EE programmes and the role of educators in such programmes, their responses show a strong focus on fostering practical application and personal development. The highest level of agreement is observed in the statement that HEI educators encourage students to ask questions, explore alternative solutions, and create value for others, with 57,69% of respondents rating it as "very" or "totally". This indicates that educators believe EE programs are designed to develop critical thinking and problem-solving abilities among students. Another highly rated aspect is the focus on regular opportunities for students to collaborate with business sector representatives, where 48,15% agreed "very" or "totally", emphasizing the role of practical, industry-based experiences in EE programs.

Moreover, educators rated the promotion of self-awareness, confidence, and resilience within EE programs highly, with 48,15% agreeing "very" and 11.11% agreeing "totally". This suggests that building personal and entrepreneurial attributes such as discipline and adaptability is a significant component of EE programs. However, there was moderate agreement regarding the contextualization of entrepreneurial knowledge based on students' academic backgrounds, with 74,07% agreeing "moderately" to "very". Additionally, while promoting value creation (social, cultural, or financial) through entrepreneurial competences garnered a weighted average of 3.3, some undecided responses suggest that this aspect could be more consistently emphasized across programs. Overall, the responses indicate a balance between skills development and industry collaboration, though there is room for further integration of entrepreneurial concepts tailored to diverse academic disciplines.

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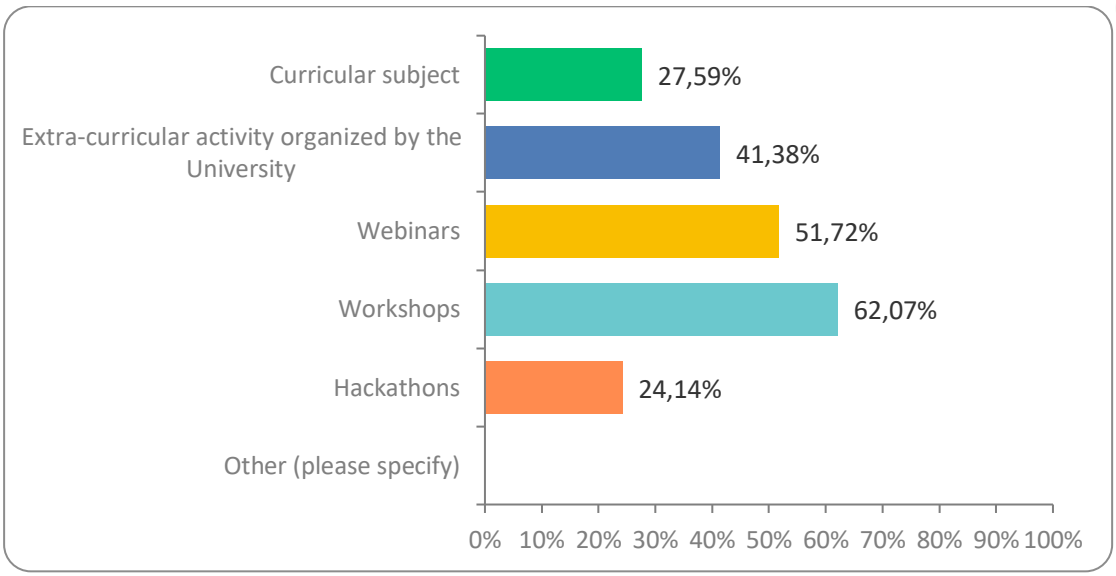
Online survey for HEI students

The survey was deployed by Karls International University using Survey Monkey between March and May. In total 31 students answered the survey in conformity with the GDPR regulations.

Students' profile

The students participating in the survey consist of 23 Bachelor students and 8 Master students; the majority of them are students of the KARLS University, while there are two students from Albert-Ludwigs-University in Freiburg, and Leibniz Universität Hannover. Out of the 31 respondents, 21 are female, and 10 are male. Finally, the research sample consists of students attending courses in different faculties, such as Humanities, Economics, Social Sciences, Political Science, International Relations, Environmental Governance (MSc), Politics, Philosophy and Economics (PPE), Atlantic Studies, and Management. Given that the majority of respondents study at the KARLS University, it will offer us valuable data on the state-of-the-art of EE training programmes in the partner university of the ENTREHUBS consortium.



When they asked whether they have participated in one of the above-mentioned activities where the topic was related to business or entrepreneurship, only 27,59% of the students responded that they had attended curricular subjects related to business and entrepreneurship, while the majority stated that they have attended relevant workshops (62,07%) and webinars (51,72%). Participation in extra-curricular activities organized by the university (41,38%) indicates a high interest from the university to develop entrepreneurial competences among its students. Participation in hackathons (24,14%) gathered less

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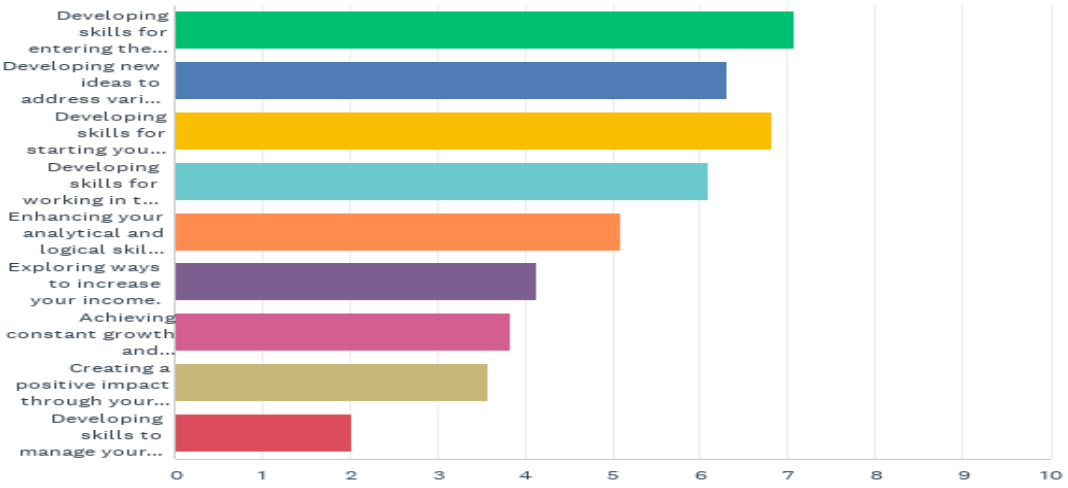
responses, although it is an activity that brings together students, educators and representatives of the business sectors, mainly entrepreneurs, to interact, co-design entrepreneurial ventures and receive

When students were asked to rank a set of statements on what they consider that Entrepreneurship Education is on a scale from 1 (what it is) to 9 (what it isn't), the average responses are ranking as follows:



1. Developing skills for entering the labor market.
2. Developing skills for starting your own business.
3. Developing new ideas to address various problems/issues.
4. Developing skills for working in the business sector.
5. Enhancing your analytical and logical skills for enabling problem solving.
6. Exploring ways to increase your income.
7. Achieving constant growth and development.
8. Creating a positive impact through your work.
9. Developing skills to manage your time.

The ranking scale above indicates that EE is mainly related to employability aspects, like entering the labor market, working in the business sector, or starting a new business. However, it is quite optimistic for the future of EE in Germany the fact that the third most prominent response on what students consider as EE is the development of new ideas to address various problems, which brings out the social aspects of entrepreneurship. The development of personal skills, like time management, analytical skills, personal growth, has been responded by less students. Finally, it seems that the positive impact creation through entrepreneurship, which is at the core of value creation approach, is not so familiar to students.

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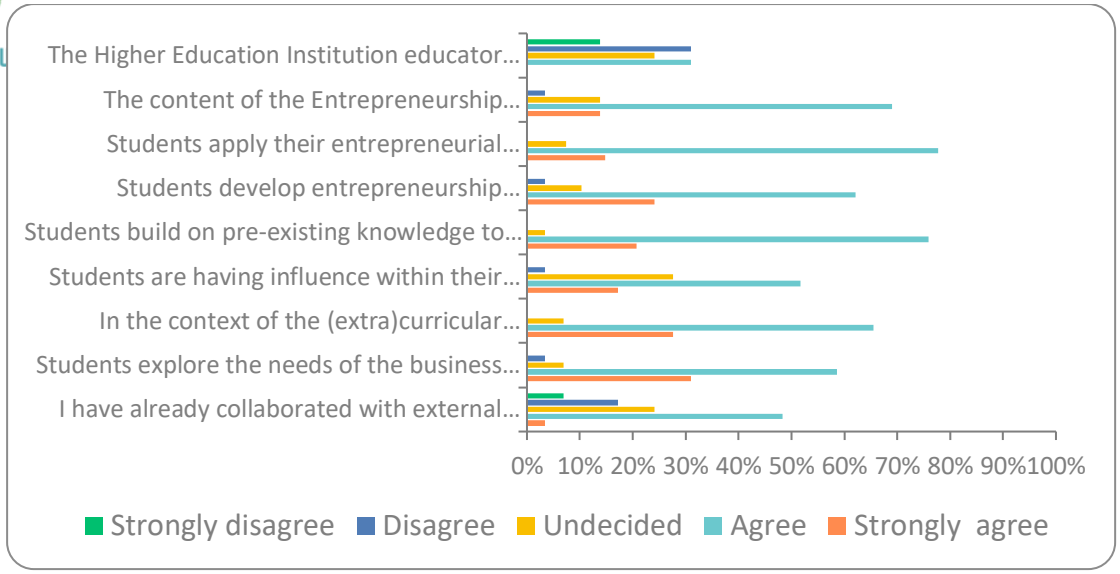

With regards to the structure of the curriculum in German HEIs, A significant portion of respondents either disagree or strongly disagree (44.82%) with the statement that educators deliver a fixed curriculum, suggesting that many respondents believe the curriculum may be flexible or adaptive, potentially accommodating input from other stakeholders such as students or external partners. However, 31.03% agree that the curriculum is fixed, indicating some respondents view it as structured and less open to modification.

When they asked if the content of the EE training programmes is derived from students' and business sector's needs, the majority of respondents (82.76% agree or strongly agree) believe that the EE content is actually responsive to both parties needs. This highlights the perception that the EE curriculum is not solely theoretical but designed to meet practical, real-world requirements, indicating alignment with the value co-creation approach.

In addition, a substantial majority (92.59%) of respondents agree or strongly agree with this statement, which reflects strong support for the idea that EE programs encourage students to actively apply their knowledge to create value beyond academic environments. This is a key aspect of value co-creation, where students generate outcomes that benefit wider communities or stakeholders.

The majority (86.21%) of respondents agree or strongly agree that students are engaged in entrepreneurial projects aimed at creating economic value for businesses. This indicates that EE programs are perceived as fostering practical entrepreneurial skills with a focus on economic outcomes, aligning closely with business goals and contributing to the industry's profit-making efforts.

With regards to utilization of students prior knowledge, the vast majority of respondents (96.55%) agree or strongly agree that students are building on their prior knowledge to create value, emphasizing the role of EE programs in enhancing students' existing skill sets and using them to contribute to various sectors. This aligns well with the concept of co-creation, where students leverage their knowledge for societal, cultural, or economic benefits.

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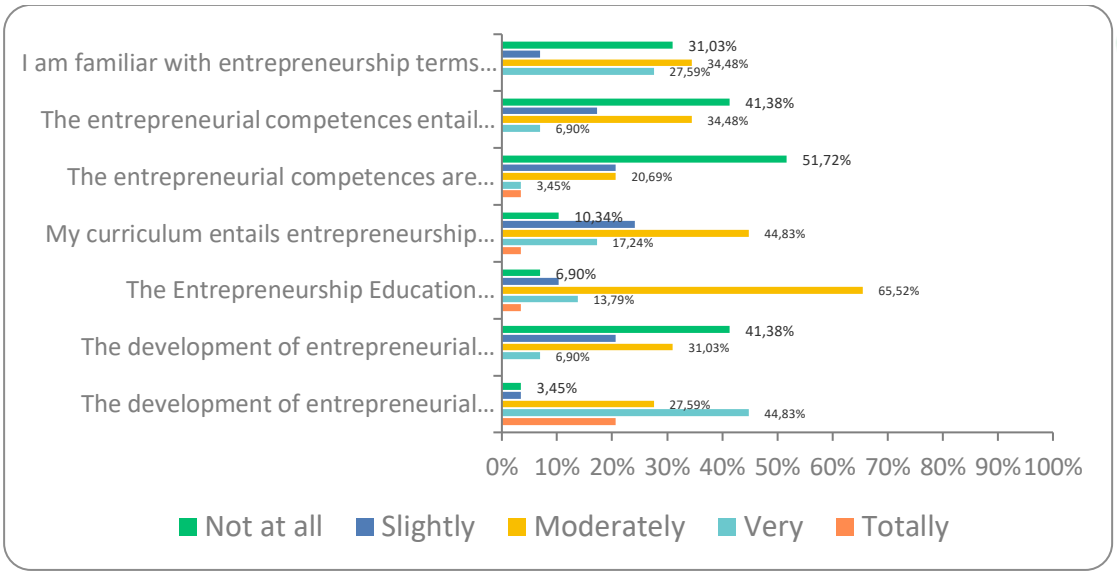
Another interesting aspect indicates that around 68.96% of respondents agree or strongly agree that students are influential within their university and community. However, a notable portion (27.59%) is undecided, indicating some uncertainty about the extent of this influence. This may suggest that while students are perceived to play a role in their communities, the formality or structure of their influence varies.

When it comes to academia-industry collaboration, a large proportion of respondents (93.11%) agree or strongly agree that universities actively bring students into contact with business representatives through extracurricular or curricular activities, fostering value creation. This points to a strong alignment with the value co-creation approach, which emphasizes interaction with external stakeholders as a key part of the learning process. In the same way, the majority of respondents (89.65%) agree or strongly agree that students collaborate with business stakeholders to explore industry needs. This reflects a strong emphasis on practical engagement with businesses as part of EE programs, where students actively seek to understand and address the requirements of the business sector through direct interaction.

Regarding previous experience from collaboration with business stakeholders, nearly half (51.73%) of respondents agree or strongly agree that they have collaborated with external stakeholders within their EE programs, while 24.14% remain undecided, and 24.14% disagree or strongly disagree. This split suggests that while there are opportunities for collaboration, not all students may have had the chance to engage with external stakeholders, indicating room for improvement in providing such opportunities to all students.



At this part of the survey, students were asked to rate 7 statements based on their level of agreement or familiarity. A combined 62.07% of respondents rated themselves as either moderately or very familiar with entrepreneurship terms and concepts, showing that a majority have some level of understanding. However, a notable 31.03% of respondents are not at all familiar with these terms, suggesting that a significant portion of students lack basic knowledge of entrepreneurship. This indicates a bimodal distribution where students are

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either quite familiar or completely unfamiliar with entrepreneurship concepts, highlighting the need for introductory-level education to close this knowledge gap.

The majority of respondents (58.62%) either slightly or strongly disagree with the idea that entrepreneurial competences are limited to technical skills, suggesting that students recognize the importance of soft skills and cross-disciplinary competencies in entrepreneurship. Only 6.90% agree strongly with this statement, supporting the notion that most respondents have a more holistic understanding of entrepreneurial competence that includes leadership, creativity, and problem-solving skills in addition to technical ones.

A significant portion of students (72.41%) either strongly or slightly disagree with the statement, indicating a broad awareness that entrepreneurial competences are valuable beyond firm establishment. Only 6.90% agree, suggesting that most students understand the relevance of entrepreneurial skills in a wide variety of contexts, including social entrepreneurship, intrapreneurship (within organizations), and other non-business domains.

Most respondents (65.52%) report that entrepreneurship education is at least moderately present in their curriculum, whether through curricular or extracurricular activities. However, 10.34% of students stated that their curriculum does not entail any form of EE, while 24.14% reported only a slight presence. These results indicate that while EE is integrated into many curricula, there is room for greater inclusion of entrepreneurial training opportunities across the board, especially for those who currently lack exposure.

Most respondents (82.76%) agree at least moderately that their EE programs provide opportunities to create value for others. This aligns with the concept of value co-creation, indicating that the majority of students are being trained to apply entrepreneurial skills in ways that benefit stakeholders, communities, or industries. However, 17.24% remain on the lower end of the scale, suggesting some students may not yet see or experience these value-creating opportunities in their own programs.

A majority of respondents (62.07%) disagree with the statement that entrepreneurial competence development is confined to business faculties. This suggests an understanding that entrepreneurial skills are transferable and valuable across disciplines such as social sciences, arts, and engineering. Only 6.90% of respondents strongly agreed with the statement, suggesting that misconceptions about the scope of entrepreneurship education still exist, though they are not widely held.

A significant majority (79.31%) of respondents agree either strongly or moderately that developing entrepreneurial competences can positively impact non-business faculties. This highlights a broad recognition of the cross-disciplinary benefits of entrepreneurship education, especially in areas like social entrepreneurship, policy innovation, and cultural impact. Only a small percentage (6.90%) disagreed with this idea, indicating widespread support for extending entrepreneurship education beyond traditional business settings.

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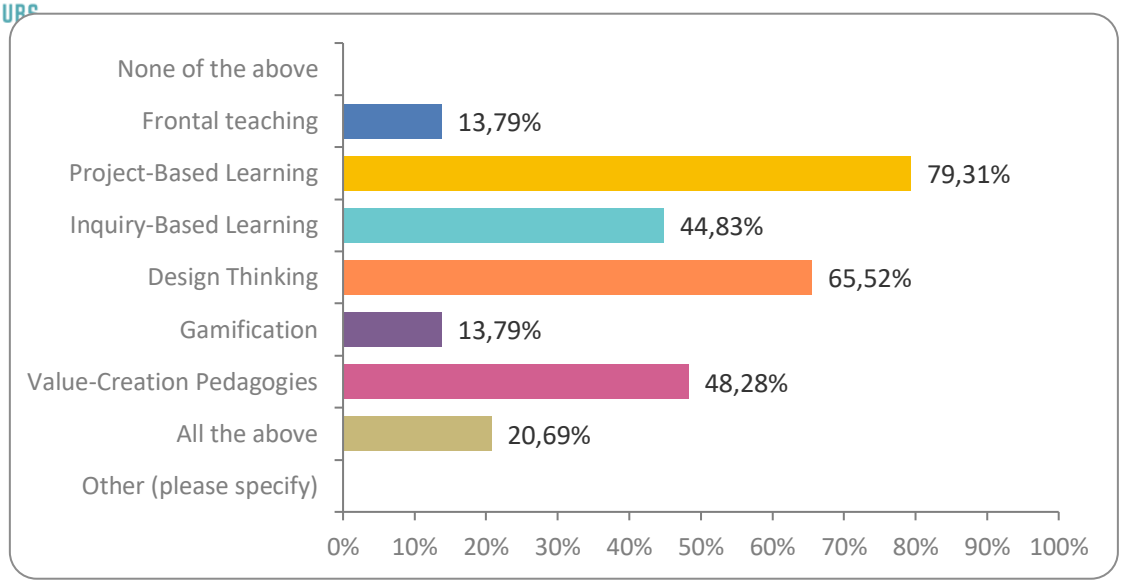

The chart above presents the distribution of responses regarding the most appropriate approaches for teaching EE in non-business faculties (e.g., humanitarian studies). Project-Based Learning (PBL) was overwhelmingly selected as the most appropriate approach for teaching EE in non-business faculties, with 79,31% of respondents in favor. Its high preference indicates that respondents believe that hands-on experience is critical for students outside of business disciplines to develop entrepreneurial competencies. In PBL, students apply theory to practice, working collaboratively to design solutions, a method seen as ideal for humanitarian studies or social sciences, where problem-solving and interdisciplinary approaches are often emphasized.

65,52% of respondents identified Design Thinking as an appropriate method. Design Thinking emphasizes creative problem-solving through iterative processes, focusing on understanding user needs, brainstorming innovative solutions, and prototyping. This approach aligns well with the entrepreneurial mindset, particularly in non-business contexts where creativity and empathy (key components of Design Thinking) are essential. It is especially relevant for humanitarian or social studies students, who may need to apply entrepreneurial methods to societal issues.

Almost half of the respondents (48,28%) supported the use of Value-Creation Pedagogies for teaching EE in non-business faculties. In the context of non-business disciplines, such as humanitarian studies, value-creation can involve creating social, cultural, or environmental impact, not just economic profit. This method is highly aligned with the goals of many non-business fields that seek to foster change and address societal challenges.

Inquiry-Based Learning was favored by 44.83% of respondents. This approach is particularly suitable for non-business faculties, where inquiry and research are integral to the educational experience. This method allows students to develop entrepreneurial skills through exploration and discovery, rather than being directed by fixed methods or curricula

A fifth of the respondents (20.69%) believed that a combination of all the listed approaches is appropriate for teaching EE in non-business faculties. This suggests that a multi-faceted approach, incorporating project-based learning, design thinking, inquiry-based learning, and

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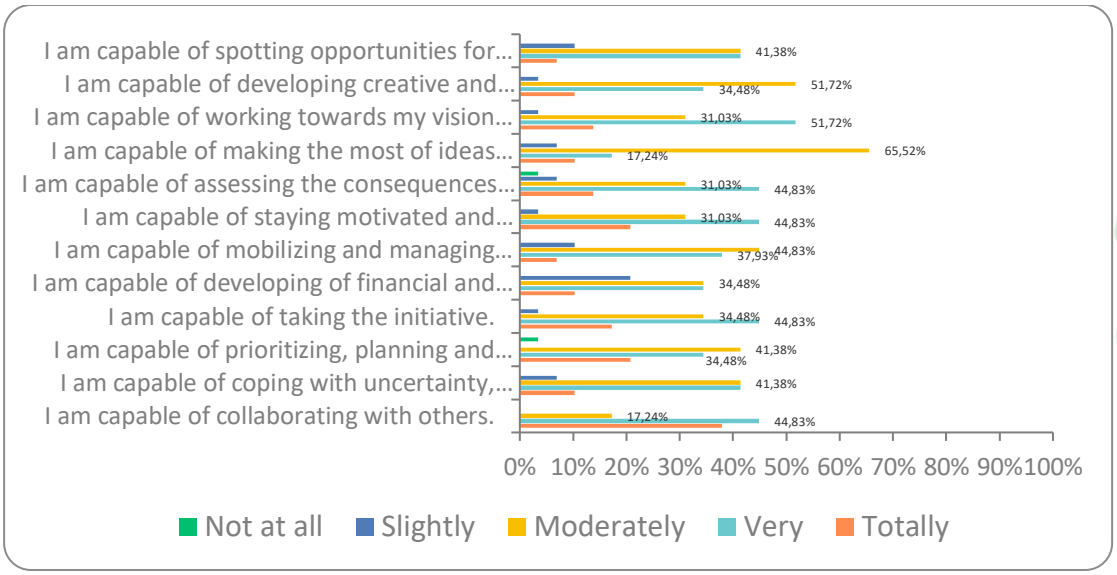
value-creation pedagogies, can offer a comprehensive framework for developing entrepreneurial skills across disciplines. This combination would provide a rich, versatile learning experience tailored to different learning styles and outcomes.

Frontal teaching (traditional lecture-based methods) was selected by 13.79% of respondents. This low percentage suggests that most respondents do not consider lecture-based methods to be particularly effective for teaching entrepreneurship in non-business faculties. While lectures can provide foundational knowledge, they may not be sufficient to develop the active, hands-on skills required for entrepreneurship, especially in disciplines that emphasize experiential learning. Like frontal teaching, gamification was selected by 13.79% of respondents. While gamification can engage students by incorporating game-like elements into learning (e.g., points, levels, and rewards), it may not be viewed as the most critical approach for EE in non-business faculties. However, it can still be an effective supplementary tool to increase student engagement, especially for certain learning objectives related to motivation and creativity.



When students asked to evaluate their capability on several entrepreneurial competences, almost half of the students consider themselves moderately capable of spotting opportunities for creating value for others (41,38%); developing creative and purposeful ideas (51,72%); making the most of ideas and opportunities (65,52%); prioritizing, planning and management (41,38%). On the other hand, an equally high percentage of students consider themselves very capable of spotting opportunities for creating value for others (41,38%); working towards their vision of the future (51,72%); assessing the consequences and impact of ideas, opportunities and actions (ethical and sustainable thinking) (44,83%); staying motivated and consistent (44,83%); taking the initiative (44,83%); coping with uncertainty, ambiguity and risks (41,38%); and collaborating with others (44,83%).

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ENTREHUBS

Focus Group

Introduction to professional background and Entrepreneurship Education

The three focus groups conducted in Germany gathered a diverse set of 14 participants, all of whom brought varied professional backgrounds relevant to the topic of Entrepreneurship Education (EE). The participants included both academic and business professionals, ranging from those with direct experience in entrepreneurial ventures to individuals involved in the EE. In total, the groups comprised project coordinators, managers, researchers, freelancers, and business developers, contributing a broad spectrum of perspectives on entrepreneurship and its educational facets.

Indicatively mentioning some of the participants profiles: One focus group participant, a project coordinator at a business school in France, worked on integrating sustainability into business education, particularly addressing how businesses can align with Sustainable Development Goals (SDGs). Another participant, a business developer, was involved in a food service start-up, focusing on delivering fresh and semi-cooked meals across Europe. This participant's entrepreneurial experience was rooted in developing innovative solutions within the food sector, blending traditional cuisine with modern business models. Another participant, although they hadn't studied EE, they had worked as an Innovation Manager at CEA-PME, mainly becoming familiar with entrepreneurship though work. Meanwhile, other participants included freelancers and recent graduates who were either supporting businesses or working on their own entrepreneurial activities, providing insights into how entrepreneurship education has shaped their professional trajectories.

Across the groups, there was a strong presence of individuals involved in educational activities, such as teaching, mentoring, or participating in entrepreneurship-related projects. For instance, a few participants were directly involved in developing and delivering EE courses and programs at various universities. These courses were aimed at fostering entrepreneurial skills in students from non-business disciplines. Others, such as freelance tutors, applied their entrepreneurial mindset to their own professional activities, offering unique insights into how entrepreneurship principles can be taught and practiced outside traditional business settings. This mix of academic and practical perspectives enriched the discussion on how entrepreneurship education is perceived and delivered in higher education

Integration of Entrepreneurship Education in Higher Education Institutions

The participants in the three focus groups exhibited varying levels of awareness regarding Entrepreneurship Education (EE) programs outside of business schools, reflecting their diverse backgrounds and experiences. Several participants, particularly those with direct involvement in educational initiatives, were familiar with EE programs integrated into non-business departments, while others had limited knowledge of such programs.

In Focus Group 1, one participant who was a project manager involved in entrepreneurship-related projects expressed familiarity with entrepreneurship coursework outside business

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departments. This participant highlighted a specific program that engaged local communities in selling products directly, bypassing middlemen—a clear example of EE outside traditional business settings. Another participant noted participation in an EE program, the Emerald Forest, which provided a practical, project-based approach in hospitality management, allowing students to make decisions within a flexible framework, thus fostering creativity and entrepreneurial thinking in a non-business discipline.

In Focus Group 2, there was less direct experience with non-business EE programs, but participants recognized their value. A project coordinator at a business school in France mentioned the need for integrating EE into broader curricula, particularly in relation to sustainability and climate change, but did not provide specific examples of programs outside business schools. Another participant, a freelancer, acknowledged entrepreneurship as an important skill set but indicated limited personal experience with formal EE programs in non-business fields.

Focus Group 3 participants demonstrated an awareness of EE being delivered outside of business contexts, primarily through collaborative projects. One participant, who had worked on a startup seed competition during their master's degree, reflected on how this program allowed students from various academic backgrounds to develop and pitch business ideas, fostering entrepreneurial skills among students from non-business disciplines. Another participant mentioned involvement in lectures and projects at Karlshochschule, where EE was integrated into international relations and feminist theory courses, further illustrating the spread of EE beyond traditional business curricula.

Across the three focus groups, participants expressed strong support for the integration of EE into non-business departments, citing a range of benefits for students in these fields. One key advantage repeatedly mentioned was the development of creative problem-solving skills—a core entrepreneurial competency—that could be applied across disciplines.

In Focus Group 1, participants emphasized that EE provides practical, real-world learning experiences that equip students with skills necessary for the labor market, even if they do not pursue entrepreneurial careers. A participant noted that students from social sciences, for instance, could benefit from entrepreneurship education by learning how to apply business models to solve social issues, essentially embracing social entrepreneurship.Another participant stressed the importance of teaching soft skills, such as presentation and teamwork, through project-based learning, which is often emphasized in entrepreneurship education but applicable in any professional context.

The discussions in Focus Group 2 highlighted the cross-disciplinary applicability of entrepreneurial thinking. A business school coordinator stressed the potential of EE to foster innovation and sustainability across different sectors, particularly by encouraging students from non-business disciplines to think about their work through an entrepreneurial lens, whether it be in engineering, sustainability, or social services. This integration was seen as not only a way to improve students' employability but also as a means to encourage innovation in sectors traditionally viewed as outside the realm of business.

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Focus Group 3 further elaborated on the benefits of EE integration, particularly through the lens of value co-creation. One participant described their experience with a company project in which students from various disciplines worked together to design strategies for a startup, reinforcing the idea that entrepreneurial skills, such as strategic thinking, collaboration, and innovation, are valuable regardless of academic background. Another participant pointed out that EE encourages interdisciplinary cooperation, allowing students to combine expertise from fields such as politics, sociology, and management, which enhances their ability to address complex, real-world challenges.

Training Programmes for HEIs educators on Entrepreneurship Education

The focus groups provided detailed insights into the experience of participants with Entrepreneurship Education (EE) programs aimed at developing creativity, entrepreneurial skills, and attitudes in students, particularly in non-business departments. Across the three focus groups, participants shared various examples of EE programs, describing their approach, format, and learning objectives. These programs were delivered both as part of the formal curriculum and through extra-curricular activities.

Focus Group 1 included participants with significant exposure to EE programs outside business schools. One participant highlighted their involvement in the Emerald Forest Program, a practical, project-based learning initiative designed for hospitality management students. This program emphasized student-driven decision-making, where students were given a scenario within a structured framework but were allowed creative freedom to reach entrepreneurial solutions. The primary learning objective was to foster creativity and problem-solving skills, while the format encouraged hands-on learning. The program was designed for small groups of students, typically involving around 20 participants, and lasted for a semester. This participant also emphasized that such programs were optional and not a mandatory part of the curriculum, serving as extra-curricular activities aimed at developing specific entrepreneurial competencies.

In another example from Focus Group 1, a participant described a university program in Brussels where students learned how to engage local communities to improve the sale of their products without intermediaries. The course aimed to empower students to apply entrepreneurial strategies to social issues, particularly within the context of local economies. This program integrated EE into social studies and was mandatory for some courses. The focus was on real-world application and community engagement, helping students from non-business backgrounds develop entrepreneurial attitudes while addressing social challenges.

In Focus Group 2, the level of involvement in EE programs outside business schools was more limited, but some participants had been exposed to project-based learning approaches integrated into their university curricula. A project coordinator at a business school mentioned that sustainability-oriented entrepreneurship programs were being developed, although they had not yet been widely implemented outside business schools. The participant emphasized that these programs were still in the planning phase but aimed to encourage students to think entrepreneurially about sustainability challenges and climate change. These initiatives were designed as optional courses, allowing students from various disciplines to participate depending on their interest.

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Focus Group 3 participants shared insights into more structured EE programs. A participant from this group recounted their experience with company projects at Karlshochschule, where students from various disciplines worked with startups to develop business strategies. These projects focused on interdisciplinary collaboration and creativity, with students developing entrepreneurial skills while tackling real-world challenges. The participant noted that these projects were often part of the formal curriculum in specific courses, such as management and international relations, although participation was limited to small groups of students (around 10-15 participants per project). The duration of these projects ranged from a few weeks to a full semester, depending on the scope of the challenge presented by the partnering companies.

Another example from Focus Group 3 involved a participant who joined a startup seed competition as part of their master's program. The competition involved students from various academic backgrounds, including non-business disciplines, and required them to develop and pitch business ideas over a six-month period. The objective was to foster entrepreneurial thinking and collaboration across disciplines, with a strong focus on creativity and innovation. Although the startup did not continue beyond the competition, the participant noted that the experience provided valuable lessons in entrepreneurship, teamwork, and business strategy. This program was extra-curricular, and participation was voluntary.

Across all three focus groups, there was a consensus on the value of project-based learning and hands-on experiences in fostering entrepreneurial skills and creativity. The programs mentioned by participants, whether compulsory or extra-curricular, shared a common goal of equipping students with practical skills and entrepreneurial attitudes. These programs often focused on real-world challenges and encouraged students to collaborate across disciplines, highlighting the importance of EE in diverse educational contexts.

Existing collaborations between Higher Education Institutions (HEIs) and Industry

Moving forward, the focus group participants shared valuable insights with regards to university programs that promote active cooperation between universities and the business community. In addition, participants emphasized the importance of such collaborations in enhancing the practical, real-world applicability of EE and discussed various formats of cooperation, the roles of industry representatives, and the benefits these partnerships bring to both students and universities.

Regarding examples of university programmes that promote academic-industry collaboration, Focus Group 1 participants highlighted several examples such programmes. More specifically, one participant shared their experience with company projects at Karlshochschule, where students worked on real-world problems presented by businesses. These projects allowed students to apply their academic knowledge to practical challenges, with business professionals acting as coaches throughout the project duration. The collaboration was beneficial as it provided students with direct access to industry insights while simultaneously giving businesses an opportunity to receive fresh, innovative solutions from students. However, the participant noted that while companies were involved in the implementation of these projects, they had a relatively “light touch” in the planning and assessment phases, with professors primarily responsible for grading.

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Another participant from Focus Group 1 discussed a different collaboration model, in which students participated in an EE program that engaged local entrepreneurs to sell products directly to consumers, bypassing intermediaries. This program promoted active cooperation between the university and local businesses, helping students from non-business disciplines learn entrepreneurial skills through practical experience in community-based business operations.

In Focus Group 2, participants focused on the potential for project-based learning as a means of fostering cooperation between HEIs and industry. A business school project coordinator emphasized that partnerships with companies allow universities to integrate real-world sustainability challenges into the curriculum, thus encouraging students to think entrepreneurially about pressing issues such as climate change. While the participant acknowledged that these partnerships were still in development, they viewed such collaborations as a critical component in expanding EE beyond business schools.

Focus Group 3 echoed similar experiences with company-driven projects as part of EE programs. One participant discussed their involvement in a project where a startup collaborated with students to develop implementation strategies for an online platform. This collaboration provided students with an opportunity to engage directly with industry professionals, gaining practical experience in business development while simultaneously helping the startup innovate. The participant highlighted the mutual benefits of such partnerships, noting that students gain hands-on experience while businesses benefit from innovative ideas and solutions.

In terms of the nature of the cooperation between HEIs and industry, participants across all three focus groups noted that businesses typically play a supportive role in EE programs, often providing mentorship and guidance rather than taking an active role in curriculum development or student assessment. For example, in Focus Group 1, a participant shared that while companies involved in university projects were responsible for coaching students and attending final presentations, professors typically remained in charge of assessing student performance. This dynamic allowed students to benefit from the practical expertise of business professionals without compromising the academic rigor of the program.

Another participant from Focus Group 1 mentioned that in certain programs, businesses were only involved during the implementation phase, contributing knowledge and resources, but were not part of the planning or assessment process. This limited role of businesses in the curriculum was seen as a missed opportunity for deeper, more integrated cooperation.

In Focus Group 3, participants discussed the role of industry representatives in startup seed competitions and other entrepreneurial initiatives. These competitions often involve businesses in an advisory capacity, providing feedback on business ideas and helping students refine their strategies. However, as with other examples, businesses did not have a direct role in designing the program or evaluating the final outcomes.

One of the key benefits mentioned in Focus Group 1 was the opportunity for students to gain practical experience in a professional setting. Participants noted that working on real-world projects with businesses allows students to develop problem-solving skills and creative thinking—essential competencies in both entrepreneurial and non-entrepreneurial careers. Furthermore, the networking opportunities created by these collaborations were seen as

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highly valuable, with participants stating that such experiences often lead to future employment opportunities. One participant shared their personal experience of transitioning from student to employee after completing a project with a business that later offered them a job.

In Focus Group 2, participants stressed that industry collaborations help ensure that academic programs remain aligned with labor market demands. By involving industry professionals in the development and delivery of EE programs, universities can better tailor their curricula to the skills and knowledge that are most relevant to employers. This, in turn, enhances the employability of graduates, particularly those from non-business disciplines who may not have had previous exposure to entrepreneurship.

In Focus Group 3, participants highlighted the innovation that results from collaborations between HEIs and startups. By engaging in entrepreneurial competitions and projects, students not only learn how to innovate within a business context but also bring fresh ideas to the companies they work with. This mutually beneficial relationship fosters a culture of innovation, where both students and businesses are able to learn from one another.

Challenges and solutions for fostering collaboration between HEIs and industry

Participants shared both personal experiences and broader observations on the barriers that often hinder successful partnerships, as well as potential solutions to overcome these challenges. The insights gathered across the three focus groups highlighted several common themes, including misalignment of goals, logistical difficulties, and the need for improved communication and structural support.

Here is the bracketing of challenges identified by the focus group participants:

Misalignment of expectations and goals: One of the key challenges discussed in Focus Group 1 was the misalignment of goals and expectations between HEIs and industry partners. Participants noted that while universities often approach these collaborations from an academic or pedagogical perspective, businesses are primarily driven by practical outcomes and profitability. This misalignment can lead to frustration on both sides, particularly when businesses expect immediate, tangible results from student projects, while universities prioritize long-term educational objectives. For example, one participant mentioned that companies involved in university projects were often focused on getting concrete deliverables from students, whereas the educational goal was to foster creativity and critical thinking, sometimes at the expense of efficiency or speed. Another issue related to goal alignment is that businesses may view these collaborations as opportunities for free labor, rather than true partnerships. One participant expressed concern that for-profit companies may exploit student labor during project collaborations, particularly when the outcomes of the project directly benefit the company but do not necessarily contribute to the students' learning objectives.

Limited involvement of industry in curriculum development: In Focus Group 3, participants pointed out that businesses often play a limited role in the development of EE curricula, which weakens the potential for effective collaboration. While companies are frequently involved in project implementation or mentoring, they rarely participate in curriculum design. This can lead to a disconnect between the skills students are taught in university and the skills needed

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in the workplace. One participant mentioned that businesses primarily focus on coaching during project-based learning but are not typically engaged in structural planning or assessment. As a result, universities may struggle to tailor their programs to meet industry needs.

Logistical barriers and time constraints: Another significant challenge that participants from all three focus groups identified was the logistical difficulties of coordinating collaborations between HEIs and businesses. These challenges included scheduling conflicts, geographical distance, and time constraints. For instance, in Focus Group 1, a participant mentioned that some businesses found it difficult to engage with university projects on a deeper level due to their limited availability, which constrained the ability to plan and assess student projects effectively. Similarly, in Focus Group 2, a project coordinator noted that companies often have tight schedules and limited resources to dedicate to academic collaborations. This means that while they may be willing to engage with universities in theory, in practice, they can only commit to minimal involvement, which reduces the overall impact of the collaboration.

Lack of communication and mutual understanding: Participants across the focus groups emphasized the importance of clear and open communication between universities and businesses as a critical factor for successful collaboration. In Focus Group 3, one participant reflected on the difficulty of establishing a common language between academia and industry, noting that businesses and universities often operate on different timelines and with different priorities. This can lead to misunderstandings or unmet expectations if the goals and deliverables are not clearly communicated from the outset.

After sharing these challenges that came up from real-life experience and collaboration between academia-industry, the focus group participants went through potential solutions, which can be summarized as follows:

Establishing clear objectives and mutual benefits: To address the challenge of misalignment of goals, participants in Focus Group 1 suggested that universities and businesses should work together to establish clear objectives and mutual benefits at the start of any collaboration. This involves setting realistic expectations about what each party hopes to gain from the partnership and ensuring that both the educational and practical needs are met. For example, businesses should be made aware that while student projects may provide valuable insights, the primary purpose is to support students' learning and skill development. This shift in understanding could prevent businesses from viewing student work solely through the lens of immediate profitability. Similarly, Focus Group 2 participants emphasized the need for customized project briefs that align with both academic goals and business needs. By tailoring the scope of projects to the constraints and capacities of both parties, it becomes easier to manage expectations and ensure a productive outcome for both students and businesses.

Increased involvement of industry in curriculum design: To bridge the gap between academia and industry, participants in Focus Group 3 recommended increasing the involvement of industry partners in the design and development of EE curricula. This would ensure that the skills taught in universities are aligned with the demands of the labor market. Participants suggested that businesses could provide input on curriculum content by sharing industry trends and emerging skill requirements, thus helping universities create more relevant and responsive educational programs.

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Moreover, participants in Focus Group 1 highlighted the need for ongoing collaboration between educators and industry professionals, rather than sporadic involvement. By establishing long-term partnerships with businesses, universities can integrate industry feedback into the curriculum on a continual basis, making it easier to adapt to changes in the job market.

Streamlining communication and building stronger relationships: Improved communication was a recurring solution across all focus groups. Participants emphasized that better communication between HEIs and businesses could help overcome many of the logistical and cultural barriers to collaboration. In Focus Group 2, a participant suggested that universities appoint liaison officers or industry coordinators who would be responsible for maintaining communication between the academic and business worlds. These roles would help ensure that both parties are on the same page and that any issues are addressed in a timely manner. In Focus Group 3, participants also suggested that regular meetings between university faculty and industry representatives could help foster mutual understanding. By facilitating more frequent interactions, both parties can stay aligned with project goals, timelines, and expected outcomes, reducing the likelihood of misunderstandings.

Flexibility in program design and scheduling: To address the logistical challenges of collaboration, participants in Focus Group 1 recommended that universities adopt more flexible scheduling options for industry-engaged projects. This could include offering shorter project timelines, creating modular collaboration opportunities, or allowing businesses to participate remotely. Flexibility would make it easier for busy professionals to engage with university programs, thereby increasing the likelihood of sustained collaboration. In Focus Group 2, participants also proposed the idea of digital collaboration platforms, where businesses and students can interact and collaborate without the need for in-person meetings. These platforms could facilitate project management, feedback, and mentoring, making it easier for businesses to stay involved even when physical presence is not possible.

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Chapter 3: GREECE

State-of-the-art of Entrepreneurship Education and Value Creation in Greece

Introduction: Entrepreneurship Education in the Greek Higher Education Institutions

As in other countries, the EU Member States require a robust higher education sector to serve as a catalyst for innovation and entrepreneurship as well as a provider of skills and knowledge. There is widespread agreement that higher education institutions must adapt and help to shape societal transformation as the circumstances in which our societies operate change. In this context, education and training should contribute to the encouragement of entrepreneurship, through cultivating the appropriate mentality, regarding the professional opportunities being offered by entrepreneurial qualities. Since personality and administrative skills compose the basic factors of success, personal abilities related to entrepreneurship should be taught from the early levels of education and carry on up to the tertiary level. Encouraging entrepreneurship is fundamental for creating jobs and improving competitiveness and economic growth throughout Europe (Belidis, 2013).

In Greece's HE system, creative and innovative entrepreneurial practices are growing. Instead of innovation spreading throughout Athens as it once did, new practices are now emerging and thriving at a regional level. Greek HEIs and Research Centers (RCs) are working more and more closely with regional stakeholders. Even throughout the coronavirus pandemic, HEIs and RCs persisted in doing so by fostering entrepreneurial education, extending their networks internationally, and participating in regional development efforts. In order to strengthen strategic planning, expand global networks and take use of the Greek diaspora, the Ministry of Education and Religious Affairs has been implementing reforms that aim to assist HEIs and RCs in creating economic and societal value.

In addition, the Greek national higher education (HE) system aims to advance the role of HEIs and Research Centers (RCs) within the wider society to boost sustainability and economic growth. Recent initiatives have focused on creating research alliances and collaborations, encouraging student exchange, and creating collaborative initiatives with universities abroad. These initiatives have also sparked internationalization "at home"; for instance, Greek HEIs and RCs have organised conferences and events, in which they have invited scholars from other countries to participate in their research projects.

However, as the OECD (2021) acknowledges, Greece should further mainstream entrepreneurship education within the HE system, and especially beyond the business-related faculties, allowing formal recognition of academic entrepreneurship and a more expansive definition of the concept to include the social impact of entrepreneurship. Similarly, Greek HEIs should strengthen their connections to local smart specialization plans to promote economic expansion and the goal of changing Greek areas from "moderate" to "strong" innovators through transdisciplinary collaborations between HEIs, Research Centers, policy makers and the labor market.

Key Components-Teaching approaches of Entrepreneurship Education

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Entrepreneurial teaching and learning in Greek HEIs is gaining momentum in Greece. Entrepreneurship-related courses, across institutions, are offered as part of undergraduate curricula in different programmes, including entrepreneurship-dedicated programmes, mainly at the graduate level. Aristotle University of Thessaloniki, for example, offers 27 courses targeted to entrepreneurship, with 2.507 students attending (OECD, 2021). Offering classes across programmes is noteworthy, since it gives students in different disciplines, such as engineering or medicine, early exposure to entrepreneurship. The most typical structure of formal education entrepreneurship courses consists of basic thematic modules for the development of entrepreneurship and the establishment, operation and management of a business; exercises and practical application; laboratories; case studies analysis; connection with businesses (study visits, invitation of entrepreneurs as guest speakers; exams focused on elaboration of a business plan. HEIs educators deliver such courses based on curriculum- and less on student-centered approaches, like the frontal teaching approach, project-based learning, technology-based learning, and gamification. Approaches, such as inquiry-based and collaborative learning are less utilized in the Greek Higher Education system. In addition, while the number of relevant courses offered is progressively increasing, HEIs are launching formal structures, such as technology transfer offices (TTOs) to support and infuse entrepreneurship in the wider academic community.

However, entrepreneurship education is not limited to learning about entrepreneurship; *it involves learning for and through entrepreneurship (OECD,2021). It is also about being exposed to entrepreneurial experiences and mastering the skills and competences for developing entrepreneurial mindsets (European Commission, 2012).* This approach gives higher education institutions (HEIs) the opportunity to generate academic curricula and engage with external stakeholders in a student-centered and immersive teaching approach, which consists of offering students real-life experiences, such as entrepreneurship competitions, mentoring networks, apprenticeships, participation in incubators, etc. According to the HEI Leader Survey of Greece conducted by OECD (2021), mentoring (58%), general courses in entrepreneurship (63%) and *ad hoc* training activities to support an entrepreneurial mindset (71%) are the measures most offered by HEIs (Figure 1).

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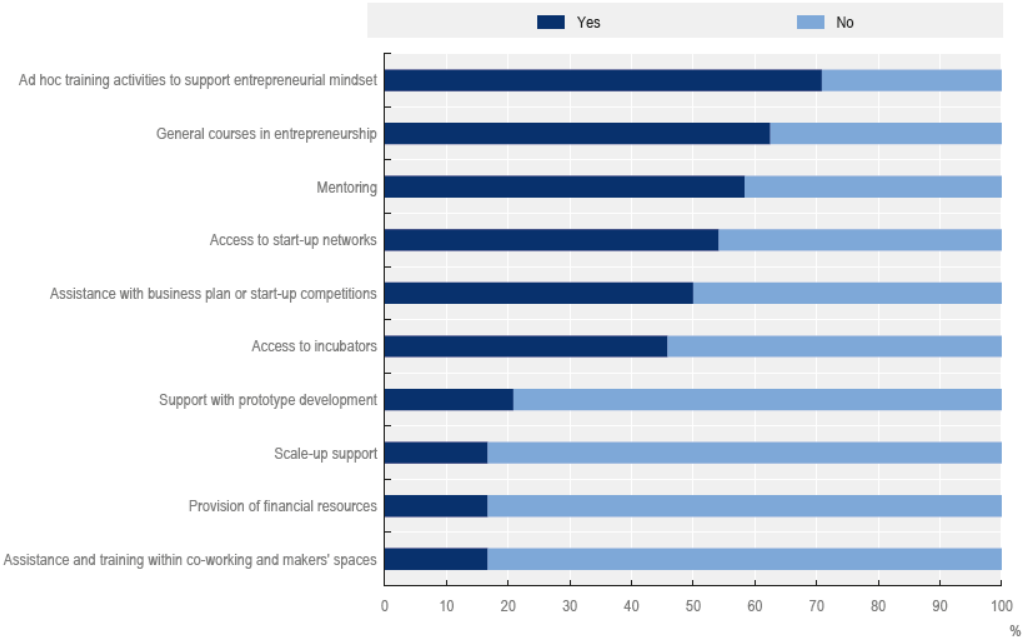

Figure 2 Types of entrepreneurial support measures offered in Greek HEIs (OECD, 2021)

Firstly, entrepreneurship student innovation competitions comprise a large part of the non-formal learning activities that complement entrepreneurial teaching and learning in Greek HEIs. They typically have a duration of 4-8 months and constitute an early acceleration process for new entrepreneurial ideas, often as the introductory part to the larger system of the incubation process of the university. Entrepreneurship competitions are usually organized and implemented by many universities at an institutional level, such as those of the Hellenic Open University, the Athens University of Economics and Business and the "Aegean Start-ups" competition of the University of the Aegean.

Mentoring networks often constitute part of a university's ecosystem to support the development of entrepreneurial ideas, such as in the University of Ioannina and the Athens University of Economics and Business. In that way, students come in fruitful contact with entrepreneurs, start-uppers, mentors that are willing to share their experiences and knowledge, in order to inspire and motivate students to become pioneering entrepreneurs.

Career Days, traineeships and apprenticeships provide students with opportunities of experiential and project-based learning, where they apply the theoretical knowledge acquired through the university in real working environments, while collaborating with entrepreneurs that act as role models. The Career Days for Start-ups – organized by Greek HEIs in collaboration in entrepreneurs and relevant entrepreneurial networks – offer students a unique learning experience of working in start-up companies to acquire a hands-on understanding of the specifics of establishing a new, innovative, and sustainable business. Such events are organised on an annual basis by the Career Office of the University of Patras, and by the Athens Centre for Entrepreneurship and Innovation of the Athens University of Economics and Business, in collaboration with the National Technical University of Athens and the Innovation, Entrepreneurship and Technology Transfer Office of the Agricultural University of Athens (InnovInAgri). Apprenticeships in Start-ups are offered as a distinct stream by Greek HEIs, as it is the case at the University of Ioannina.

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Exploring the integration of EE in interdisciplinary studies

The Greek HEIs offer entrepreneurship education both in formal and non-formal activities, outside of a structured curriculum. While entrepreneurship education has made its way out of business schools, it is still not totally accepted, and institutional practices tend to rely on a definition of entrepreneurship narrowly focused on business and management. In addition, while entrepreneurship has emerged as an important mechanism for the generation of social returns in terms of economic growth and job creation, entrepreneurship education is still a nascent field in Greece and the debate about the need and the way of delivering specific entrepreneurship courses in higher education faculties outside the business and economics-oriented ones (OECD, 2021).

However, certain steps have been undertaken to include entrepreneurship education in faculties, either as part of the curriculum or as non-formal initiatives. For instance, the National Technical University in Greece recognised the need for an interdisciplinary approach in designing engineering curricula by setting educational priorities, in order to provide engineers with entrepreneurial skills that will boost their skills in accordance with the requirements of the ever-progressing labor market (Papayanakis et al., 2008). Another example includes the partnership between the Aristotle University of Thessaloniki and the Agricultural University of Athens, which both have a formal technology transfer office (TTO), tasked with the commercialisation of research via patents, spin-offs, collaborations with industry, which aspires to set the foundation for implementing entrepreneurial-based initiatives and structures in non-business sectors, like the agricultural one.

Additionally, the Greek HEIs host public events on entrepreneurship that involve interdisciplinary actors working together or participating. The University of Western Macedonia arranges student trips to incubators, technological parks, and research facilities, conducts seminars to anybody who expresses interest, and offers mentorship services. Similar services are provided by the Aegean Startup, the University of the Aegean's digital innovation and business accelerator, with a focus on the Aegean region.

Another example of application of EE in interdisciplinary studies comprises the IDEA project (Inter-Departmental Entrepreneurial Assignment) of the Athens University of Economics and Business that brings together students from all departments of the university to form entrepreneurial teams and focus on specific areas. Students are trained through workshops, such as business planning, market identification and pitching, and are then invited to present their final ideas in a formal event, where their entrepreneurial ideas are evaluated by a scientific committee, consisting of academics, entrepreneurs and stakeholders, and given an award by the Rector.

Knowledge exchange and collaboration between academia and business industry

While there is no one-size-fits-all approach to deliver entrepreneurship education, HEIs and the business sector, working in close collaboration, is a proven and effective way to succeed and thus respond to societal and economic challenges, as well as to labor market needs. Several success stories of innovation and entrepreneurship came up as a result of collaborations between HEIs and the business sector, even though each HEI has its own policy and strategy to innovation and entrepreneurship.

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Knowledge Exchange and Collaboration (KEC) activities are comprised mainly of inviting entrepreneurs as guest lecturers, participation of entrepreneurs in entrepreneurship hackathons, and apprenticeships, while the involvement of entrepreneurs in co-creating or co-delivering the course's content is scarce. Collaborations of HEIs with the surrounding local industry feed into technology transfer and knowledge spill-overs and can boost entrepreneurial attitudes among students. Here are some examples:

- Aristotle University of Thessaloniki collaborates closely with the business industry, including a) guest lectures by entrepreneurs, mainly of the local entrepreneurial ecosystem, b) collaborations with representatives of the industry sector, such as the Uni.fund and Metavallon, and c) hosting Career Fairs through its Career Services Office, to introduce employers to students and graduates, thus increasing their employability potential.
- The University of Patras has established the UPatras IQ Industrial Doctoral Programme to support four-year, industry-oriented PhD programmes. These are designed based on collaboration between the university, a private company or industry located in Greece and a fellow doctoral candidate. The initiative grew out of the Patras Innovation Quest (Patras IQ), whose goal was to contribute to the utilization and practical application of scientific knowledge into innovative products and services by connecting academic research with the industry responding to market needs. Patras IQ is a joint initiative of the University of Patras and the Chamber of Achaia, with participation from the Ministry of Development and Investments, the Ministry of Education and Religious Affairs, the University of Patras, the Hellenic Open University, the Prefecture of Achaia and the Chamber of Achaia.

Most HEIs get involved in knowledge co-creation with representatives of the business sector, but activities, approaches and objectives of such initiatives vary significantly, mainly reflecting regional inequalities. In specific, some HEIs run their academic projects in very dynamic environments, enabling a virtuous and active cycle of Knowledge Exchange and Collaboration (KEC) activities between HEIs and the business sector. On the other hand, HEIs located out of the urban and business centers face challenges in creating a dynamic and multi-actor ecosystem that will develop entrepreneurial skills and infuse entrepreneurial mindset to their students. Therefore, there is a dire need for a flexible policy approach that will reflect the diversity of Greek regional ecosystems offering all Greek HEIs with equal opportunities for cultivating an entrepreneurial culture.

Exploring the concept of value creation in the Greek HEIs' curriculum

In recent years, there has been a remarkable shift in transforming entrepreneurship from a profit-oriented sector to a catalyst that drives social and/or environmental impact in the wider society. This transformation is fueled by the growing demand for socially responsible entrepreneurship, where entrepreneurs are expected to not only pursue profit but also actively contribute to addressing social and environmental challenges. As Greek society grapples with issues like economic inequality, environmental degradation, and social exclusion, there is a pressing need for business owners and entrepreneurs who can adopt a holistic approach to entrepreneurship. Scholars and educators have recognized that the traditional profit-maximizing model may not be sustainable in the long run and have turned their attention to nurturing a new generation of entrepreneurs who can drive positive changes

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through business activities, and especially start-ups (Gregori et Holzmann, 2020; Koulouris,2022).

This tendency is reflected also in entrepreneurship education courses delivered by the Greek HEIs, which have shifted the focus from courses focused on business planning, establishment of profit-oriented ventures, etc. to social entrepreneurship and sustainable business practices. The concept of value-creation in entrepreneurship education consists of a nascent field for HEIs educators, mainly connected with social and sustainable entrepreneurship, which have been brought in the forefront of the entrepreneurship education courses the last few years. By incorporating concepts of social and sustainable entrepreneurship, students are encouraged to identify pressing social issues, design innovative solutions, and create business models that not only generate financial returns but also deliver positive social outcomes (Gregori et Holzmann, 2020). Through such education, students can grasp the importance of aligning business strategies with social and environmental objectives, helping create a more inclusive and sustainable economy.

However, value-creation as a teaching approach has not been yet explored in the context of HE teaching practice, where the Greek HE system promotes a curriculum-centered approach that do not leave much space for the educators to co-design and co-deliver a entrepreneurship course with entrepreneurs, business owners or stakeholders of the local and/or national entrepreneurial ecosystem. In this context, entrepreneurship education in Greece should emphasize value creation as an integral part of co-designing and co-delivering entrepreneurship education courses that will offer experiential learning opportunities focused on students' and industry/labor market's needs, and up-to-date knowledge on practices and strategies applicable in the entrepreneurial and business sector (Bozward et Rogers-Draycott, 2020).

Innovations and Best Practices in Entrepreneurship Education

Elevate Greece: The main pillar of the entrepreneurial ecosystem in Greece, which narrates the policy side, is Elevate Greece, the official platform and leading resource for in-depth information on the Greek Start-up Ecosystem. It involves a wide variety of actors that actively participate in the Greek Start-up Ecosystem, including public institutions, universities, private sector's enterprises, start-ups, investors, etc. Elevate Greece includes the following activities: a) mapping entrepreneurial activity by developing a database of start-ups in Greece; b) keep record of start-ups' progress using Key Performance Indicators, which should allow targeted policy interventions when applicable; c) initiate entrepreneurial prizes; and d) engage in the attraction of entrepreneurial finance, partly by offering generous tax breaks for angel investors investing in the Greek entrepreneurial ecosystem.

Athens Digital Lab: Athens Digital Lab is a tech innovation hub at the center of the Greek startup ecosystem. This initiative was organized by the city of Athens in an effort to transform tech ideas into advanced IoT applicable solutions. On an annual basis, an Open Call for startups is announced, and young entrepreneurs or research teams working on different thematic areas (aligned with the municipality's strategic plans) to propose their innovative projects. Upon selection, the incubation phase starts, where the entrepreneurs or research team are offered a variety of resource, access to valuable data, networking and opportunities for real-world testing of their product/service across the city of Athens. Recently, the thematics of the program included tourism, culture, public space management and crisis management.

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Entrepreneurship Lab (UOM): Entrepreneurship Lab (Laboratory) of the Department of Balkan Slavic and Oriental Studies was set up in April 2016 aspiring to improve interdisciplinary research on Entrepreneurship in the respective department and the University of Macedonia, encouraging and support students to get involved in entrepreneurship and spread an entrepreneurial culture and its benefits to the wider society. The Entrepreneurship Lab enriches academic activities at the University of Macedonia by moving beyond the traditional teaching approaches of entrepreneurship in the university auditorium to student-centered approaches, and industry and market needs. It is a nascent area of research, knowledge and action that builds bridges between researchers of different disciplines within the University, between the University of Macedonia and other Academic - Research Institutions and between the University and society.

OK!THESS: OK!Thess is the biggest innovation hub in the city of Thessaloniki, which nurtures a community of ambitious entrepreneurs, researchers and creatives. An accelerator is one of its flagship initiatives. The program runs 4 times a year and is targeted to ambitious founders of early-stage startups. It consists of workshops, masterclasses, and coaching sessions, during which entrepreneurs can acquire fundamental entrepreneurial knowledge on business development and fundraising, and after the completion of the program, startups have the opportunity to pitch in front of leading investors of the local entrepreneurial ecosystem.

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The survey was deployed by University of Macedonia in collaboration with STIMMULI using Survey Monkey between March and May. In total 25 educators answered the survey in conformity with the GDPR regulations.

Educators' profile

The participants are employed as lecturers, educators, laboratory teaching staff, professors or assistant professors, and researchers in various public universities of the country, such as University of Macedonia, Aristotle University of Thessaloniki, National and Kapodistrian University of Athens, University of Western Macedonia, and University of Peloponnese. It is worth mentioning that the survey sample covers both urban and suburban areas across different regions of Greece, while the participation of exclusively public university educators is related to the fact that Greece has only a few private educational providers, especially colleges. Out of the 25 participants, 16 are female, and only 9 are male with their teaching experience to vary from 3 to 22 years old, which means that some of them have 'witnessed' the transformation of Higher Education in Greece, and the progress of entrepreneurship education teaching through different approaches. Finally, the research sample is consisted of educators representing different faculties, such as Balkan, Slavic and Oriental Studies, Human Rights, Migration Studies, International Relations Studies, Humanities, Business Social Sciences, Product Design, Informatics-Economics, Medicine, etc.

Introduction of Entrepreneurship Education and Value Creation Pedagogies

As part of the survey, we investigated the experience of educators in delivering entrepreneurship education programmes, as well as the approaches that they apply. When asked in which category the entrepreneurship programmes or initiatives that they have delivered fall, the majority of them (33,3%) has indicated the webinars and the workshops as the main entrepreneurship education programmes, in which they have teaching experience, while an equal percentage of 33,3% educators responded that they have never delivered such programmes. Delivering entrepreneurship education programmes as extra-curricular activities organized by the universities was the second most-responded answer by 20,83% of the educators. It is worth noticing that only 8,33% of the educators have delivered entrepreneurship education programmes as part of the curriculum. These percentages bring to the forefront the need to introduce entrepreneurship education as part of the main curriculum, especially in non-business faculties, which consist of the biggest sample of this research.

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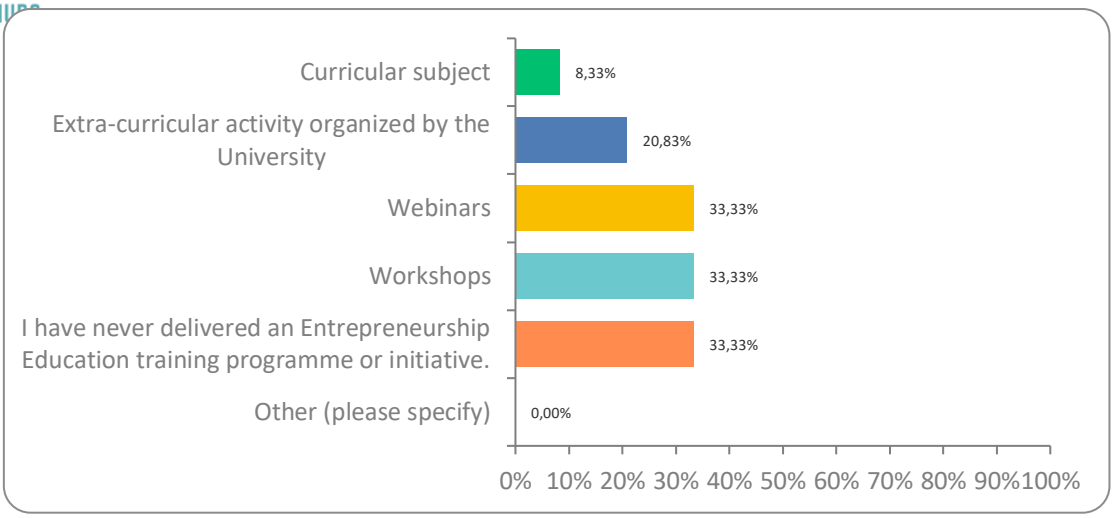
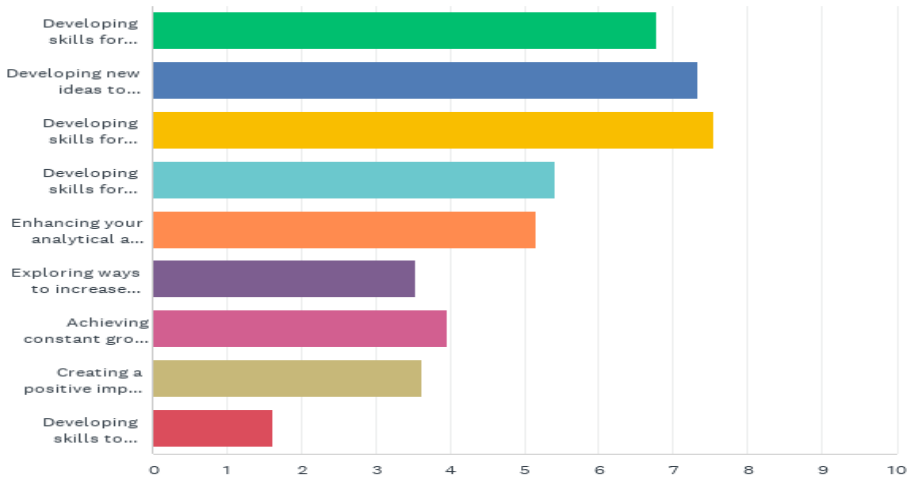


In terms of collaboration with external stakeholders for delivering such EE programmes, the majority of the educators responded that they have never collaborated with stakeholders beyond the university campus. However, they were 5 educators, who have relevant experience from engaging representatives of the business sector, such start-ups or small and medium enterprises, and from inviting entrepreneurs as guest speakers, mentors or coaches for the students. One of the educators employed in UOM shares *"I sometimes collaborate with the Entrepreneurship Lab from the University of Macedonia, which support students through mentoring"*.



When educators were asked to rank a set of statements on what they consider that Entrepreneurship Education is on a scale from 1 (what it is) to 9 (what it isn't), the average responses are ranking as follows:

1. Developing new ideas to address various problems/issues.
2. Developing skills for starting your own business.
3. Developing skills for entering the labor market.
4. Developing skills for working in the business sector.

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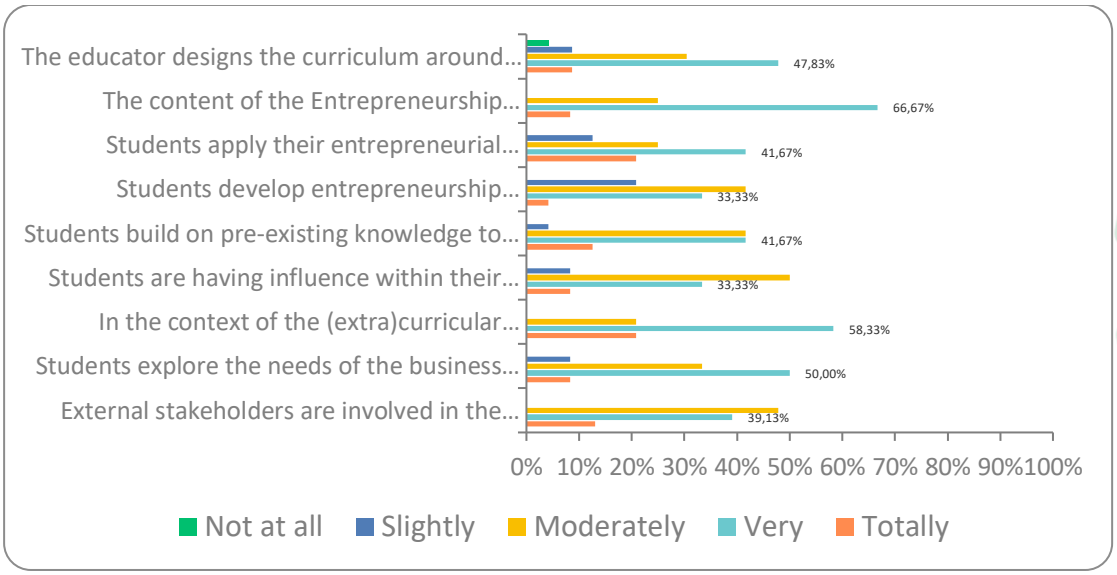
5. Enhancing your analytical and logical skills for enabling problem solving.
6. Creating a positive impact through your work.
7. Achieving constant growth and development.
8. Exploring ways to increase your income.
9. Developing skills to manage your time.

The ranking scale above indicates that although EE is considered as the 'medium' to address issues or problems by developing new ideas, which corresponds also to the social aspect of entrepreneurship, the next most-selected responses related EE with skills development for establishing a business, entering the labor market or working in the business sector. On the contrary, the creation of positive impact and achievement of constant growth are considered among the less important aspects of EE. It is interesting to observe that the soft skills, and specifically time management, is considered as the last statement with regards to what EE is. It has to be mentioned that one of the educators added one more element of EE, the "*responsiveness to opportunities*".



In terms of what the educators believe that the value co-creation entails, the majority of them (66,7%) agreed that 'the content of the Entrepreneurship Education programme is derived from students' and business sector's needs', putting emphasis on the content of the programme instead of the teaching approach for delivery, i.e., the co-creation of the material. Another high percentage of educators (58,33%) strongly believe that value co-creation includes the extra-curricular activities implemented by the universities, where 'students are brought in contact with stakeholders and representatives of the business sector to create value for others', shifting the focus on both the purpose (value creation) and the method (co-creation) of the process. In addition, half of the respondents strongly believe that in value co-creation approaches the 'students explore the needs of the business sector by collaborating with business owners, employees, or representatives of the business sector', which emphases on the method (co-creation), but not on the end-result, which the creation of social, cultural, or economic value. Another finding that is interesting to me mentioned is that only 33,33% of educators strongly believe that value co-creation is related to the development of entrepreneurship projects by students for creating economic value-profit for business owners,

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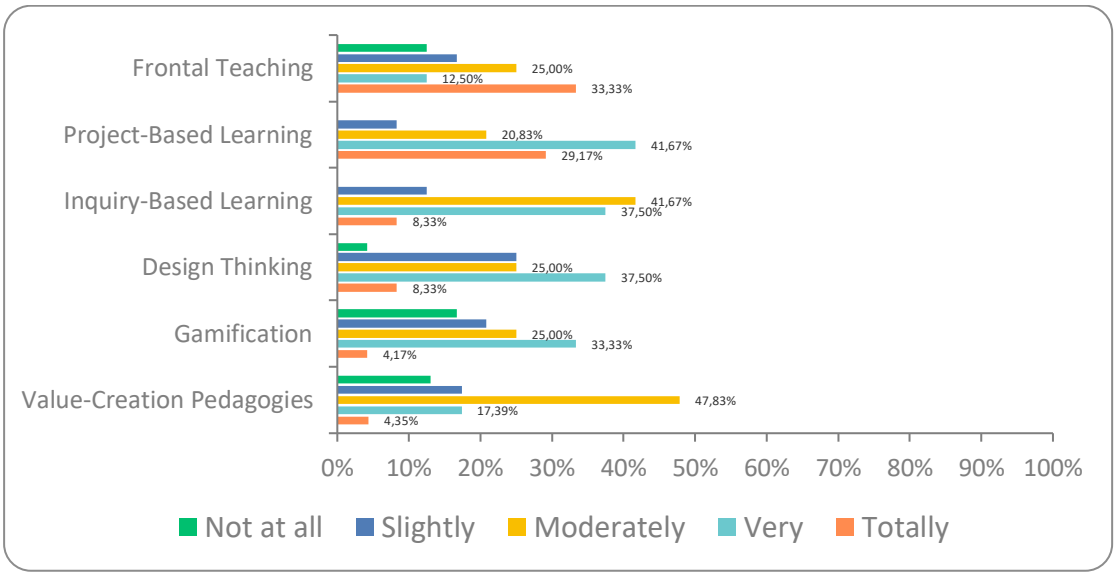
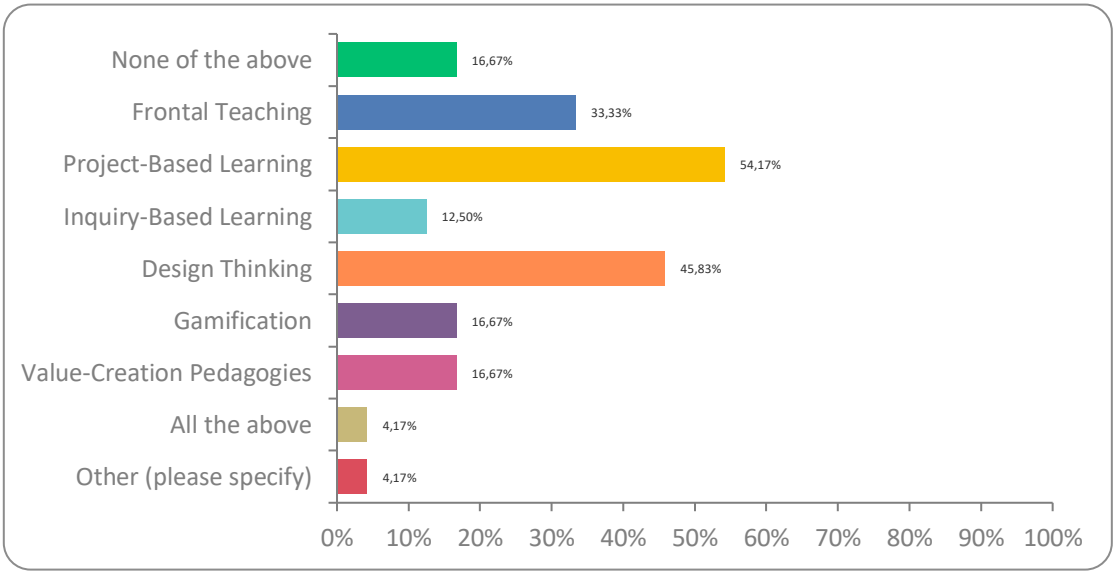
which may indicate that educators relate the value creation with a more social-oriented aspect of entrepreneurship.



When asked to what extent educators are familiar with traditional and non-formal teaching approaches, including frontal teaching, project-based learning, inquiry-based learning, design thinking, gamification and value-creation pedagogies, the majority of the participants (47,83%) responded that they feel 'moderately' familiar with value-creation pedagogies, while only 4,35% answered that they are 'totally' familiar with the specific approach. An equally high percentage (41,67%) stated that they are 'moderately' familiar with inquiry-based learning, while the same percentage considered themselves 'very' familiar with project-based learning. Design thinking (37,5%) and gamification (33,33%) are among the approaches that less educators feel 'very' familiar with, which may indicate the need to connect non-traditional teaching approaches with EE. The fact that only 33,33% of the educators feel 'totally' acquainted with frontal teaching is indicative of the shift towards active learning and student-centered pedagogies instead of teacher-centered ones.



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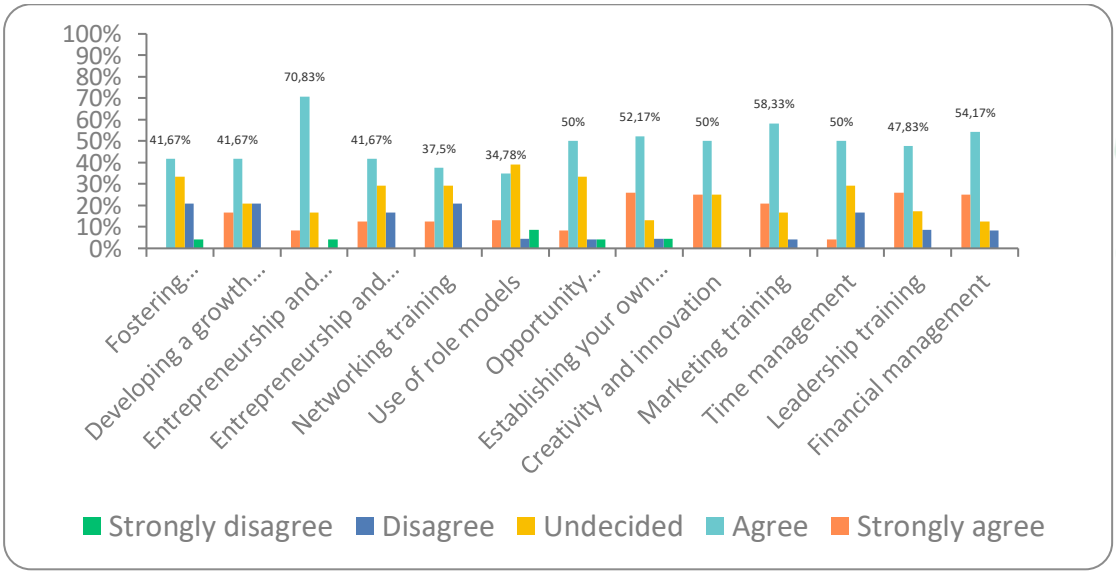
With regards to which of the following approaches educators have used in their teaching, the majority of them (54,17%) have already employed Project-Based Learning, while 45,83% have delivered an EE program using design thinking. Less educators have used frontal teaching (33,33%), while only 16,7% have used gamification or none of the approaches mentioned below. It is interesting to observe that although 47,83% of the educators stated that they are 'moderately' familiar with value-creation pedagogies, only 16,67% of them have used this approach to deliver an EE program; this percentage indicates that educators do not feel confident in applying this approach in the teaching practice or that they need additional training and support.

Planning and implementation of existing EE programmes addressed to HEIs students.

At this part of the survey, we investigated educators' perceptions on the structure, planning and implementation of existing EE training programmes addressed to HEI students, in order to explore potential connections of the current projects with the value co-creation approach as per methodology, purpose and application.



In terms of what existing EE programmes include the majority of the participants (70,83%) agreed that 'entrepreneurship and sustainability' constitutes a part of the existing EE programmes, which indicates the need to find ways to make entrepreneurship more sustainable, in order to be able to respond to the environmental and climate crisis. Besides that, the educators – at a large extent – agreed that marketing training (58,33%), financial management (54,17%), opportunity identification for creating value (50%) and time management (50%) are included in the structure of the existing EE programmes. It is worth mentioning that 'fostering entrepreneurship in non-business sectors', 'networking training', 'use of role models' and 'developing growth mindset' have gathered a considerable percentage of educators, who 'agree' or they are 'undecided' about if these aspects apply to the existing EE programmes. This difference may be attributed to varied structures of EE programmes across the Greek universities. Although, there are no extreme differences among educators' responses, it is evident that the focus is sustainability- and profit-oriented, while aspects, such as growth mindset and leadership, fall behind.

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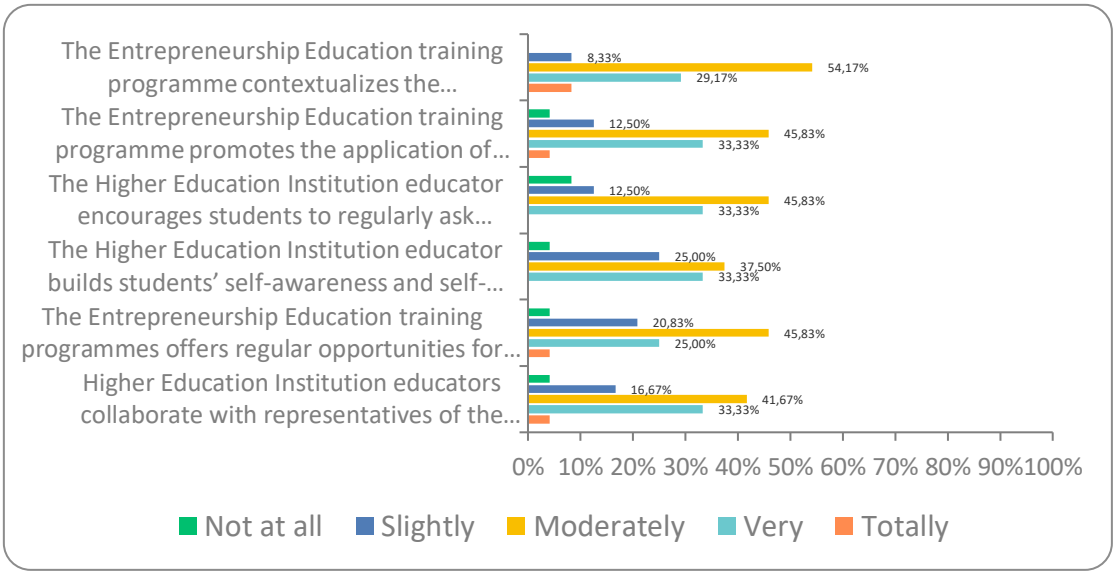

When educators were asked to what extent they agree in the above statement regarding the structure of existing EE programmes and the role of educators in such programmes, it is interesting to see that the majority of the participants 'moderately' agreed that the EE programmes are contextualized based on students' academic background (54,7%), which indicates that this knowledge may not be applicable across different faculties (e.g. business studies or humanitarian studies); however, a lower percentage (29,17%) strongly agreed that that such programmes are contextualized based on students' academic background. A very interesting variation among participant responses is also identified on whether EE programmes 'promote the application of students' entrepreneurial competences for creating value for other', in which 45,83% 'moderately' agreed and 33,33% strongly agreed. Although these rates comply with those of the previous question, half of the respondents considered that identification of opportunity for value creation as part of these programmes, it seems that value creation is still not a core element of entrepreneurship education. Regarding the opportunities that EE programmes offer for students to work with representatives of the business sectors, the majority of the educators (45,83%) consider that such programmes moderately address this aspect; it is interesting to see that, while 25% of the educators strongly agree with this statement, there is an approximately equal percentage (20,83%) that 'slightly' agrees.

With regards to the role of educators, the majority of them (45,83%) acknowledge that HEIs educators 'moderately' encourage students to regularly ask questions, consider alternative solutions, follow their own inquiries and create value for others through their learning, followed by 33,33% who strongly agrees. This tendency may be attributed to the fact that educators are not acquainted with applying active learning and value creation teaching approaches. On the other hand, educators' responses vary when it comes to what extent the educators build students' self-awareness and self-confidence, so that they become self-disciplined, handle setbacks and resolve difficulties in mature ways to achieve valuable outcomes. More specifically, 37,5% 'moderately' agrees, 33,33% strongly agrees, while 25% 'slightly' agrees with the above statement. This difference among the respondents indicates the level of focus that educators shift to soft skills, such as building self-confidence, handling difficulties, conflict resolution, etc. Finally, regarding the collaboration of educators with

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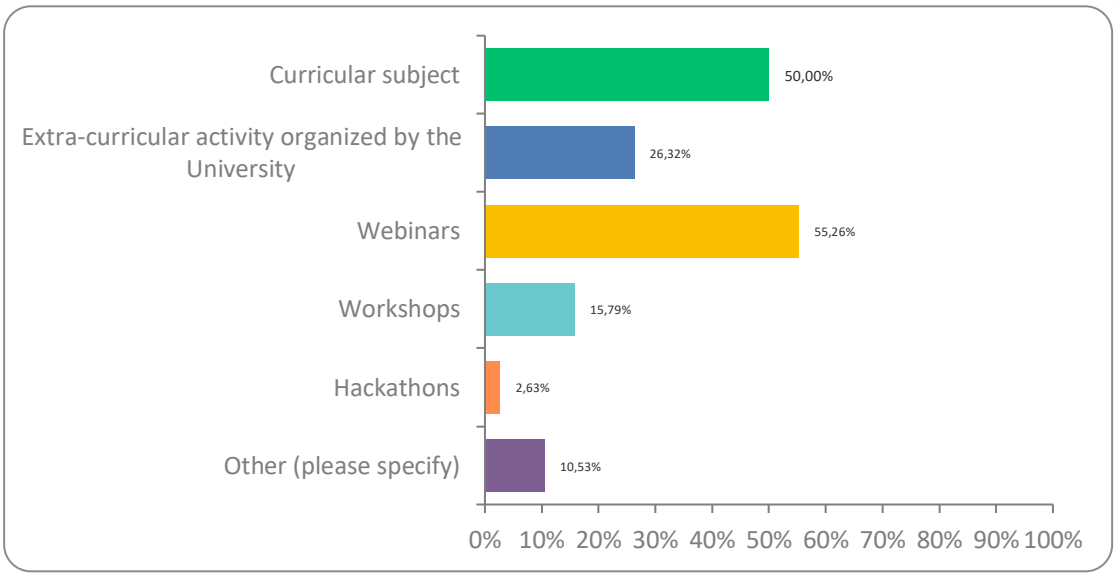
representatives of the business sector in delivering EE programmes, the majority of the educators 'moderately' agreed with the statement, while 33,33% strongly agreed; only 16,67% 'slightly' agreed. These percentages show us that there is still a long way to bring together universities and the business sector for delivering EE programmes that will enable students to create value that will match the social, economic, culture needs of the society and labor market.

Online survey for HEI students

The survey was deployed by the University of Macedonia in collaboration with STIMMULI using Survey Monkey between March and May. In total 41 students answered the survey in conformity with the GDPR regulations.

Students' profile

The students participating in the survey consist of 31 Bachelor students, 5 Master students and 5 PhD students from various public universities of the country, mainly from University of Macedonia and others, such as University of Peloponnese and Democritus University of Thace. Out of the 41 respondents, 31 are female, and only 9 are male with 1 respondent preferring not to mention. Finally, the research sample consists of students attending courses in different faculties, such as Balkan, Slavic and Oriental Studies, Business and Administration, Economics, Clinical Exercise and Technology in Health, Sports and Tourism. It has to be mentioned that the majority of respondents study in the department of Balkan, Slavic and Oriental Studies, which will offer us valuable data on the state-of-the-art of EE training programmes in humanitarian studies.



When they asked whether they have participated in one of the above-mentioned activities where the topic was related to business or entrepreneurship, 50% of the students responded that they had attended curricular subjects related to business and entrepreneurship, while 55,26% stated that they have attended relevant webinars. Participation in extra-curricular activities organized by the university (26,32%) and workshops (15,79%) gathered less responses, while only 2,63% of students have taken part in hackathon focused on entrepreneurship. Finally, 10,53% responded 'other', mainly focusing on volunteering and

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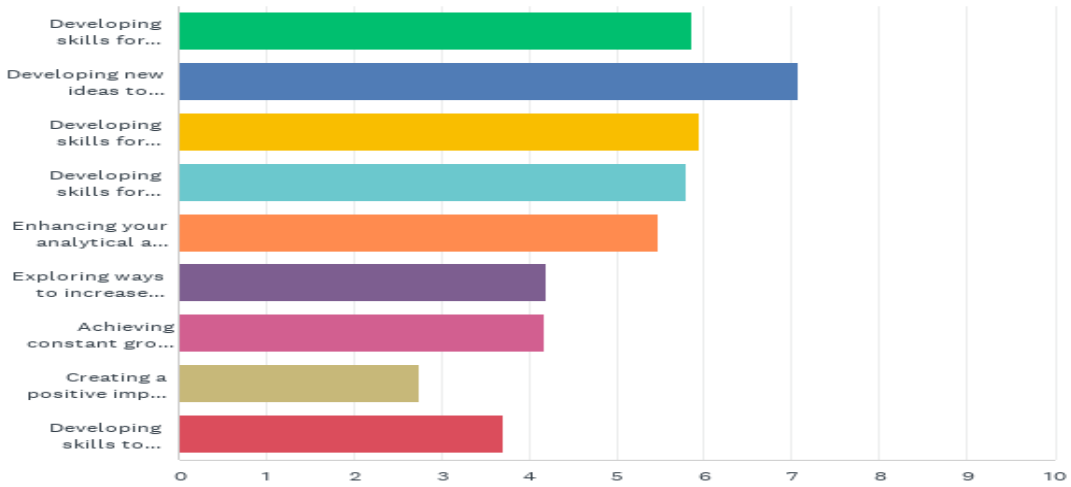
involvement in marketing activities. Given the high number (34) of students that attend courses in humanitarian studies departments, it is hopeful for the diffusion of EE that half of total respondents have attended curricular subjects related to entrepreneurship.

When students were asked to rank a set of statements on what they consider that Entrepreneurship Education is on a scale from 1 (what it is) to 9 (what it isn't), the average responses are ranking as follows:



1. Developing new ideas to address various problems/issues.
2. Developing skills for entering the labor market.
3. Developing skills for starting your own business.
4. Developing skills for working in the business sector.
5. Enhancing your analytical and logical skills for enabling problem solving.
6. Exploring ways to increase your income.
7. Achieving constant growth and development.
8. Developing skills to manage your time.
9. Creating a positive impact through your work.

The ranking scale above indicates that although EE is considered as the 'medium' to address issues or problems by developing new ideas, which corresponds also to the social aspect of entrepreneurship, the next most-selected responses related EE with skills development for entering the labor market, establishing a business, or working in the business sector. On the contrary, the creation of positive impact and achievement of constant growth are considered among the less important aspects of EE, along with time management skills. It is noteworthy that both students and educators consider EE interlinked with employability opportunities, and less with soft skills or personal and professional growth.

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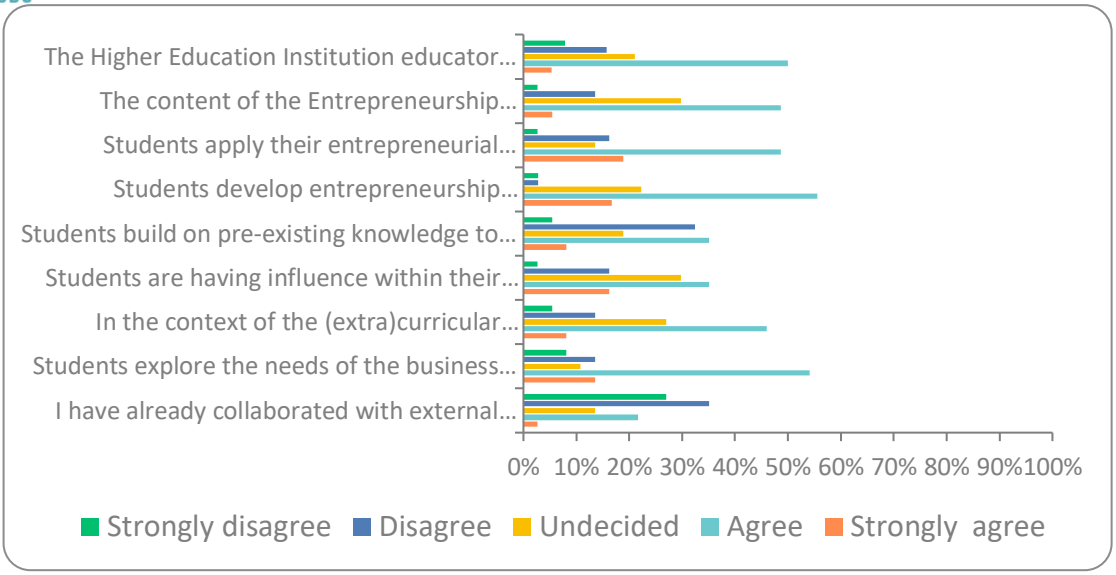

With regards to the structure of the curriculum in Greek HEIs, 50% of the students agree that the educators deliver a fixed curriculum within their department, while 48,65% also agree that the content of the EE programme within their university is derived from students' and business sectors' needs. However, regarding the second statement there is 29,73% of students, who are undecided and 13,51%, who disagree with the respective statement. In this case, we assume that either the curriculum is constantly updated to reflect the needs of students and the business sector or there are contradictions between the departments that students attend courses.

When they asked whether they apply their entrepreneurial knowledge and competences to create value for others, the majority of the students (48,65%) agreed, while 18,92% totally agreed, which shows the tendency of Greek universities to introduce value creation in entrepreneurship education. More specifically, with regards to developing entrepreneurship projects to create economic value- profit for business owners, 55,56% of the students agreed that they have developed such projects, while 22,22% stated 'undecided'. In this case, we observe a tendency to the economic value creation targeted at the business sector instead of social or cultural value creation, which mainly focuses on the society as a whole.

In addition, when they asked whether students build on pre-existing knowledge to create value for others, 35,14% agree with this statement, while 32,43% disagree, which may be attributed to the different structure of entrepreneurship education programmes across different faculties. With regards to students' role on their university, 35,14% agree that they have influence within their university and community, either formally or informally, while 29,73% of students are undecided, which shows that not all departments offer equal opportunities for students to get actively involved within their university.

With regards to students' collaboration with the business sector, the majority of the students (54,05%) agree that they explore the needs of the business sector by collaborating with business owners, employees, or representatives of the business sector. However, a lower percentage of students 'disagrees' (13,51%) or 'strongly disagrees' (8,11%) with the respective statement, which indicates that collaboration with the business sector through experiential

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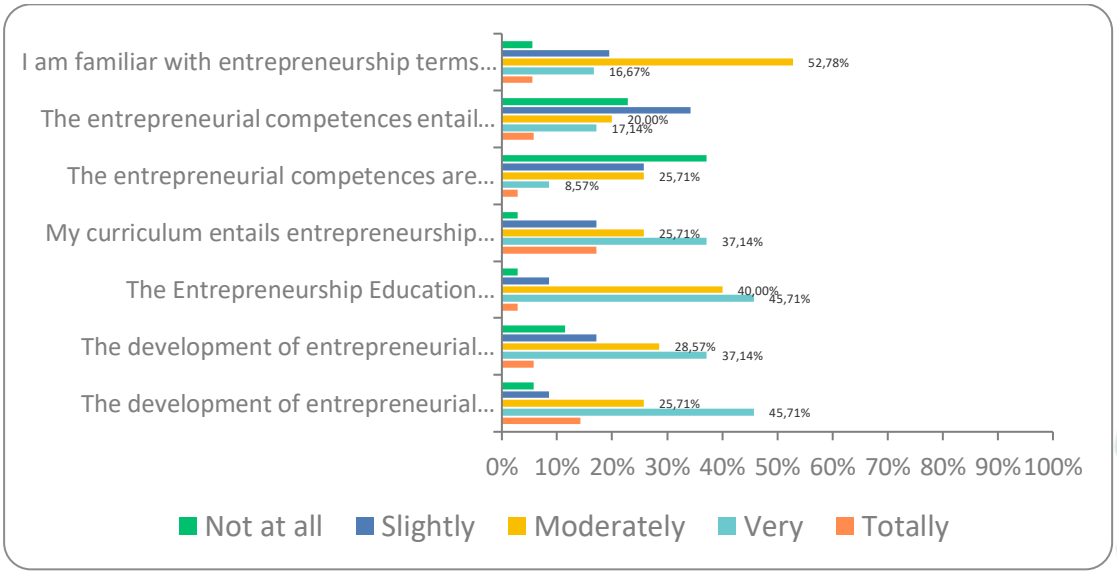
and active learning approaches is not a mainstream teaching strategy for the Greek universities. This conclusion becomes even more obvious when a high percentage of students 'disagrees' (35,14%) or 'strongly disagrees' (27,03%) that they have already collaborated with external stakeholders in the context of EE programme in their university. Although the majority of the students have already responded that they have collaborated with representatives of the business sector in general, they have not collaborated in the context of EE programmes in specific, while it may indicate that the introduction of co-creation, experiential and active learning approaches, like collaboration with the business sector, lags behind with respect to the EE training programmes.



At this part of the survey, students were asked to rate 7 statements based on their level of agreement or familiarity. In specific, over half of the students (52,78%) responded that they are familiar with entrepreneurship terms and concepts, while – on the contrary – 19,44% of students were 'slightly' familiar and 16,67% were 'very' familiar with entrepreneurship terms and concepts. Moving on to the perceptions of students on entrepreneurial competences, 34,29% of the respondents 'slightly' agree that 'the entrepreneurial competences entail only "hard skills" (technical skills) related to business professions', while 22,86% do not agree with the respective statement. Such response indicates that students consider also other skills, like the soft ones, as entrepreneurial competences. With regards to entrepreneurial competences, 37,14% of students do not agree at all with the statement 'the entrepreneurial competences are needed only in the case that someone wants to establish a firm', while 25,71% 'slightly' or 'moderately' agree with the respective statement. It is interesting to observe that the majority of students consider entrepreneurial competences not solely for establishing a business, although in previous questions students mainly related EE with employability skills in general, like entering the labor market.

When they asked whether their curriculum entails entrepreneurship education programmes and related activities (curricular or extracurricular), the majority of the students (37,14%) 'strongly' agreed, while 25,71% 'moderately' agreed. It is noteworthy that 17,14% of students responded that their curriculum 'slightly' or 'totally' includes EE programmes, which indicates that there is a proportion of students who are on different sides; this contradiction may be attributed to the faculties in which students attend courses. Moving on to another statement,

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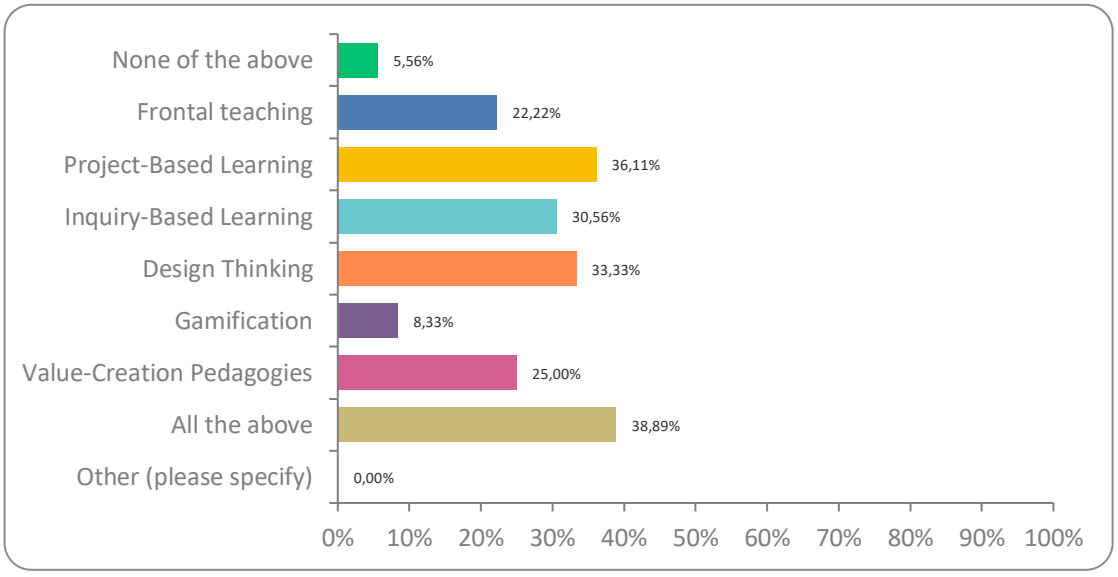
45,71% of the students responded that the EE programmes within their university department offer opportunities for creating value for others, while 40% 'moderately' agreed with the respective statement. Such high percentages indicate that the Greek universities have achieved to incorporate value creation at some extent in their programmes, since responses, like 'not at all' (2,86%) and 'slightly' (8,57%) gather very low percentages.

With regards to the development of entrepreneurial competences, 37,14% of the respondents consider that entrepreneurial competences are solely related to business faculties, while 28,57% 'moderately' agree with the respective statement. Only a low percentage of respondents 'slightly' (17,14%) or 'not at all' (11,43%) consider that entrepreneurial competences are solely related to business departments. However, such percentages bring up the need for developing entrepreneurial mindsets for students of non-business-related faculties as well, in order to consider entrepreneurial competences as part of their professional and personal growth too.

It is interesting to observe that even if students consider entrepreneurial competences mainly related to business faculties, they relate entrepreneurial competences with positive impact creation in non-business faculties. More specifically, 45,71% of the students responded that they 'strongly' agree that the development of entrepreneurial competence can create positive impact for non-business-related faculties, while 28,57% 'moderately' agreed with this statement. Such responses indicate that students acknowledge the positive impact that entrepreneurial competences can create across different faculties; however, they do not consider them as relevant to non-business faculties, which may be attributed to the structure of current curricula that do not promote the entrepreneurial culture across different disciplines.



With regards to which of the above-mentioned approaches students consider as appropriate for teaching Entrepreneurship Education in non-business faculties, 36,11% of the students responded project-based learning, followed by 33,33% that selected design thinking, and 30,56% that chose inquiry-based learning. Such responses may indicate students' need for

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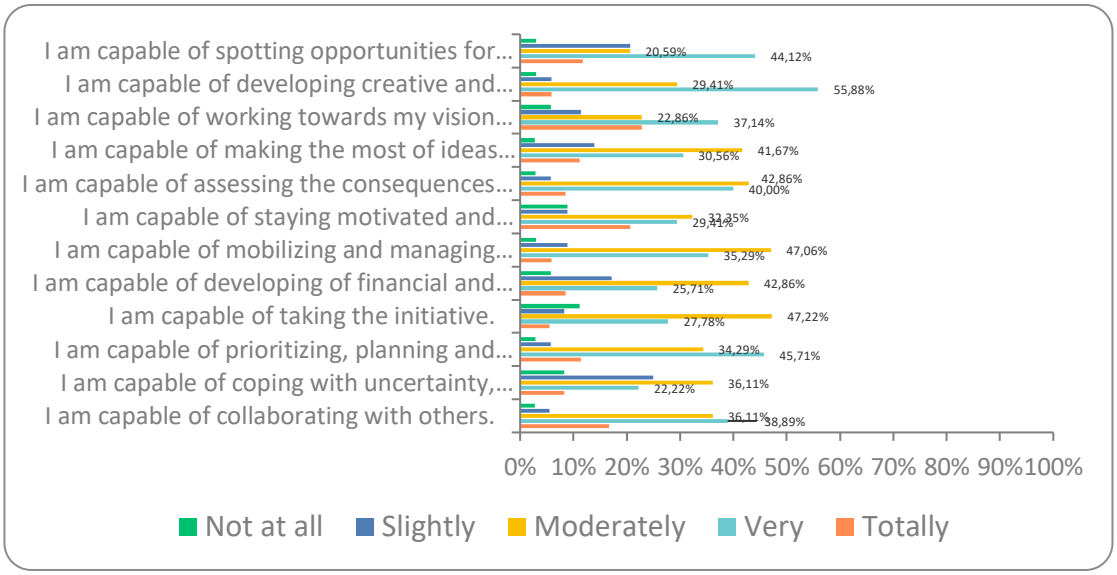
being taught through active learning pedagogies; however, there is a 22,22% of respondents, who consider frontal teaching, as an appropriate approach as well. The majority of the students (38,89%) responded 'all of the above', indicating that a combination of frontal teaching, active learning and student-centered approaches would be appropriate for teaching EE. It is interesting to observe that 25% of students selected value-creation pedagogies as the appropriate approach for teaching EE, which may show a level of familiarity or interest towards such approaches that create value for others. On the other hand, only 8,33% of the students selected gamification, while 5,56% responded 'none of the above' without suggesting something else.



When students asked to evaluate their capability on some entrepreneurial competences, the majority of the students consider themselves 'very' capable of spotting opportunities for creating value for others (44,12%); developing creative and purposeful ideas (55,88%); working towards their vision of the future (37,14%); assessing the consequences and impact of ideas, opportunities and actions (ethical and sustainable thinking) (40%); prioritizing, planning and management (45,71%); collaborating with others (58,89%). On the other hand, an equally high percentage of students consider themselves 'moderately' capable of making the most of ideas and opportunities (41,67%); assessing the consequences and impact of ideas, opportunities and actions (ethical and sustainable thinking) (42,86%); staying motivated and consistent (32,35%); mobilizing and managing resources (47,06%); developing financial and economic know how (42,86%); taking the initiative (47,22%). Finally, it is noteworthy to mention that 25% of the students consider themselves 'slightly' capable of coping with uncertainty, ambiguity and risks.

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Focus Group

Introduction to professional background and Entrepreneurship Education

This focus group comprised a panel of experts with diverse backgrounds and expertise in entrepreneurship and entrepreneurship education (EE), including assistant professors specialized in digital marketing, business administration, and social sciences, as well as business representatives. This diversity in expertise added depth to the conversation. All participants were actively engaged in academia, either as professors or lecturers, which demonstrated their commitment to educating the next generation of entrepreneurs. Notably, several members of the panel had a strong emphasis on marketing, both digital and traditional. This suggests the importance of marketing skills in the entrepreneurial landscape. More specifically, the participants included:

With regards to participants' relevance with Entrepreneurship Education, they recognized that entrepreneurship education equips students with practical skills, problem-solving abilities, critical thinking, and decision-making skills. Entrepreneurship education is particularly relevant in regions where students are actively involved in entrepreneurial activities, such as owning e-shops and websites. According to the focus group participants, the cultivation of entrepreneurial skills and mindsets is essential for graduates to succeed in small family businesses and startups. In this context, technological advancements have led to increased student interest in entrepreneurship, emphasizing the need for skill development and mindset preparation. Both universities and individual courses incorporate various initiatives, including mentorship, incubators, creative thinking promotion, and learning from failure.

Integration of Entrepreneurship Education in Higher Education Institutions

Regarding the participants' level of awareness on EE programmes outside business schools, one of the participants acknowledged that his knowledge was mainly focused on business schools, and he was less aware of EE programs outside these schools, while he mentioned that entrepreneurship courses are often part of the business curriculum. Another participant focused on collaborations with non-profit organizations for courses related to marketing and strategic approaches, but she did not provide specific examples of EE programs outside business schools. Other participants mentioned that in some cases there are creativity courses outside business faculties, which may not explicitly mention entrepreneurship but focus on creativity, innovation, and marketing. There were also several participants that added a different perspective on how the EE programmes are 'labeled', which might play a role in how these courses are perceived. In specific, they highlighted that "*some programs may cultivate skills and abilities needed for entrepreneurship but are branded differently to align with the field of study*".

Discussing participants' perceptions of EE in Non-Business Departments, many of them recognized that students in non-business departments, such as communication, journalism, engineering, science, and film, are increasingly interested in entrepreneurship, as they recognize the value of entrepreneurial skills and the potential to start their own businesses. As one of the participants pointed out, "*students see entrepreneurship as a tool to translate*

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research into commercial applications, fostering creativity and providing a way to address social and environmental challenges". However, the discussion also highlighted that while there is progress in recognizing the importance of entrepreneurship education in non-business departments, there is still a gap to fill in fully integrating entrepreneurship into these programs. Further efforts may be needed to ensure that students across various disciplines have access to entrepreneurship education and can develop the entrepreneurial competencies required to succeed in their chosen fields. Also, another participant, a PhD candidate in the field of Art History, noted that there is need for readjusting the curricula of the non-business departments, in order to introduce the concept of entrepreneurship and develop the respective skills.

With regards to the benefits of integrating EE into the HEIs curricula of non-business departments, participants focused on three aspects: firstly, it helps students translate their ideas and research into practical applications. One of the participants gave an example highlighting that "*students in engineering can explore commercial applications, while those in humanitarian studies or social sciences can create business ideas that address societal challenges and enhance social benefits*". Secondly, it enhances creativity and entrepreneurial instinct, as participants acknowledge that students from non-business backgrounds often demonstrate high levels of creativity and entrepreneurial instinct. "*They may not have formal business training, but their fresh ideas and instincts can drive them to explore entrepreneurial opportunities*", as one of the participants mentioned. In that way, integrating EE can provide them with the structured thinking and skills needed to turn their ideas into reality. Thirdly, it enables applying entrepreneurial mindset to various fields, since students can learn to create, develop brands, and establish effective communication strategies for establishing and running a business.

Training Programmes for HEIs educators on Entrepreneurship Education

Participants discussed various teaching and training approaches used in Entrepreneurship Education (EE) programs for HEI educators. It is intriguing to note that there was a philosophical debate about the role of education in teaching practical skills versus developing entrepreneurial mindsets. More specifically, one of the participants (THEORIDIS) shared his perspective that "*entrepreneurship cannot be taught directly but that educators can provide students with a path to creative thinking, teamwork, and collaboration. Entrepreneurship is a mindset and a way of thinking rather than a manual*". The main practical teaching methods shared by the participants were the following:

- Lectures
- Case Studies
- Group Projects
- Experiential Learning (e.g., Business Visits)
- Guest Speakers

As the participants concluded, these approaches aim to provide students with real-world examples, hands-on experiences, and the skills needed to analyze and critique existing businesses. The effectiveness of these approaches in equipping students with entrepreneurial knowledge and skills that align with labor market requirements may vary, but often emphasizes a practical and experiential learning approach.

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Moving on to the support and teacher training tools that HEIs educators of non-business departments need to integrate EE within the curriculum, participants unanimously agreed on the need for collaboration with business faculty members, who have a business background and, therefore, can provide a different perspective and help non-business educators teach business-oriented concepts effectively. One of the participants suggested "*splitting courses and teaching different elements in collaboration with business faculty members, because teaching entrepreneurship can be challenging for educators of other disciplines*". In addition, participants added that the culture of a university can influence teaching practices, including how entrepreneurship is integrated into the curriculum. Regarding the access to educational material, even though participants recognized that it may hinder the introduction of EE into non-business curricula, "*the challenge lies in effectively using and teaching the material*", as highlighted by one of the participants. This brings up the need for applying effective training strategies for educators, in order to make them capable and confident at delivering EE programmes. On the other hand, a PhD candidate in the field of Art History highlighted that new learning materials need to be designed in direct collaboration with business sector representatives to reflect the needs of non-business department educators.

Existing collaborations between Higher Education Institutions (HEIs) and Industry

The participants discussed university programs that promote active cooperation between universities and the business community. These programs aim to bridge the gap between academia and the business world by providing students with exposure to industry professionals, case studies, and practical experiences. Examples include collaborations with NGOs, industry talks, and workshops conducted by companies like Deloitte, which implements design thinking bootcamps. More specifically, one of the participants described the collaboration between the University of Macedonia and an NGO that focused on various activities, including volunteer work and circular fashion communities. In this context, the collaboration involved inviting professionals from the business field to participate in online "ECON talks". These initiatives enrich students' learning experiences and help them connect with the business community to better prepare for their future careers.

Delving into the kind of cooperation between HEIs and the business sector, participants unanimously agreed that the involvement of the business sector representative in EE programmes deliver by HEIs varies in terms of stages of program design, development, delivery and evaluation. Participants mentioned that collaboration with business sector representatives mainly occurs during the implementation stage, such as guest lecturing and other activities. After the collaboration, feedback is collected from the entrepreneurs and managers from the industry sector. As one of the participants highlighted (THEODORIDIS), "*this feedback is considered during the design phase of new programs or courses*". However, they typically do not have a role in the formal assessment or grading of students. In less cases, representatives of the business sector are actively engaged during the planning and design phase to ensure the program has a business perspective; however, most of the time this is the case for economic and business faculties.

With regards to the benefits of collaboration between HEIs and the business sector, the participants recognised the valuable contributions of business representatives in designing and implementing EE training programs for HEI educators "*by bringing practical, real-world experience to the theoretical aspect of education*", as one of the participants mentioned. In

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addition, other participants emphasized the importance of feedback from business representatives during the design and implementation of training programs, as it helps to ensure that the university programmes align with the needs and expectations of the business industry. Another participant highlighted also the benefits that students gain from the interaction with business representatives by underlining that "*they gain insights from practitioners, and their ideas and perspectives can contribute to the practical relevance of the programs*". However, participants pointed out that there are no specific formats of such collaboration, and in most cases it is restricted to guest lectures, workshops, feedback sessions, and collaborative projects, rather than co-design or co-delivery of the respective course.

Moreover, the participants elaborated on the active involvement of business sector representatives in EE programmes and highlighted their roles in different phases of the programmes. More specifically, during the discussion, one of the participants mentioned that business representatives are actively engaged during the design phase of EE programs. As he highlighted, "*their involvement at this early stage is essential to infuse a business perspective into the program*. *Being part of the design process ensures that the program aligns with real-world business needs*". In the implementation phase, participants once again mentioned that business representatives may also participate as guest lecturers or experts during the implementation phase. However, according to participants' experience, business representatives do not have a direct role in assessing students' work unless there is a specific group project involving a company. In such cases, they may offer their opinions but do not influence the grading process.

Participants concluded that among the main benefits of collaborations between HEIs and the business sector include innovation, teamwork, collaboration, creative thinking, and knowledge transfer.

Challenges and solutions for fostering collaboration between HEIs and industry

The focus group discussion centered on the challenges and potential solutions for effectively integrating EE within the curriculum of non-business departments in Greek HEIs. The participants shared their insights and recommendations on how to address these challenges. More specifically, one of the participants noted that one of the primary challenges is the restricted curriculum within non-business departments. As she highlighted, "*This limitation often hinders the flexibility needed to incorporate business-oriented modules seamlessly*". On the other hand, participants raised concerns about HEIs' policies and bureaucratic structures, which can make it difficult to introduce new courses, particularly those from different departments; such policies create barriers to curriculum changes.

Regarding the solutions that the participants suggested, cross-departmental course enrollment was unanimously mentioned by the participants. Several participants suggested enabling students from non-business departments to take courses from business departments, while emphasizing that this approach would allow students to access relevant business modules without the need for extensive changes to the existing curriculum. In addition, one of the assistant professors mentioned recent legislation that provides students with the opportunity to take courses from other degree programs. As he notes, "*This legal change allows students to combine knowledge from different disciplines and explore*

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entrepreneurship through business courses". Last but not least, participants proposed flexible scheduling to accommodate busy schedules and meet the needs of all stakeholders, including students, educators, and business representatives. "*This flexibility could include offering courses during non-standard hours, providing online options, and facilitating guest lectures and workshops that fit into various schedules*".

When participants were asked about the support that educators need to establish cooperations with the business sector, it appears that the consensus among the participants is that further training for HEI educators on establishing meaningful local collaboration schemes with local entrepreneurs may not be the primary need. Instead, the focus should be on encouraging universities to be more open and actively engage with the local business community through social activities and partnerships. The participants believe that fostering an open approach to collaboration with businesses and implementing programs that facilitate these connections would be more effective than additional training for educators in this context.

Delving into participants' perspectives on fostering collaboration between HEIs and industry, several participants suggested the development of a digital public relations plan, and most of the participants agreed. They emphasized the need to adapt to the changing business world, which is increasingly digital, by enhancing communication through establishing digital channels. Finally, participants' suggestions on the content of the ENTREHUBS model included the need to introduce students of non-business departments to the concept of entrepreneurship, and mainly to what design thinking is and how it can become a powerful tool for entrepreneurship by identifying and responding to your target group's needs.

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Chapter 4: CYPRUS

State-of-the-art of Entrepreneurship Education and Value Creation in Cyprus

Introduction – Entrepreneurship Education in the Cypriot Higher Education Institutions

Entrepreneurship Education in Higher Education Institutions (HEIs) in Cyprus holds substantial importance as it fosters innovation and job creation and drives economic growth. Entrepreneurship education is crucial in preparing students to become future entrepreneurs and innovative leaders in the business world. HEIs contribute to developing a skilled and enterprising workforce by imparting essential entrepreneurial skills, knowledge, and mindset, organizing and promoting innovation workshops and competitions. In a rapidly changing economy and job market, this education equips students with adaptable and versatile skills, empowering them to navigate uncertain environments, identify opportunities, and create their ventures.

The role of entrepreneurship as a catalyst for driving innovation, creating new job opportunities, and boosting economic growth in Cyprus cannot be overstated. Students nurtured with an entrepreneurial spirit are more inclined to pursue innovative business ideas and ventures. These endeavors introduce new products, services, and processes, contributing to technological advancements and economic development. Moreover, startups and entrepreneurial ventures often create jobs, reducing unemployment rates and promoting sustainable economic growth.

The entrepreneurial landscape is continuously evolving due to technological advancements, consumer behavior changes, and global economic shifts. To remain relevant and impactful, HEIs must stay current with the latest entrepreneurship education trends and practices. Institutions can effectively prepare students to tackle real-world challenges and stay competitive in a dynamic business environment by adapting their curricula, incorporating cutting-edge teaching methodologies, and fostering strong industry collaborations.
In conclusion, entrepreneurship education in Cyprus HEIs has started to play a pivotal role in nurturing a culture of innovation, creating employment opportunities, and driving economic progress.

Key Components-Teaching approaches of Entrepreneurship Education

Entrepreneurship education in Cypriot HEIs has started to play (although it is still in its infancy) a crucial role in preparing students to become future entrepreneurs and innovative leaders in the business world. As highlighted in the OECD Skills Strategy Report for Cyprus (2019), developing entrepreneurial skills is essential to drive economic growth and create a competitive workforce that can adapt to the dynamic business landscape. By imparting core entrepreneurial competencies, including creativity, problem-solving, and risk-taking, HEIs contributes to developing a skilled and enterprising workforce ready to tackle real-world challenges.

Entrepreneurship acts as a catalyst for fostering innovation, creating new job opportunities, and boosting economic growth in Cyprus. The European Commission's roadmap for implementing entrepreneurship education emphasizes the impact of entrepreneurial mindsets in driving social and economic development. By nurturing entrepreneurial spirit, HEIs in Cyprus inspire students to pursue innovative business ideas, leading to the

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introduction of novel products, services, and processes that stimulate technological advancements and overall economic progress.

A state-of-the-art entrepreneurship education program encompasses several core elements, as suggested by the Strategy for Entrepreneurship Education in Higher Education by the Republic of Cyprus Ministry of Education, Culture, Sports, and Youth (2020). These elements include:

a) Curriculum Design
b) Experienced Faculty
c) Industry Collaboration

Theoretical knowledge is the foundation of an entrepreneurship education program, providing students with a theoretical framework to understand business concepts, principles, and best practices. However, more than theoretical knowledge is required. Practical experience through experiential learning opportunities complements theoretical understanding, enabling students to apply their knowledge in real-life scenarios.
Experiential learning activities such as internships, startup incubators, and entrepreneurial competitions allow students to test their ideas, develop problem-solving skills, and learn from successes and failures.
In conclusion, entrepreneurship education in Cypriot HEIs is pivotal in cultivating innovation, job creation, and economic growth. A state-of-the-art entrepreneurship education program should encompass a well-designed curriculum, experienced faculty, and strong industry collaborations.

Exploring the integration of EE in interdisciplinary studies

To foster a holistic approach to entrepreneurship, exploring the integration of entrepreneurship education (EE) within various interdisciplinary studies beyond traditional business-related fields is essential. Various HEs are beginning to incorporate EE into technology, design, social sciences, humanitarian studies, and other disciplines to introduce and equip students with a diverse skill set and a broader understanding of entrepreneurial endeavors.

1. Integration of EE in Technology Studies in Cypriot HEIs: Cypriot HEIs have been encouraging the integration of entrepreneurship education with technology studies. They recognize the importance of combining technical expertise with entrepreneurial skills to drive innovation and create tech-based ventures. Through programs and courses that blend technology and entrepreneurship, students understand the market's demands and learn to leverage technology to create impactful startups and businesses.
2. Integration of EE in Design Studies in Cyprus HEIs: Design studies in Cyprus HEIs have also embraced entrepreneurship education to foster a creative and entrepreneurial mindset among students. By incorporating entrepreneurship principles into design programs, students gain the ability to develop market-oriented products and services. This integration empowers aspiring entrepreneurs from design backgrounds to launch ventures that address user needs and stand out in competitive markets.
3. Integration of EE in Social Sciences and Humanitarian Studies in Cyprus HEIs: HEIs have recognized the importance of social entrepreneurship and its potential to drive positive change in society. As such, entrepreneurship education has been

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integrated into social sciences and humanitarian studies. Students pursuing these disciplines are encouraged to explore social impact-driven entrepreneurship, developing ventures that address pressing societal challenges while maintaining financial sustainability.

4. Fostering a Holistic Approach in Cyprus HEIs: Cyprus HEIs increasingly embrace a holistic approach to entrepreneurship education by offering interdisciplinary courses and programs that bring together students from various academic backgrounds. Students gain exposure to diverse perspectives and real-world problem-solving experiences by promoting cross-disciplinary collaboration and project-based learning.

The Ministry of Innovation in Cyprus promotes innovation in Higher Education Institutions (HEIs). Through strategic initiatives and funding programs, the ministry encourages HEIs to foster a culture of innovation and entrepreneurship among students and faculty. By supporting research and development projects, providing grants for innovation-driven initiatives, and facilitating partnerships with industries, the ministry empowers HEIs to stay at the forefront of technological advancements and drive innovation that positively impacts the nation's economic growth and societal development.

Cyprus HEIs have started to actively integrate entrepreneurship education into diverse interdisciplinary studies beyond traditional business studies. By combining EE with technology, design, social sciences, and humanitarian studies, these institutions are fostering a generation of entrepreneurs with a comprehensive skill set and a profound understanding of entrepreneurship's societal impact.

Knowledge exchange and Collaboration between academia and business industry

In Cyprus, fostering knowledge exchange and collaboration with the business sector and industry is vital in enhancing students' entrepreneurial skills and mindset. Through mentorship programs, students can learn from experienced entrepreneurs and industry experts, gaining valuable insights and practical knowledge. Networking events and collaborative projects strengthen the bond between academia and industry, facilitating a dynamic exchange of ideas and real-world challenges. Such interactions provide students with exposure to the latest industry trends and enable them to develop a deep understanding of market demands and opportunities. By embracing mentorship, networking, and collaboration with industry, Cyprus HEIs cultivate a generation of innovative and enterprising individuals, well-prepared to make a meaningful impact in the business world.

Exploring the concept of value creation in the HEIs' curriculum

In Cyprus, integrating value creation, social entrepreneurship, and sustainable business practices into entrepreneurship education is gaining prominence, reflecting the growing demand for socially responsible entrepreneurship. Recognizing the importance of addressing societal and environmental challenges, Higher Education Institutions (HEIs) are beginning to emphasize the need for a value-creation approach in conjunction with social entrepreneurship.

It is recognized that by instilling a value creation mindset, students are encouraged to identify opportunities to impact society while building sustainable businesses positively. Cyprus HEIs is developing courses and programs emphasizing the triple bottom line—focusing on economic, social, and environmental impacts.

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Integrating social entrepreneurship equips students with the skills to address pressing social issues through business models that drive positive change. HEIs have begun emphasizing the significance of engaging with communities, understanding their needs, and developing ventures that create lasting social value. By combining value creation and social entrepreneurship, Cyprus HEIs nurtures a generation of entrepreneurs who prioritize purpose-driven ventures and sustainable business practices.

Cypriot HEIs are responding to the growing demand for socially responsible entrepreneurship by integrating value creation, social entrepreneurship, and sustainable business practices into entrepreneurship education. HEs are beginning to emphasize that a value-driven approach with social entrepreneurship prepares students to become agents of positive change, contributing to improving society and the environment through their entrepreneurial endeavors.

Innovations and Best Practices in Entrepreneurship Education

In Cyprus, entrepreneurship education is flourishing with innovative approaches and best practices adopted by leading higher education institutions. These institutions have recognized the importance of preparing students for entrepreneurial ventures and have integrated various initiatives to foster an entrepreneurial ecosystem within their campuses.

Center for Entrepreneurship and Innovation (CEI) - University of Cyprus: The CEI at the University of Cyprus is a renowned entrepreneurship center that offers a wide range of programs and activities to support aspiring entrepreneurs. They organize workshops, seminars, and boot camps on business planning, marketing, and finance, providing students with valuable entrepreneurial skills. Additionally, the center hosts pitch competitions and connects students with industry experts and potential investors, promoting networking and collaboration.

IDEA: IDEA is the Innovation and Development Entrepreneurship Accelerator of the University of Nicosia. It is a successful accelerator that supports early-stage startups with mentorship, funding, and access to a network of entrepreneurs, investors, and industry leaders. IDEA focuses on technology-driven ventures and has helped many startups in Cyprus gain traction and visibility in the market.

Chrysalis Leap: Chrysalis Leap is an entrepreneurship program by CUT that aims to bridge the gap between academia and industry. It gives students and researchers the tools and resources to turn their research and innovative ideas into successful businesses. The program offers mentorship, workshops, and access to a network of entrepreneurs and investors.

Research Promotion Foundation (RPF): The Incubator of the Research Promotion Foundation in Cyprus supports startups with high-tech and innovative ideas. It provides entrepreneurs with financial support, office space, and mentorship, enabling them to develop their ideas into viable businesses. The incubator focuses on research-based ventures and has nurtured a culture of innovation and technology-driven entrepreneurship in Cyprus.

European University Cyprus Business Incubator: The European University Cyprus Business Incubator offers comprehensive support to startups and entrepreneurs. It provides access to a network of experts, investors, and industry partners, as well as business development services, mentorship, and funding opportunities. The incubator is known for its tailored approach to assisting startups in various industries, fostering a diverse and vibrant entrepreneurial community.

Gravity Ventures: An established and dynamic accelerator, Gravity Ventures is dedicated to supporting early-stage startups and empowering entrepreneurs with the tools and resources they need to succeed. Through their tailored programs, mentorship, and funding

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opportunities, Gravity Ventures provides a nurturing environment for innovative ideas to flourish. Their network of seasoned mentors, industry experts, and investors offers invaluable guidance and support, helping startups overcome challenges and achieve sustainable growth.

ARIS: a leading entrepreneurship center in Limassol, Cyprus, known for its impactful contributions to the local startup ecosystem. With a solid commitment to fostering innovation and supporting aspiring entrepreneurs, ARIS provides a nurturing environment for startups at various stages of development. Through their comprehensive programs and workshops, ARIS equips entrepreneurs with essential skills, knowledge, and resources to turn their ideas into successful businesses.

ARIS offers a vibrant co-working space where startups can collaborate, exchange ideas, and benefit from a dynamic community of like-minded individuals. Additionally, the center provides access to a vast network of industry experts, mentors, and investors, facilitating valuable connections and partnerships for startups.

Cyprus SEEDS: Cyprus SEEDS is a prominent and influential entrepreneurship organization in Cyprus dedicated to nurturing and empowering startups with high-growth potential. Through its comprehensive accelerator programs, Cyprus SEEDS offers a transformative experience for early-stage ventures, equipping them with the necessary tools, skills, and connections to thrive in the competitive business landscape. Aspiring entrepreneurs joining Cyprus SEEDS access a wealth of resources and support. The organization's seasoned mentors, industry experts, and successful entrepreneurs provide invaluable guidance and mentorship, helping startups refine their business models and navigate challenges.

CyRIC (Cyprus Research & Innovation Center): A notable organization in Cyprus, contributing significantly to research, innovation, and entrepreneurship in the country. As a leading research and innovation center, CyRIC offers comprehensive support to startups and entrepreneurs, helping them transform innovative ideas into successful businesses. Through its various programs and initiatives, CyRIC provides startups access to specialized resources, mentorship, and guidance from experienced professionals. The organization fosters collaboration and networking, connecting entrepreneurs with industry experts, investors, and potential partners. CyRIC's focus on research and innovation adds a unique dimension to its support for startups. The organization empowers entrepreneurs to develop cutting-edge solutions that address real-world challenges by emphasizing evidence-based practices and technological advancements.

These successful incubators, accelerators, and entrepreneurship centers in Cyprus provide aspiring entrepreneurs with valuable resources, mentorship, and funding opportunities. They play a crucial role in shaping the entrepreneurial landscape in Cyprus, promoting innovation, and supporting the growth of startups. With such initiatives, Cyprus creates an environment where young entrepreneurs can thrive, contributing to economic growth and societal development.

Deloitte Cyprus: Through various programs, events, and initiatives, Deloitte Cyprus supports startups at different stages of development, offering mentorship, networking opportunities, and access to industry experts. The center also researches and promotes thought leadership on innovation and entrepreneurship topics to drive economic growth and business transformation.

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Online survey for HEI educators

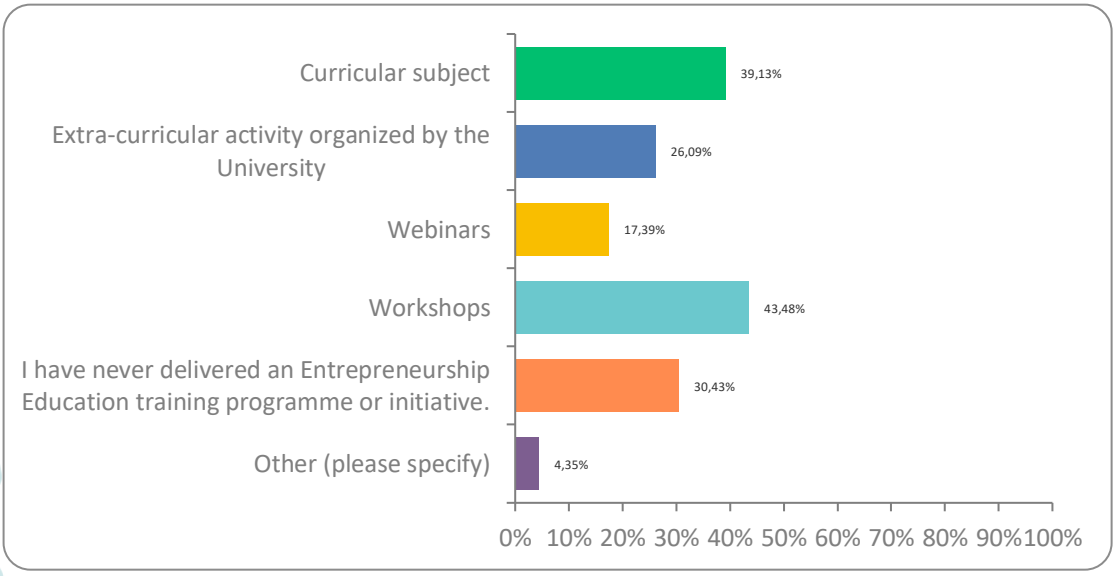
The survey was deployed by University of Cyprus in collaboration with RESET using Survey Monkey between March and May. In total 26 educators answered the survey in conformity with the GDPR regulations.

Educators' profile

The participants are employed as lecturers, professors or assistant professors, and researchers in both public and private universities of the country, such as University of Cyprus, European University of Cyprus, Cyprus University of Technology, Frederick University and University of Nicosia. Out of the 26 participants, 21 are male, and only 6 are female with their teaching experience to vary from 5 to 35 years old, which means that some of them have experienced the progress of different educational approaches in tertiary education, and specifically in Entrepreneurship Education. Finally, the research sample consists of educators representing different faculties, such as Social Sciences, Biological Sciences, STEM, Engineering, Business and Economics, Computer Science, Health Sciences, etc.

Introduction of Entrepreneurship Education and Value Creation Pedagogies

As part of the survey, we investigated the experience of educators in delivering entrepreneurship education programmes, as well as the approaches that they apply. When asked in which category the entrepreneurship programmes or initiatives that they have delivered, the majority of them (43,48%) have indicated the workshops as the main category of EE training programme, in which they have teaching experience. It is interesting to note that



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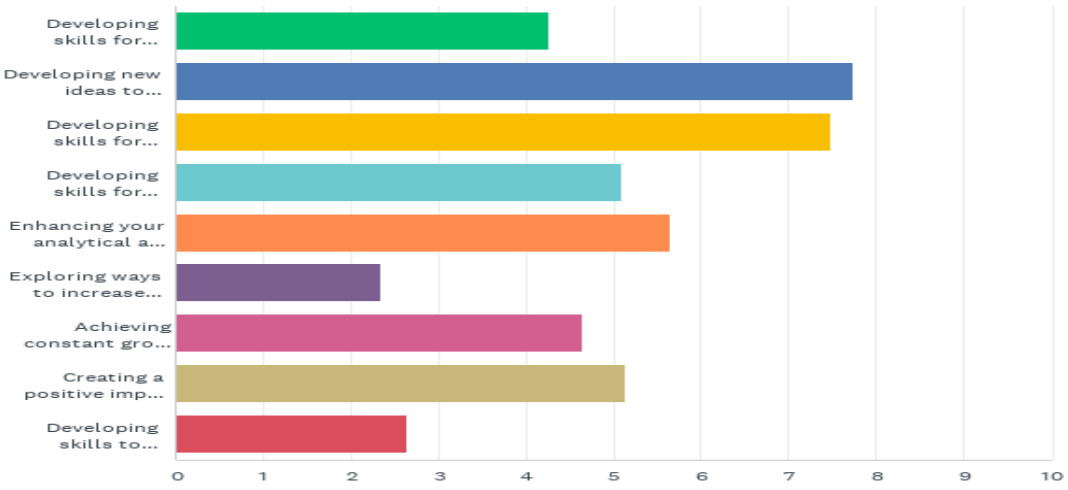
a considerable percentage of educators (39,13%) has delivered such programmes in the context of curricular subjects, which shows that the Cypriot universities have begun to incorporate EE across different faculties. A considerable percentage of educators (30,43%) have never delivered an EE training programme or initiative, which reveals a number of faculties that have not included EE training programmes neither in their curricular or extra-curricular activities or may indicate several educators that is not equipped with the skills to deliver such programmes. Extracurricular activities (26,09%) and webinars (17,39%) were selected by less educators, which means that these educators and the faculties in which they teach, are not very active in delivering extracurricular EE trainings and initiatives.

In terms of collaboration with external stakeholders for delivering such EE programmes, only 11 out of 26 educators have collaborated with representatives of the business sectors, mainly by inviting entrepreneurs, local accelerators, and representatives from industry and start-up ecosystem as guest speakers, implementing extracurricular activities, such as "*entrepreneurship related workshops at the Microsoft Innovation Center (EUC)*"; co-designing summer courses "*created programs of studies in computer science for summer courses*"; co-participating in entrepreneurship initiatives with other organizations, such as "*participation in the Cyprus seeds program*", "*collaboration with Junior Achievement Cyprus*" or "*through EIT Climate-KIC*". One of the educators highlighted that "*Yes, business leaders and entrepreneurs are often invited to my classes, even those not related to entrepreneurship.*", which shows the progress being made in non-business-related faculties with regards to delivering entrepreneurship education.



When educators were asked to rank a set of statements on what they consider that Entrepreneurship Education is on a scale from 1 (what it is) to 9 (what it isn't), the average responses are ranking as follows:

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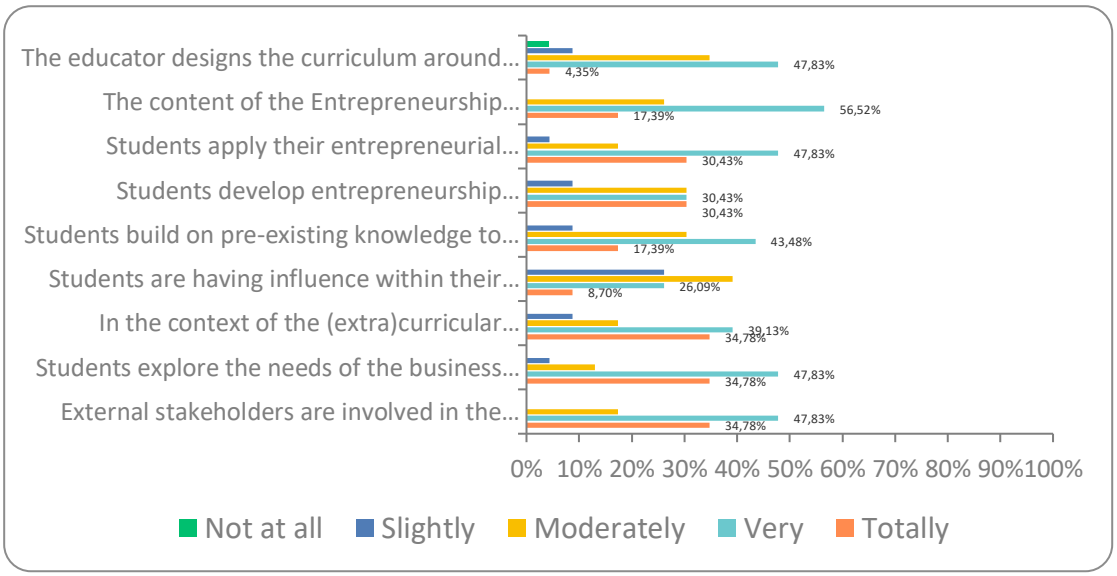
1. Developing new ideas to address various problems/issues.
2. Developing skills for starting your own business.
3. Enhancing your analytical and logical skills for enabling problem solving.
4. Creating a positive impact through your work.
5. Developing skills for working in the business sector.
6. Achieving constant growth and development.
7. Developing skills for entering the labour market.
8. Developing skills to manage your time.
9. Exploring ways to increase your income.

The ranking scale above indicates that EE is mostly related to addressing various problems, developing skills for starting a business, enhancing analytic skills for enabling problem solving and creative positive impact through your work, focusing mostly on the social aspect of entrepreneurship. On the other hand, 'developing skills of working in the business sector', 'developing skills for entering the labor market' and 'exploring ways to increase your income' are placed among the last places in the scale, which highlights the shifting of focus from profit-oriented to impact-oriented entrepreneurship.



In terms of what the educators believe that the value co-creation entails, the majority of them (56,52%) strongly agreed that 'the content of the Entrepreneurship Education programme is derived from students' and business sector's needs', while 26,09% moderately agrees with this statement. 47,83% strongly agrees that 'the educator designs the curriculum around the immediate needs of the students' and that 'students apply their entrepreneurial knowledge and competencies, in order to create value (social, financial, cultural, etc.) for others', which both show a student-centered approach with value-creation orientation. The same percentage (47,83%) of educators strongly/very agree that 'students apply their entrepreneurial knowledge and competencies, in order to create value (social, financial, cultural, etc.) for others'; 'students explore the needs of the business sector by collaborating with business owners, employees, or representatives of the business sector'; 'external stakeholders are involved in the delivery of the teaching/training in Entrepreneurship Education programs'. These responses reveal that the Cypriot HE system has already shifted the focus on both

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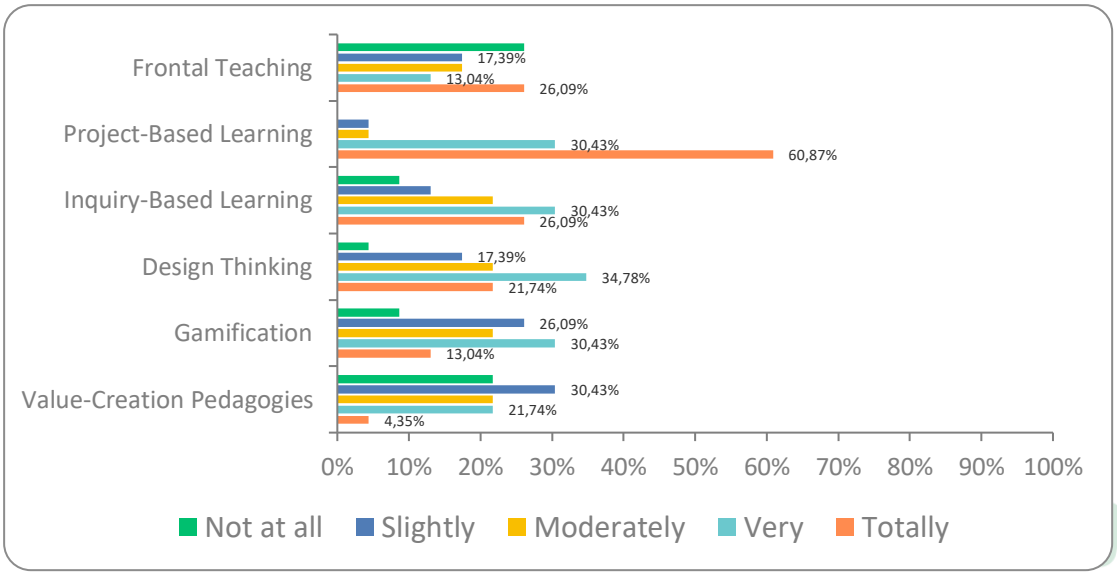
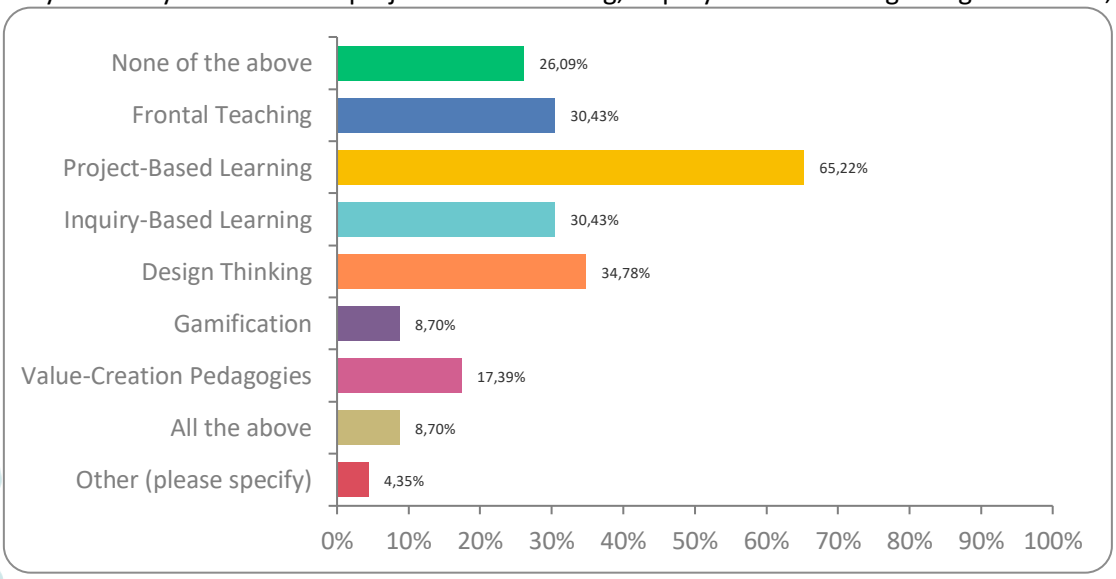
targeting students' needs and engaging stakeholders of the entrepreneurial ecosystems in co-creating educational resources.



When asked to what extent educators are familiar with traditional and non-formal teaching approaches, including frontal teaching, project-based learning, inquiry-based learning, design thinking, gamification and value-creation pedagogies, the majority of the participants (60,87%) responded that they feel 'totally' familiar with project-based learning, and less feel 'totally' familiar with frontal teaching, which is indicative of the shifting of Cypriot HE system towards active learning pedagogies. However, only 4,35% of the educators consider themselves 'totally' familiar with value-creation pedagogies, while 30,43% feel 'sightly' familiar with the respective approach. In this context, it is hopeful that 21,74% of educators are 'very' familiar with value creation pedagogies. 30,43% of the educators responded that they feel 'very' familiar with project-based learning, inquiry-based learning and gamification,



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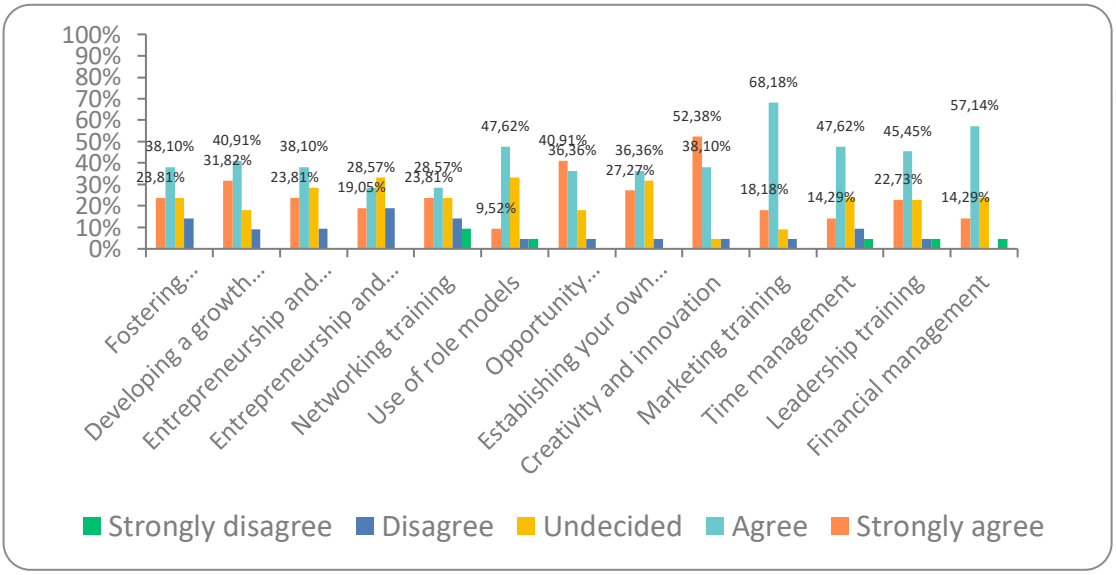
while 34,78% considers themselves 'very' familiar with design thinking. In general, it is optimistic that the Cypriot HE system is getting focused on active learning pedagogies targeted at students' and labor market's needs.

With regards to which of the following approaches have educators used in their teaching, the majority of them (65,22%) have already employed Project-Based Learning, while 34,78% have delivered an EE program using design thinking. Less educators (30,43%) have used frontal teaching and inquiry-based learning, while 26,09% responded that they have used neither of the above approaches, which raises inquires on which approaches they used to deliver EE courses. Value creation pedagogies have been employed in teaching by 17,39% of the respondents, which indicates that initial steps are undertaken towards establishing an entrepreneurial culture focused on the creation of social impact and value.

Planning and implementation of existing EE programmes addressed to HEIs students.

At this part of the survey, we investigated educators' perceptions on the structure, planning and implementation of existing EE training programmes addressed to HEI students, in order to explore potential connections of the current projects with the value co-creation approach as per methodology, purpose and application.



In terms of what existing EE programmes include the majority of the participants (68,18%) agreed that 'marketing training' constitutes a part of the existing EE programmes, which indicates the focus on the profit-oriented aspect of entrepreneurship. Equally high percentages of respondents have selected 'financial management' (57,14%), time management (47,62%) and 'leadership training' (45,45%) as parts of existing EE courses, which again indicates the focus on the profit-based entrepreneurship. However, 'use of role models' (47,62%) 'developing a growth mindset' (40,91%) and 'creativity and innovation' (52,38%) reveals an entrepreneurship education targeted on professional growth and creativity.

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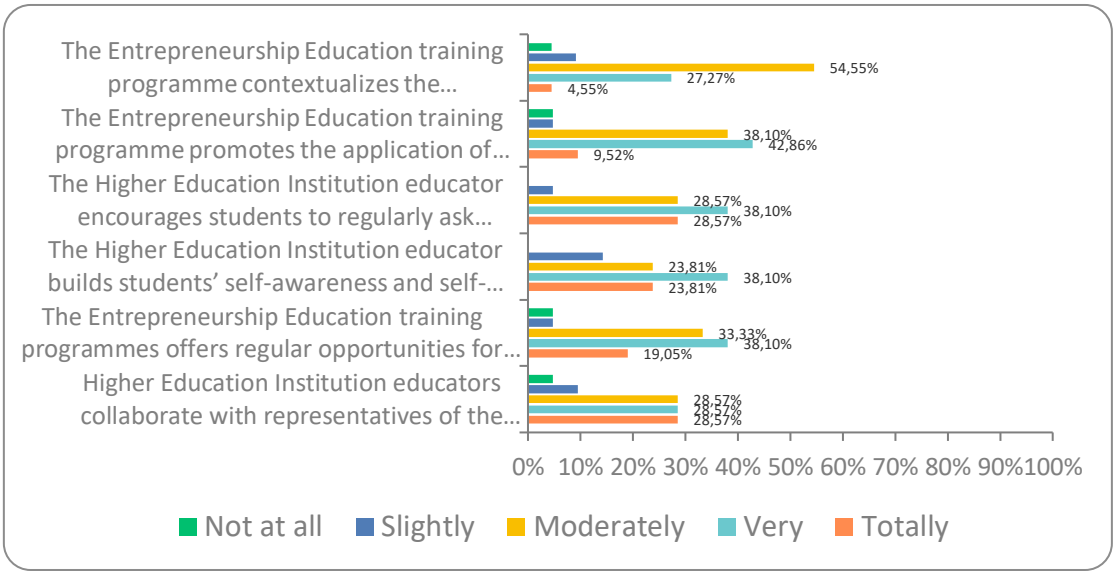

When educators were asked to what extent they agree in the above statements regarding the structure of existing EE programmes and the role of educators in such programmes, it is interesting to see that the majority of the participants 'moderately' agreed that the EE programmes are contextualized based on students' academic background (54,55%), which indicates that this knowledge may not be applicable across different faculties (e.g. business studies or humanitarian studies); however, a lower percentage (27,27%) strongly agreed that that such programmes are contextualized based on students' academic background. It is also interesting to note that a high percentage of respondents (42,86%) strongly agreed that the existing EE training programmes in Cyprus 'promote the application of students' entrepreneurial competences for creating value for others', while equally high percentage of educators (38,1%) 'moderately' agreed with the respective statement; such percentages show that there is a consensus on behalf of the educators on the encouragement of students to create value for others as part of their EE training programmes. Regarding the opportunities that EE programmes offer for students to work with representatives of the business sectors, the majority of the educators (38,1%) considers that such programmes strongly address this aspect; 33,33% 'moderately' agrees with the respective statement, while 19,05% of the educators 'totally' agree, which shows the structure of such programmes, since respondents, who disagree, have gathered much lower percentages.

With regards to the role of educators, the majority of them (38,1%) acknowledge that HEIs educators strongly 'encourage students to regularly ask questions, consider alternative solutions follow their own inquiries and create value for others through their learning', followed by 28,57% who 'totally' or 'moderately' agrees. This tendency is indicative of the active learning approaches that educators applying, when teaching EE training programmes. With regards to what extent the educators build students' self-awareness and self-confidence, so that they become self-disciplined, handle setbacks and resolve difficulties in mature ways to achieve valuable outcomes, the majority of the respondents (38,1%) strongly agreed, while equally high percentage of educators (23,81%) 'moderately' or 'totally' agreed with the above statement; such consensus aligns with the responses about developing growth mindset and leadership as the content of the Cypriot EE training programmes.

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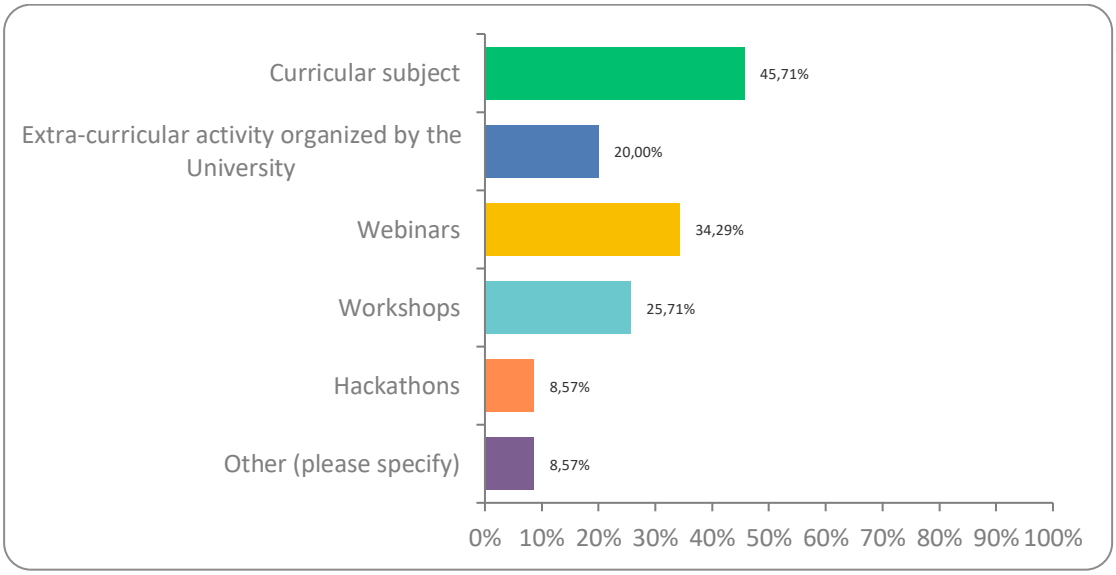
Finally, regarding the collaboration of educators with representatives of the business sector in delivering EE programmes, 28,57% of the respondents 'totally, 'moderately' or 'very' agreed; these percentages indicate that the Cypriot HE systems has a solid basis towards incorporating co-creation, active learning pedagogies and value creation in its EE training programmes, fostering the diffusion of entrepreneurial culture.

Online survey for HEI students

The survey was deployed by the University of Cyprus in collaboration with RESET using Survey Monkey between March and May. In total 61 students answered the survey in conformity with the GDPR regulations.

Students' profile

The students participating in the survey consist of 42 Bachelor students, 14 Master students and 5 PhD students from University of Cyprus and University of Nicosia. Out of the 41 respondents, 39 are female, and only 21 are male. Finally, the research sample is consisted of students attending courses in different faculties, such as Accounting and Finance, Computer Science, Economics, Physics, Law, Intelligent Critical Infrastructure Systems, Psychology, Computer Engineering, MBA, English Language and Literature, International Relations, Medicine, and Political Science.



When they asked whether they have participated in one of the above-mentioned activities where the topic was related to business or entrepreneurship, the majority of the students (45,71%) responded that they had attended curricular subjects related to business and entrepreneurship, while 34,29% stated that they have attended relevant webinars. Participation in workshops (25,71%) and extra-curricular activities organised by the university (20%) gathered less responses, while only 8,57% of students have taken part in a hackathon focused on entrepreneurship. Finally, 8,57% responded 'other', with one respondent

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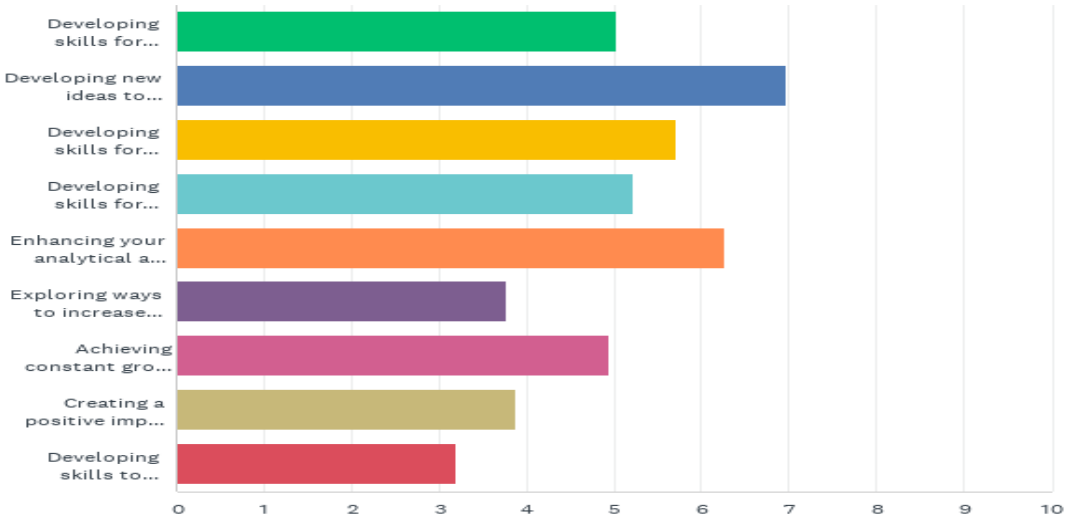
highlighting its experience from participating in a university course related to entrepreneurship as a school student, whole others have not joined such activities at all.



When students were asked to rank a set of statements on what they consider that Entrepreneurship Education is on a scale from 1 (what it is) to 9 (what it isn't), the average responses are ranking as follows:

1. Developing new ideas to address various problems/issues.
2. Enhancing your analytical and logical skills for enabling problem solving.
3. Developing skills for starting your own business.
4. Developing skills for working in the business sector.
5. Developing skills for entering the labor market.
6. Achieving constant growth and development.
7. Creating a positive impact through your work.
8. Exploring ways to increase your income.
9. Developing skills to manage your time.

The ranking scale above indicates that although EE is considered as the 'medium' to address issues or problems by developing new ideas, which corresponds also to the social aspect of entrepreneurship, the next most-selected responses related EE with 'enhancing your analytical and logical skills for enabling problem solving', which is characterized as soft skills, but also related with skills development for starting a business, working in the business sector or entering the labor market that are considered as the hard skills of entrepreneurship. On the 6th and 7th place are the achievement of constant growth and the creation of positive impact through entrepreneurship, which are considered traditionally as less relevant with profit-oriented entrepreneurship. Finally, another soft skills, the time management, has been also ranked at the last place, as students do not see a connection between this skills and EE.

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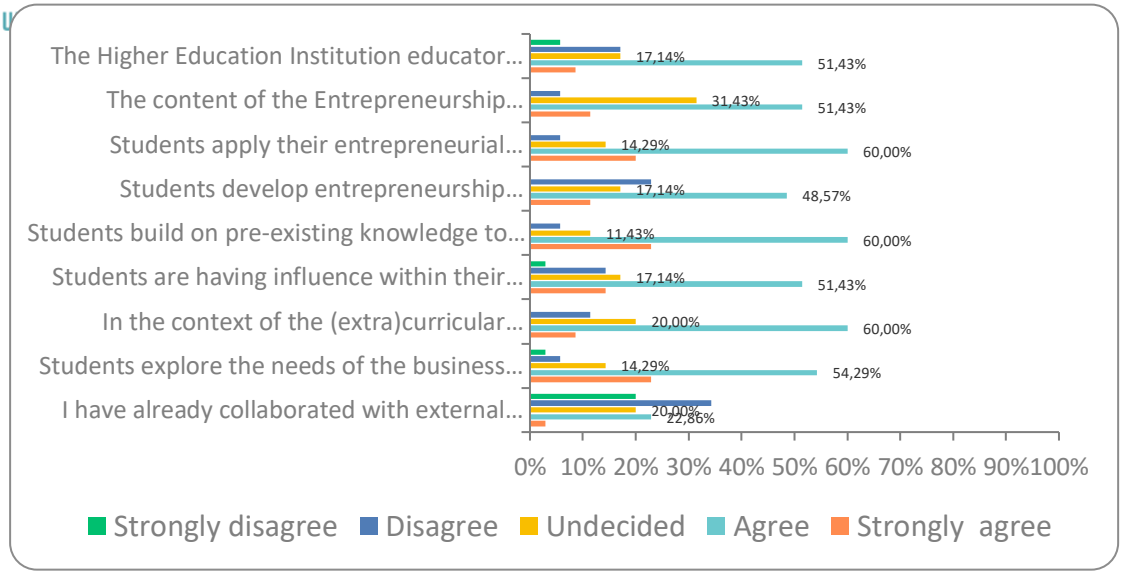

With regards to the structure of the curriculum in Cypriot HEIs, 51.43% of the students agree that the educators deliver a fixed curriculum within their department, while equal percentage also agrees that the content of the EE programme within their university is derived from students' and business sectors' needs. However, regarding the second statement there is 31.43% of students, who are undecided and 13.51%, with the respective statement. In this case, we can assume that there are contradictions between the departments that students attend courses given that the sample consists of many different disciplines.

When they asked whether they apply their entrepreneurial knowledge and competences to create value for other, most of the students (60%) agreed, while 20% totally agreed, which indicates the tendency of Cypriot universities to gradually introduce value creation pedagogies in entrepreneurship curricula. More specifically, with regards to developing entrepreneurship projects to create economic value- profit for business owners, 48.57% of the students agreed that they have developed such projects, while 22.86% stated that they disagree. In this case, we observe a tendency to the economic value creation targeted at the business sector instead of social or cultural value creation, which may be attributed to the curriculum of each faculty with the economic- or business-oriented ones to target business sector's needs in comparison with humanitarian ones that may be more social impact-oriented.

In addition, when they asked whether students build on pre-existing knowledge to create value for others, 60% agrees with this statement, and 22.86% totally agrees, which shows that the structure of the respective curricula progressively build up students' knowledge; on the other hand, students who disagree (5.71%) or are undecided (11.43%) are at very low percentages. With regards to students' role on their university, 51.43% agree that they have influence within their university and community, either formally or informally, while 17.14% of students are undecided, which shows that not all departments offer equal opportunities for students to get actively involved within their university.

With regards to students' collaboration with the business sector, most of the students (54.29%) agree that they explore the needs of the business sector by collaborating with business owners, employees, or representatives of the business sector. However, a lower percentage of students declares 'undecided' (14.29%), disagrees (5.71%) or strongly disagrees (2.86%) with the respective statement, which indicates that collaboration with the business

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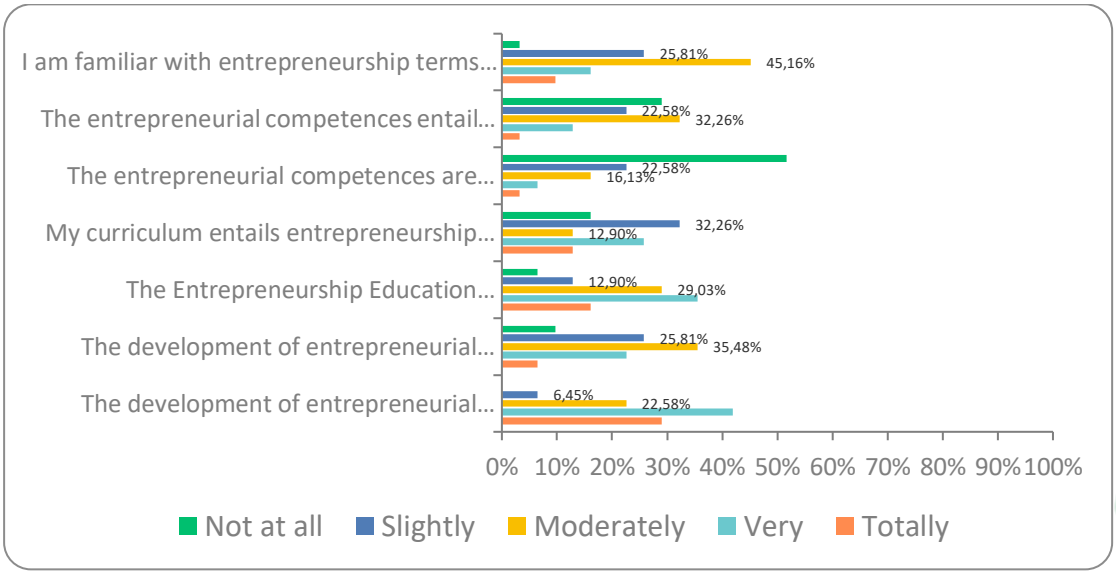
sector is not a mainstream teaching strategy for the Greek universities. This conclusion becomes even more obvious, when a high percentage of students 'disagrees' (34.29%) or 'strongly disagrees' (20%) that they have already collaborated with external stakeholders in the context of EE programme in their university; 20% responded that they are 'undecided', while only 22.86% seems to agree with the respective statement. While most students have reported their engagement with business sector representatives in a broader sense, their participation specifically in EE programs appears to be lacking. This suggests that the implementation of co-creation, experiential, and active learning methods, such as partnering with the business sector, may be falling behind in relation to EE training programs.



At this part of the survey, students were asked to rate 7 statements based on their level of agreement or familiarity. In specific, almost half of the students (45.16%) responded that they are 'moderately' familiar with entrepreneurship terms and concepts, while – on the contrary – 25.81% of students were 'slightly' familiar and 16.13% were 'very' familiar with entrepreneurship terms and concepts. Such percentages show that students have not yet developed an increased level of familiarity with entrepreneurship terms and concepts. Moving on to the perceptions of students on entrepreneurial competences, 32.26% of the respondents 'moderately' agree that 'the entrepreneurial competences entail only "hard skills" (technical skills) related to business professions', while 22.58% do not agree or do not agree at all (29.03%) with the respective statement. Such responses suggest that students also view skills beyond technical ones, such as soft skills, as integral components of entrepreneurial competence.

With regards to entrepreneurial competences, 51.61% of students do not agree at all with the statement 'the entrepreneurial competences are needed only in the case that someone wants to establish a firm', while 22.58% 'slightly' or 'moderately' agree (16.13%) with the respective statement. It's intriguing to note that most students don't associate entrepreneurial competencies solely with starting a business, even though in prior questions, students primarily link entrepreneurial education with general employability skills, such as entering the job market.

When they asked whether their curriculum entails entrepreneurship education programmes and related activities (curricular or extracurricular), the majority of the students (32.26%) 'slightly' agreed, while 16.13% of students strongly disagreed. On the other hand, it is

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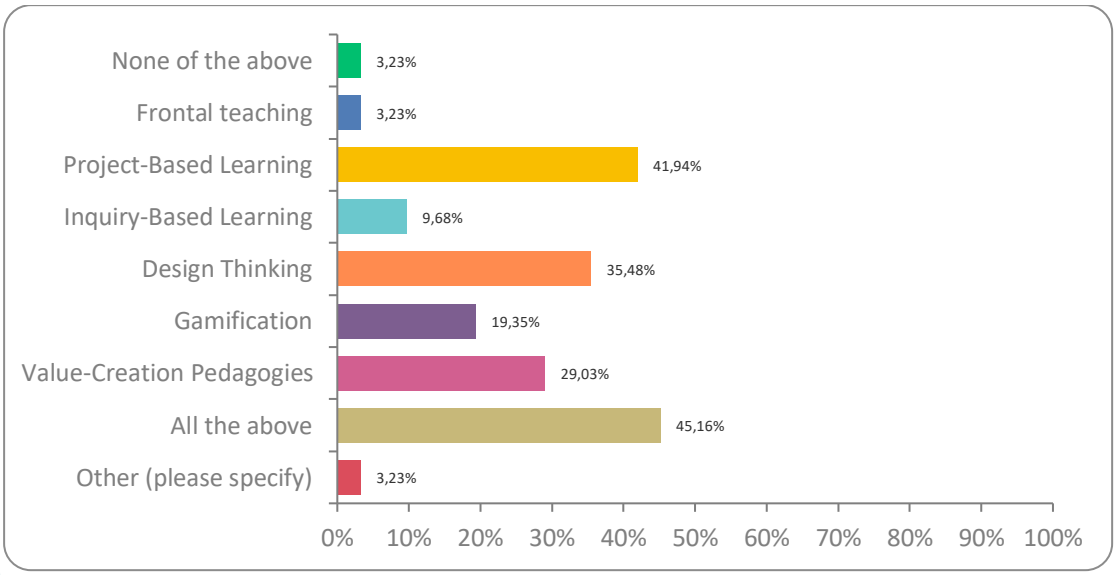
noteworthy that 25.81% of students strongly agreed that their curriculum includes EE programmes, which indicates that there is a proportion of students who are on different sides; this contradiction may be attributed to the faculties, in which students attend courses. Moving on to another statement, 35.48% of the students strongly agreed that the EE programmes within their university department offer opportunities for creating value for others, while 29.03% 'moderately' agreed with the respective statement. These high percentages suggest that the Cypriot universities have managed to integrate value creation to a certain degree into their programs, as responses like 'not at all' (6.45%) and 'slightly' (12.9%) gather lower percentages.

With regards to the development of entrepreneurial competences, 35.48% of the respondents 'moderately' agree that entrepreneurial competences are solely related to business faculties, while 25.81% 'slightly' agree with the respective statement. On the other hand, 22.58% of respondents strongly consider that entrepreneurial competences are solely related to business departments. These percentages highlight the necessity of fostering entrepreneurial mindsets among students from faculties outside of business disciplines. This is essential to encourage them to recognize entrepreneurial competencies as integral aspects of their professional and personal development.

In addition, it is intriguing to observe that even if students consider entrepreneurial competences mainly related to business faculties, they relate entrepreneurial competences with positive impact creation in non-business faculties. More specifically, 41.94% of the students responded that they 'strongly' agree that the development of entrepreneurial competence can create positive impact for non-business-related faculties, while 29.03% 'totally' agreed with this statement. On the contrary, 22,58% 'moderately' agree with the respective statement, which may be attributed to students' level of unawareness on the impact of entrepreneurial competences on non-business faculties. These responses suggest that students recognize the potential positive influence of entrepreneurial competencies across various faculties. Nevertheless, they do not view them as applicable to non-business disciplines, possibly due to the existing curriculum structures that do not foster an entrepreneurial mindset across diverse fields.



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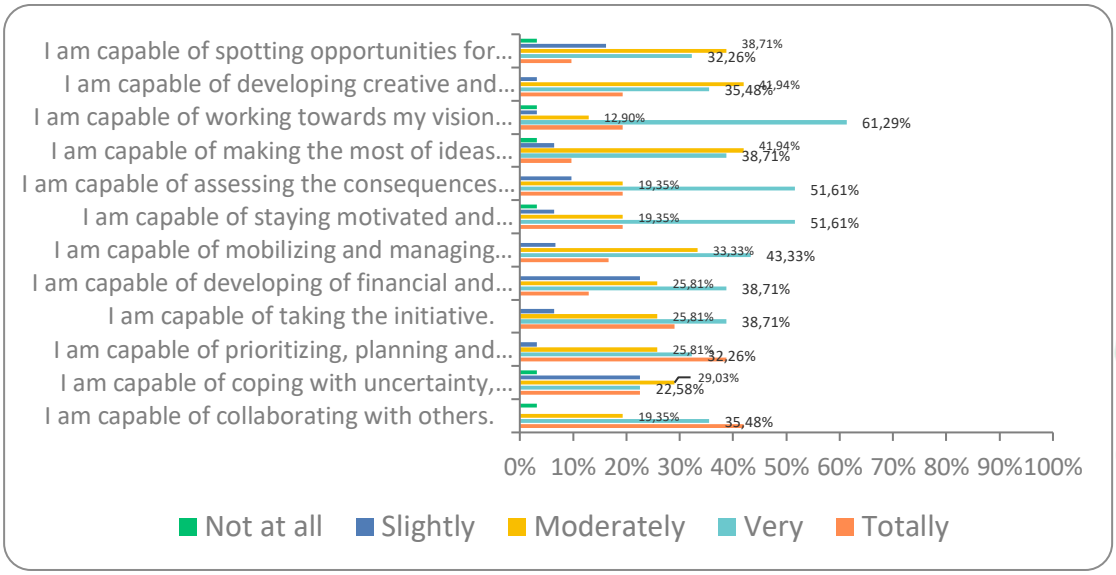
With regards to which of the above-mentioned approaches students consider as appropriate for teaching Entrepreneurship Education in non-business faculties, 41.94% of the students responded project-based learning, followed by 35.48% that selected design thinking, and 29.03% that chose Value-Creation Pedagogies; less respondents (19.35%) selected gamification, which indicates that students may not find this approach appropriate for being introduced to EE. It is interesting to note that inquiry-based learning has gathered only 9.68% of respondents, which may be attributed to students' unawareness of this approach. In the same line, frontal teaching has gathered only 3.23%, which shows that students may be 'tired' or 'bored' of teaching approaches that render them passive learners. Finally, the majority of respondents (45.16%) consider a combination of all the above approaches as appropriate for teaching EE, while 1 student does not consider appropriate any of these approaches; 1 more student selected 'other' stating that he/she is unaware of what the first three approaches mean.



When students asked to evaluate their capability on some entrepreneurial competences, the majority of the students consider themselves 'very' capable of working towards their vision of the future (61.29%); assessing the consequences and impact of ideas, opportunities and actions (ethical and sustainable thinking) (51.61%); staying motivated and consistent (51.61%); developing financial and economic know-how (38.71%); taking the initiative (38.71%). It is intriguing to observe that most of these competences are related to soft skills development rather than hard skills; so, in this case students come to realise that entrepreneurship includes the development of such skills as well. On the other hand, students consider themselves 'very' capable of prioritizing, planning and management (32.26%); mobilizing and managing resources (43.33%); and collaborating with others (35.48%). Finally, students feel 'moderately' capable of spotting opportunities for creating value for others (38.71%); developing creative and purposeful ideas (41.94%); making the most of ideas and opportunities (41.94%); coping with uncertainty, ambiguity and risks (29.03%). Finally, it is noteworthy that students consider themselves 'slightly' capable of spotting opportunities for creating value for others (16.13%), developing financial and economic know how (22.58%) and coping with uncertainty, ambiguity and risks (22.58%), which indicates that the social aspect of entrepreneurship – the value creation – , the entrepreneurial mindset for dealing with risk management along with technical skills, such as the financial management, should be addressed by the curriculum.

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Focus Group

Introduction to professional background and past experience in Entrepreneurship Education

The focus group consisted of a panel of experts with varied backgrounds and knowledge in entrepreneurship and entrepreneurship education (EE). The range of expertise brought depth to the discussion. All participants were actively involved in academia, serving as either professors or lecturers, underscoring their dedication to nurturing the future generation of entrepreneurs. It is noteworthy that a number of panel members placed significant emphasis on marketing in relation to entrepreneurship, encompassing both digital and traditional aspects. This highlights the significance of marketing skills in the entrepreneurial realm.

Participants in the focus group shared valuable insights into entrepreneurship education programs they have been involved in or are aware of. The discussion highlighted diverse approaches and formats of these programs, with a shared emphasis on fostering creativity and entrepreneurial skills among students. For example, one of the participants shared that "*At the University of Cyprus, entrepreneurship courses are a cornerstone of our educational offerings with emphasis is on nurturing creativity and innovation*", while he highlighted that such courses are available to students across different departments. In addition, another participant, founder of the first investment-based crowdfunding platform, Crowd Base, shared his experience from collaborating with universities through supporting student-led start-ups, establishing crowdfunding platforms, providing mentorship and guidance throughout students' start-up journey.

These responses collectively demonstrate a commitment of the Cypriot tertiary education system to entrepreneurship education programs that blend theory and practice, leverage interdisciplinary collaboration, and aim to cultivate creativity, skills, and entrepreneurial mindsets.

Integration of Entrepreneurship Education in Higher Education Institutions

The responses provided by the participants in the focus group shed light on how non-business departments perceive entrepreneurship education, including entrepreneurship as a skill set and the process of starting a business. One of the participants shared that many academics in non-business departments may not yet be well-versed in entrepreneurship education. However, there is a growing interest due to success stories and examples in the field. This suggests that while awareness may be limited, there is recognition of the value of entrepreneurship education. In addition, the participants noted that when proposing entrepreneurship courses to non-business departments, there is generally an openness to considering it a valuable skill set for their students. This implies a recognition of the importance of entrepreneurship skills, not only for potential business founders but also for students in various academic disciplines. The discussion between participants also brought up a common challenge in promoting entrepreneurship education, which is getting individuals to consider it, especially if they have limited prior knowledge of the subject. However, one of the participants suggested that once people understand the course's value and its applicability in

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various life situations, they tend to appreciate it, even if they do not intend to become entrepreneurs.

Integrating entrepreneurship education into higher education curricula for students in non-business departments, such as Humanitarian Studies and Social Sciences, can yield several valuable benefits. One of the participants supported that entrepreneurship education equips students with life skills that extend beyond business ventures. These skills include problem-solving, critical thinking, decision-making, and adaptability. In addition, participants agreed that entrepreneurship education encourages and nurtures creativity and innovation, since students in non-business departments can apply these creative skills to their respective fields, finding innovative solutions to complex societal and humanitarian challenges. As one of the participants representing the business sector, mentioned "*integrating entrepreneurship education early in non-business departments can help students develop marketable skills*", as this prepares them to enter the real world with a skill set that is highly valuable in various industries, enhancing their employability.

Participants referred also to the concept of conscious entrepreneurship, explaining that while not all students may aspire to become entrepreneurs, exposure to entrepreneurship education enables them to explore the concept of conscious entrepreneurship. They can learn how to create value, identify opportunities, and drive positive changes in their chosen fields, contributing positively to society. In that way, participants concluded that entrepreneurial skills and mindset are relevant in all industries. They drive innovation, change, and progress. As such, integrating entrepreneurship education into non-business departments is not limited to business ventures; it prepares students to excel and drive positive changes across various sectors.

Training Programmes for HEIs educators on Entrepreneurship Education

The discussion among focus group participants provided insights into the current teaching and training methods in entrepreneurship education programs for higher education instructors and their potential impact on equipping students with entrepreneurial knowledge and skills matching labor market demands. Participants in the focus group expressed that the current methods in entrepreneurship education are somewhat limited. They noted that traditional methods involve lectures and presentations, often with guest speakers who are experienced intrapreneurs. There is also mention of project-based learning, which provides a more interactive and hands-on experience for students. However, there is a perception that more diverse and interactive methods could be explored to engage students effectively.

In addition, one of the participants highlighted also the variability among departments and universities in terms of their commitment to entrepreneurship education. "*Some departments and universities are more proactive in promoting entrepreneurship initiatives, while others may lag behind in organizing such programs*". Another participant suggested the idea of creating standardized curricula for entrepreneurship education that can be adopted by various institutions. "*This approach would ensure that all students have access to entrepreneurship education, regardless of their department or university. Standardized curricula could offer flexibility, allowing institutions to adapt them as needed*", as she highlights.

Moving on to the support and teacher training tools that HEIs educators of non-business departments need to integrate EE within the curriculum, participants unanimously agreed that

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educators need to enhance entrepreneurship education. According to the participants' perspective, these resources include competitions, hackathons, collaboration with accelerators, and funding opportunities. Funding at the early stage has been highlighted by the participants as a crucial resource gap that needs attention.

Existing collaborations between Higher Education Institutions (HEIs) and Industry

Regarding the resources that educators could benefit from to enhance entrepreneurial education, participants referred mainly to a wide range of activities taking place in collaboration between universities and the business sector. Firstly, one of the participants mentioned hackathons and competitions are mentioned as valuable sites for fostering creativity, problem-solving, and innovation among students. "*Collaborating with accelerators and organizing such competitions, whether locally or abroad, can provide students with real-world entrepreneurial experiences*". One of the business sector representatives, co-founder of the Crowd Base, highlighted the funding resources for very early-stage or pre-seed ventures, such as crowdfunding, noted that while government and European Union funding exists, students may face challenges in navigating the application process. This highlights the importance of simplifying access to funding for student entrepreneurs.

On top of that, placement and internship programs, where students work in existing companies, were highlighted. As one of the participants highlighted, "*These programs provide students with practical experience and an opportunity to propose new ideas or solutions for the companies they work with, since they promote intrapreneurship within existing businesses*". In this context, participants concluded that collaboration between the academic and business sector can facilitate partnerships where students work on real-world projects, conduct market research, or contribute innovative ideas to existing companies. "*It's seen as a valuable way to bridge the gap between academia and industry*".

With regards to the stages of the Entrepreneurship Education program that business representatives actively participate (planning – implementation – assessment), participants, both educators and representatives of the business sector, unanimously agreed that business representatives actively participate mainly in the early stages of entrepreneurship education to inspire and stimulate students' interest. They help students see the practical applications of entrepreneurship, making it more appealing. For example, a cybersecurity business representative mentioned the importance of stimulating students' interest in cybersecurity from the beginning of their education.

Moreover, participants express the perspective that input from actual businesses is valuable in curriculum design. One of the participants made the following comparison "*Business input is likened to "fertilizer" in the educational process, enriching it with practical insights and real-world relevance*". They also highlighted the importance of including negotiation skills, soft skills, and market insights in the curriculum, which business representatives can provide.

Challenges and solutions for fostering collaboration between HEIs and industry.

The focus group discussion centered on the challenges and potential solutions for effectively integrating EE within the curriculum of non-business departments in Cypriot HEIs. The participants shared their insights and recommendations on how to address these challenges.

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According to one of the participants working as a university educator, the main obstacle is how curricula are designed based on the professors' research interests rather than on students' needs. This may indicate the need for restructuring the academic curricula to better serve students' needs. On the other hand, participants referred to the lack of educators' awareness on how to engage business representatives and establish sustainable collaboration beyond guest lectures. It is also interesting to share the perspective of some participants on the challenge of "*blending different professional backgrounds and diverse ages*", when working on designing and implementing a curriculum. Finally, one major challenge that educators highlighted is the lack of teaching background on behalf of business sector representatives that poses obstacles on understanding and responding to students' diverse learning styles.

Regarding the training support or resources that educators need to establish sustainable collaboration with the business sector, participants mainly focused on the need to train educators of non-business faculties on how to reach and collaborate with representatives of the business industry. On the other side, as participants unanimously agreed "*it's also a matter of incentives for people to contribute meaningfully. You need to align the incentives on the business side"*. So, it is important for educators to be trained on how to set the ground and design a programme that will include interested business departments.

Concluding with participants' suggestions on fostering collaboration between universities and the business industry, many participants pointed out the design and implementation of campaigns and collaborative projects, which will bring academia and industry together; however, as they mentioned, the implementation of such projects presupposes the setting of common goals and aspirations from both sides. Another insightful idea was the design of university programmes, during which students will be connected with professionals working in the business industry. On the other hand, participants who are working in the business sector pointed out that even they are font of working with academics, there is no much interest on behalf of the academic sector due to the focus on research projects.

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Chapter 6: TURKEY

State-of-the-art of Entrepreneurship Education and Value Creation in Turkey

Introduction - Entrepreneurship Education in Turkish HEIs

Entrepreneurship education has become a crucial aspect of higher education institutions (HEIs) in Turkey. As the nation seeks to foster a culture of innovation, job creation, and economic growth, the importance of entrepreneurship education cannot be overstated. This article aims to provide an overview of the current state-of-the-art practices in entrepreneurship education within Turkish HEIs, exploring its significance, key components, interdisciplinary approaches, industry collaborations, and focus on value creation and social entrepreneurship.

Entrepreneurship plays a pivotal role in driving innovation, job creation, and overall economic development. It empowers individuals with the skills and mindset to identify opportunities, take calculated risks, and create ventures that can disrupt industries positively. In a dynamic and ever-evolving landscape, Turkish HEIs must adapt their educational strategies to remain up-to-date with the latest trends and practices in entrepreneurship to produce innovative and competent entrepreneurs.

Key Components - Teaching approaches of Entrepreneurship Education

A state-of-the-art entrepreneurship education program in Turkish HEIs incorporates several key components. These include a blend of theoretical knowledge and practical experience, with a strong emphasis on experiential learning opportunities. Classroom-based learning is complemented by real-world projects, internships, and start-up simulations, allowing students to apply theoretical concepts to real-life business scenarios.

Furthermore, the curriculum should focus on nurturing creativity, critical thinking, problem-solving, and effective communication skills, all of which are essential for entrepreneurial success. Practical exposure to marketing, finance, business planning, and risk management equips students with the necessary business acumen to launch and manage successful ventures.

One of the key components of entrepreneurship education is the development of an entrepreneurial mindset. HEIs emphasize instilling qualities such as creativity, innovation, resilience, risk-taking, and adaptability. By promoting an entrepreneurial mindset, students become more open to opportunities and are better prepared to face the challenges of starting and running a business.

Turkish HEIs recognize the value of experiential learning in entrepreneurship education. More specifically, students are encouraged to engage in real-world projects, internships, and start-up simulations to apply theoretical knowledge to practical situations. These experiences provide students with hands-on exposure to entrepreneurship and help them develop critical problem-solving skills.

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Turkish HEIs organize networking events, entrepreneurship conferences, and speaker series that bring together students, faculty, entrepreneurs, and industry leaders. These events provide a platform for students to expand their networks, learn from experienced professionals, and explore potential business collaborations.

HEIs offer financial support to students who wish to launch their ventures. Funding opportunities, such as seed grants or access to venture capital, can help aspiring entrepreneurs overcome initial financial barriers.

Entrepreneurship education often encourages collaboration with students from different disciplines. By working together, students gain exposure to diverse perspectives and skillsets, mirroring real-life entrepreneurial collaborations that often involve interdisciplinary teams.
Turkish HEIs frequently organize pitch competitions where students present their business ideas to panels of judges, including potential investors. These competitions provide valuable experience in pitching and offer students constructive feedback to improve their presentations.

Exploring the integration of EE in interdisciplinary studies

To foster a holistic approach to entrepreneurship, Turkish HEIs are increasingly integrating entrepreneurship education into interdisciplinary studies beyond business studies. Incorporating technology, design, social sciences, and humanitarian studies helps students grasp the diverse challenges and opportunities entrepreneurs face in various sectors.

By promoting cross-disciplinary collaboration, students learn to think beyond traditional boundaries, leading to innovative and sustainable solutions. Integrating diverse perspectives also encourages empathy and understanding of societal needs, contributing to the development of socially responsible entrepreneurs.

Turkish HEIs have been at the forefront of integrating technology and entrepreneurship education. They offer specialized courses and workshops that explore the role of technology, including artificial intelligence, data analytics, blockchain, and Internet of Things (IoT), in driving innovation and creating business opportunities. By combining technical skills with entrepreneurial know-how, students are better prepared to create technology-driven ventures.

Several universities have embraced design thinking methodologies in entrepreneurship education. By emphasizing creativity, empathy, and user-centric approaches, students are encouraged to identify unmet needs and develop innovative solutions. Integrating design thinking principles helps entrepreneurs create products and services that resonate with consumers and have a competitive edge in the market.

Turkish HEIs recognize the importance of understanding societal dynamics and cultural contexts in entrepreneurship. Courses in sociology, anthropology, and psychology are integrated into entrepreneurship programs to equip students with insights into consumer behavior, market trends, and the impact of entrepreneurship on communities. This

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interdisciplinary approach fosters a deeper understanding of the social implications of entrepreneurial ventures.

Some universities have introduced courses that focus on humanitarian studies and social entrepreneurship. These initiatives encourage students to address pressing social and environmental challenges through innovative business models. By combining business principles with a humanitarian mindset, students learn to create ventures that bring positive change to vulnerable communities and contribute to sustainable development.

In the same line, Turkish HEIs recognize the role of arts and creative industries in fostering entrepreneurial thinking. Courses that blend entrepreneurship with fine arts, media studies, and performing arts encourage students to explore unconventional business ideas and marketing strategies. This integration empowers artists to leverage their creativity and turn their passion into successful ventures.

Given the growing importance of sustainable practices, several universities have integrated environmental studies into entrepreneurship education. These courses emphasize sustainable business models, resource efficiency, and environmental responsibility. Graduates are equipped to create environmentally conscious ventures that balance profitability with positive environmental impacts.

In addition, Turkish HEIs promote collaboration between different faculties to foster interdisciplinary entrepreneurship education. For example, business students may collaborate with engineering students to develop innovative technology products, or social science students may team up with design students to create socially impactful ventures. Such collaborations enrich the learning experience and expose students to diverse perspectives.

The integration of entrepreneurship education in interdisciplinary studies offers students a well-rounded and comprehensive understanding of entrepreneurship. It encourages creative thinking, problem-solving, and collaboration across various disciplines, preparing them to tackle real-world challenges and seize entrepreneurial opportunities in a dynamic and rapidly evolving global landscape.

Knowledge exchange and Collaboration between academia and the business industry

Mentorship, networking, and collaboration with industry experts are crucial aspects of entrepreneurship education in Turkish HEIs. These connections provide students with real-world insights, guidance, and access to industry-specific knowledge. Partnering with successful entrepreneurs and established businesses allows aspiring entrepreneurs to learn from experienced professionals, expanding their networks, and gaining access to potential investors.
Moreover, establishing strong ties with the business sector enhances the curriculum's relevance by aligning it with the industry's current needs and demands. This collaboration also fosters a culture of innovation and entrepreneurship within the business community.

Exploring the concept of value creation in the Turkish HEIs' curriculum

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As societal demands shift towards sustainable practices, entrepreneurship education must emphasize value creation and social entrepreneurship. Turkish HEIs are increasingly integrating social and environmental considerations into their entrepreneurship programs. This includes incorporating sustainable business practices and promoting the creation of ventures that address pressing social challenges. By nurturing a value-driven approach, HEIs are fostering the development of socially responsible entrepreneurs who are not solely profit-oriented but also prioritize positive impacts on communities and the environment.

Innovations and Best Practices in Entrepreneurship Education

Leading Turkish HEIs have implemented innovative approaches to entrepreneurship education. They have established successful incubators, accelerators, and entrepreneurship centers to provide students with the necessary resources, mentorship, and funding opportunities to kickstart their ventures.

These centers offer workshops, boot camps, and seminars on various aspects of entrepreneurship, such as ideation, business planning, marketing, and funding strategies. Additionally, they connect students with industry partners, potential investors, and successful entrepreneurs, creating a supportive ecosystem for budding entrepreneurs.

Many Turkish HEIs have established dedicated entrepreneurship centers that serve as hubs for entrepreneurial activities on campus. These centers offer a wide range of resources and support for aspiring entrepreneurs, including workshops, seminars, mentoring programs, business plan competitions, and networking events. They act as a focal point for students interested in entrepreneurship and connect them with like-minded peers and experienced mentors from the business community.

Some universities have set up incubators and accelerators to nurture start-up ventures. These initiatives provide physical office space, access to funding opportunities, mentorship from industry experts, and various support services to help early-stage ventures grow and succeed. Incubators typically focus on guiding start-ups through the initial stages of development, while accelerators offer intensive programs to rapidly scale up established ventures.

Turkish HEIs have introduced specialized entrepreneurship courses and programs, both at the undergraduate and graduate levels. These courses cover various aspects of entrepreneurship, such as idea generation, business planning, marketing, finance, and legal considerations. They also emphasize experiential learning, encouraging students to work on real projects and business simulations.

Technology Transfer Offices (TTOs) in Turkish HEIs act as intermediaries between academic research and commercialization. They facilitate the transfer of innovative technologies and intellectual property developed by researchers and students to the business sector, encouraging entrepreneurship based on research outcomes.

Many universities organize start-up competitions, inviting students to pitch their business ideas to panels of judges, including investors and industry experts. These competitions

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provide students with valuable feedback, exposure to potential investors, and sometimes financial support to turn their ideas into viable ventures.

Turkish HEIs have formed collaborative partnerships with industry, government agencies, and non-profit organizations to enhance their entrepreneurship education initiatives. These partnerships often result in joint projects, internship opportunities, and funding support for entrepreneurship-related activities.

A number of Turkish HEIs have integrated entrepreneurship education into their international programs and student exchanges. By exposing students to diverse entrepreneurial ecosystems and cultures, these initiatives encourage a global perspective on entrepreneurship and promote cross-border collaborations.

Many Turkish HEIs are placing increasing emphasis on social entrepreneurship, encouraging students to address societal challenges through innovative business solutions. Initiatives focused on social impact help develop a new generation of socially responsible entrepreneurs committed to making a positive difference in their communities.

The aforementioned initiatives collectively create a vibrant ecosystem for entrepreneurship within Turkish HEIs. They foster a spirit of innovation, creativity, and risk-taking among students, empowering them to pursue their entrepreneurial ambitions and contribute to Turkey's economic development

Concluding, entrepreneurship education in Turkish HEIs has evolved significantly, aligning itself with the dynamic landscape of innovation and sustainability. By integrating interdisciplinary studies, fostering industry collaborations, and emphasizing value creation and social entrepreneurship, Türkiye is equipping its students with the skills, mindset, and resources to become successful and socially responsible entrepreneurs. To stay at the forefront of entrepreneurial development, continuous improvements and adoption of best practices are essential for HEIs in Türkiye.

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Online survey for HEI educators

The survey was deployed by BOSEV using Survey Monkey between March and May. In total 53 educators answered the survey in conformity with the GDPR regulations.

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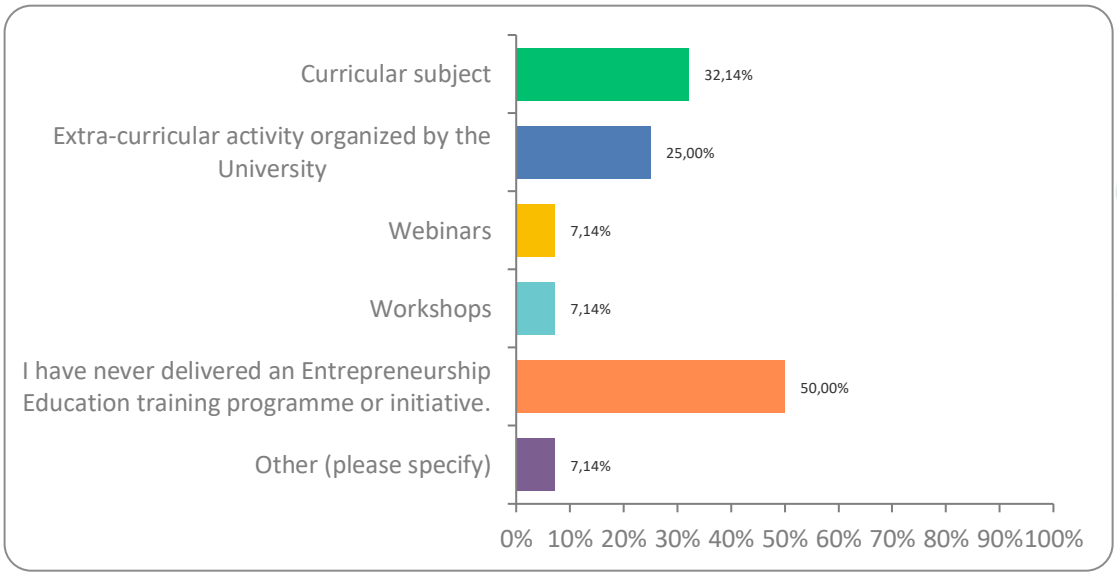
Educators' profile

The participants are employed as lecturers, educators, laboratory teaching staff, professors or assistant professors, and researchers in various universities across the country, such as Sakarya University, Gazi University, Süleyman Demirel University, Hitit University, Ordu University, Bozok University, Ege University, Dumlupınar University, National Defense University, Selçuk University, Nigde Omer Halisdemir University, Burdur Mehmet Akif Ersoy University, Erzincan University Campus Yalnızbağ, Afyon Kocatepe University. Out of the 53 participants, 38 are male, and only 2 are female (13 respondents skipped this question) with their teaching experience to vary from 2 to 23 years old, which means that some of them have 'witnessed' many different phases of entrepreneurship education in tertiary education. Finally, the research sample is consisted of educators representing different faculties, such as Technology, Humanitarian Studies, Social Sciences, Business and Economics, etc.

Introduction of Entrepreneurship Education and Value Creation Pedagogies



As part of the survey, we investigated the experience of educators in delivering entrepreneurship education programmes, as well as the approaches that they apply. When asked in which category fall the entrepreneurship programmes or initiatives that they have delivered, half of them (50%) replied that they have never delivered an Entrepreneurship Education programme or initiative. In this case, the need for training educators on how to introduce Entrepreneurship Education in their teaching settings, especially those of non-business faculties, comes prominently to the forefront. Delivering entrepreneurship as curricular subject gathers 32,14% of educators' responses, followed by 25% of educators having implemented extra-curricular activities focused on entrepreneurship within their university. Finally, only 7,14% of educators responded that they have delivered entrepreneurship via webinars and workshops. Such percentages indicate that there is a low percentage of educators that have teaching experience (and consequently capacity) in delivering entrepreneurship courses within their settings, either as curricular or extra-curricular activities.

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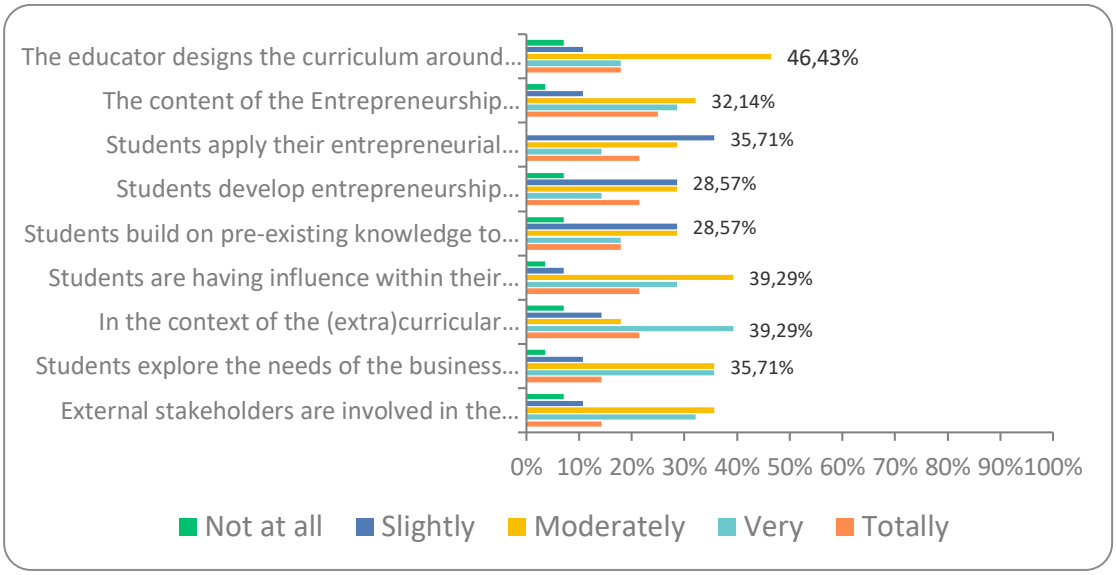
In terms of collaboration with external stakeholders for delivering such EE programmes, the majority of the educators responded that they have collaborated with stakeholders mainly in the context of giving some lectures, inviting them to hackathons, or delivering speeches on the importance of mentoring in entrepreneurship.

When educators were asked to rank a set of statements on what they consider that Entrepreneurship Education is on a scale from 1 (what it is) to 9 (what it isn't), the average responses are ranking as follows:

1. Developing new ideas to address various problems/issues.
2. Developing skills for starting your own business.
3. Developing skills for entering the labor market.
4. Developing skills for working in the business sector.
5. Enhancing your analytical and logical skills for enabling problem solving.
6. Creating a positive impact through your work.
7. Achieving constant growth and development.
8. Exploring ways to increase your income.
9. Developing skills to manage your time.

As concluded also through the German, Greek and Cypriot responses in the respective question, it is notable that entrepreneurship education is mainly considered as the "medium" to enter the business industry or to establish your own business venture, while neglecting or underestimating the benefits of entrepreneurship education on other aspects of professional and personal development, such as developing analytical skills, creation of positive impact, achievement of constant growth.



In terms of what the educators believe that the value co-creation entails, the majority of them (46,43%) moderately agreed that 'the content of the Entrepreneurship Education programme is derived from students' and business sector's needs', which brings out the need to adjust the curriculum to students' and business sectors' needs. However, in order to achieve this goal, educators need to be equipped with a versatile and easily adjustable training programme on

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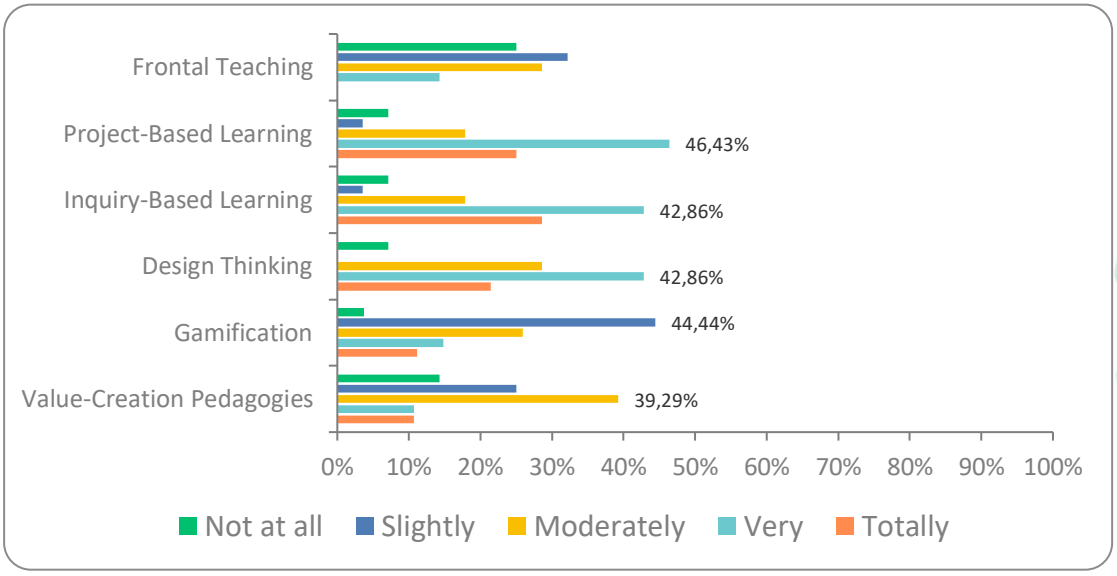
how to design such a curriculum. Another high percentage of educators (39,29%) strongly believes that value co-creation includes the extra-curricular activities implemented by the universities, where 'students are brought in contact with stakeholders and representatives of the business sector to create value for others', acknowledging both the social aspect of entrepreneurship (value creation) and the educational approach (co-creation).

In addition, 35,71% of the respondents moderately and strongly supported that in value co-creation approaches the 'students explore the needs of the business sector by collaborating with business owners, employees, or representatives of the business sector', which emphases on the method (co-creation). However, it is noteworthy that only 28,57% of educators slightly and moderately agreed that students build on pre-existing knowledge to create value for others; such a percentage indicates that current training programmes on EE may offer fragmented knowledge to students, without building on pre-existing knowledge to introduce new concepts and/or competences.



When asked to what extent educators are familiar with traditional and non-formal teaching approaches, including frontal teaching, project-based learning, inquiry-based learning, design thinking, gamification and value-creation pedagogies, the majority of the participants (46,43%) responded that they feel 'very' familiar with Project-Based Learning, an already-established educational practice in tertiary education, while 42,86% consider themselves 'very' familiar with Inquiry-Based Learning and design thinking. Since design thinking is an integral part of the ENTREHUBS approach, it is very positive that educators are willing to apply such active learning approaches within their settings. Regarding educators' familiarity with value creation pedagogies, 39,29% stated that they feel 'moderately' familiar with this respective approach, which brings out the need for educators' training on how to design and apply their courses based on this approach within their settings. Finally, 44,44 % of educators feel 'slightly' familiar with gamification, which leads us to the conclusion that is not such a preferable approach for delivering training programmes in tertiary education.

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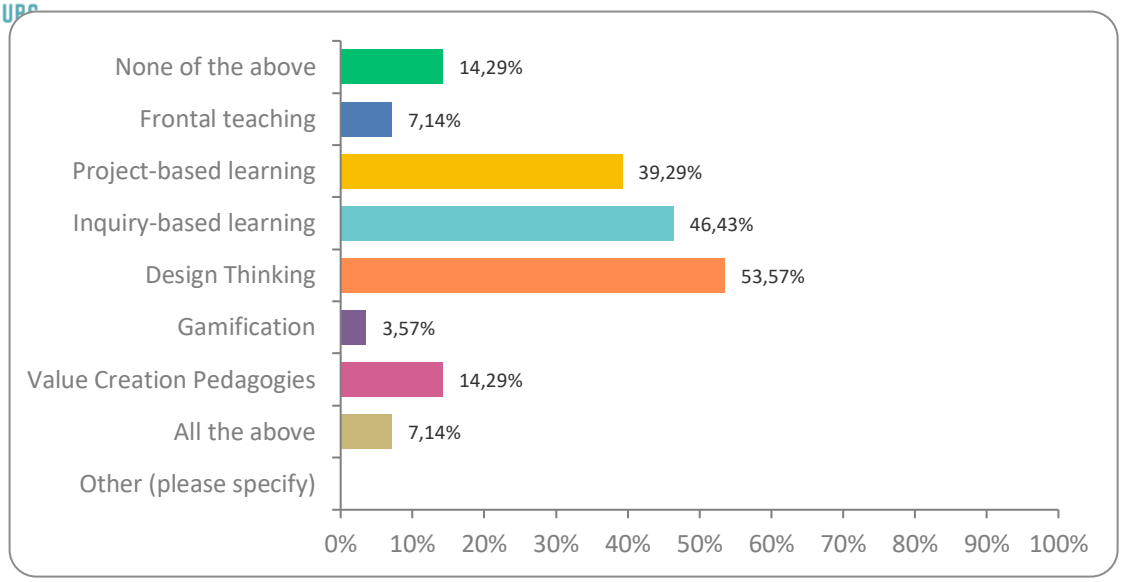

With regards to which of the following approaches have educators used in their teaching, the majority of them (53,57%) have already employed design thinking, followed by 46,43% that have utilized inquiry-based learning and 39,29% that have delivered courses employing project-based learning. At this point, it's interesting to mention that although the majority of educators stated that they feel more familiar with project-based learning compared to other approaches, they seem to be open in experimenting with introducing new pedagogical approaches in their teaching, such as inquiry-based learning and design thinking.

Moreover, it is noteworthy that although 39,29% of educators consider themselves familiar with value creation pedagogies, only 14,29% of them have delivered courses employing this

Project-Based Learning, while 45,83% have delivered an EE program using design thinking. Less educators have used frontal teaching (33,33%), while only 16,7% have used gamification or none of the approaches mentioned below. It is interesting to observe that although 47,83% of the educators stated that they are 'moderately' familiar with value-creation pedagogies, only 16,67% of them have used this approach to deliver an EE program; this percentage indicates that educators do not feel confident in applying this approach in the teaching practice or that they need additional training and support.

Planning and implementation of existing EE programmes addressed to HEIs students.

At this part of the survey, we investigated educators' perceptions on the structure, planning and implementation of existing EE training programmes addressed to HEI students, in order to explore potential connections of the current projects with the value co-creation approach as per methodology, purpose and application.

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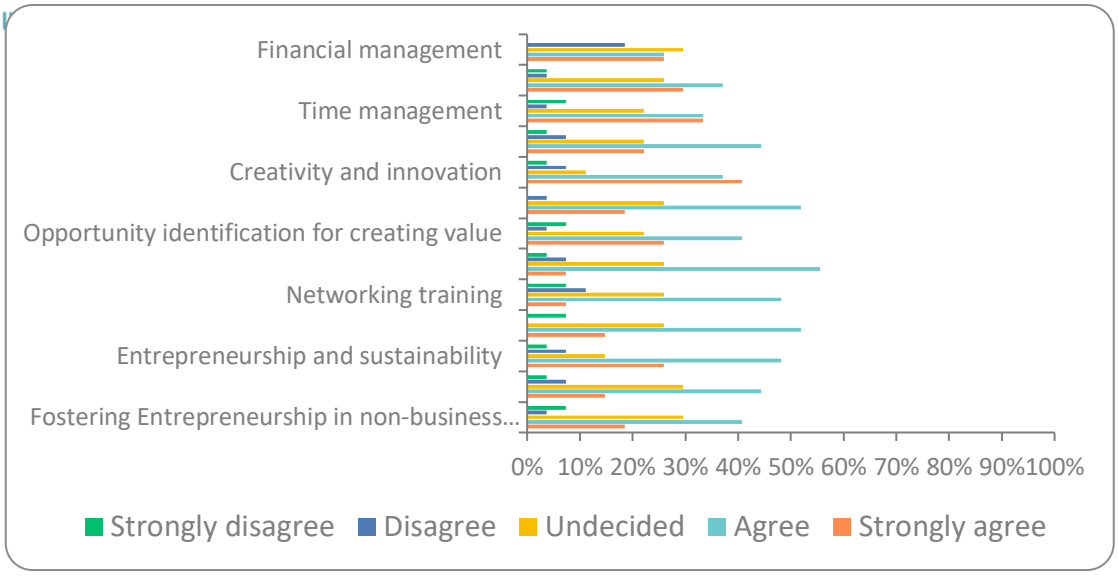

In terms of what existing EE programmes include the majority of the participants (70,83%) agreed that 'entrepreneurship and sustainability' constitutes a part of the existing EE programmes, which indicates the need to find ways to make entrepreneurship more sustainable, in order to be able to respond to the environmental and climate crisis. Besides that, the educators – at a large extent – agreed that marketing training (58,33%), financial management (54,17%), opportunity identification for creating value (50%) and time management (50%) are included in the structure of the existing EE programmes. It is worth mentioning that 'fostering entrepreneurship in non-business sectors', 'networking training', 'use of role models' and 'developing growth mindset' have gathered a considerable percentage of educators, who 'agree' or they are 'undecided' about if these aspects apply to the existing EE programmes. This difference may be attributed to varied structures of EE programmes across the Greek universities. Although, there are no extreme differences among educators' responses, it is evident that the focus is sustainability- and profit-oriented, while aspects, such as growth mindset and leadership, fall behind.

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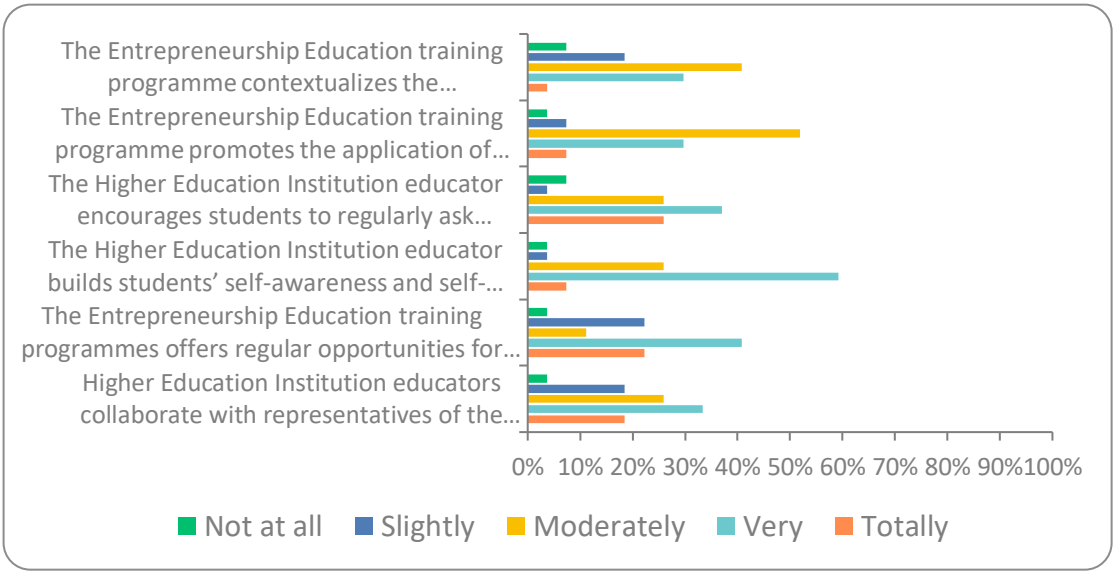

When educators were asked to what extent they agree in the above statement regarding the structure of existing EE programmes and the role of educators in such programmes, it is interesting to see that the majority of the participants 'moderately' agreed that the EE programmes are contextualized based on students' academic background (54,7%), which indicates that this knowledge may not be applicable across different faculties (e.g. business studies or humanitarian studies); however, a lower percentage (29,17%) strongly agreed that that such programmes are contextualized based on students' academic background. A very interesting variation among participant responses is also identified on whether EE programmes 'promote the application of students' entrepreneurial competences for creating value for other', in which 45,83% 'moderately' agreed and 33,33% strongly agreed. Although these rates comply with those of the previous question, half of the respondents considered that identification of opportunity for value creation as part of these programmes, it seems that value creation is still not a core element of entrepreneurship education. Regarding the opportunities that EE programmes offer for students to work with representatives of the business sectors, the majority of the educators (45,83%) consider that such programmes moderately address this aspect; it is interesting to see that, while 25% of the educators strongly agree with this statement, there is an approximately equal percentage (20,83%) that 'slightly' agrees.

With regards to the role of educators, the majority of them (45,83%) acknowledge that HEIs educators 'moderately' encourage students to regularly ask questions, consider alternative solutions, follow their own inquiries and create value for others through their learning, followed by 33,33% who strongly agrees. This tendency may be attributed to the fact that educators are not acquainted with applying active learning and value creation teaching approaches. On the other hand, educators' responses vary when it comes to what extent the educators build students' self-awareness and self-confidence, so that they become self-disciplined, handle setbacks and resolve difficulties in mature ways to achieve valuable outcomes. More specifically, 37,5% 'moderately' agrees, 33,33% strongly agrees, while 25% 'slightly' agrees with the above statement. This difference among the respondents indicates the level of focus that educators shift to soft skills, such as building self-confidence, handling difficulties, conflict resolution, etc. Finally, regarding the collaboration of educators with

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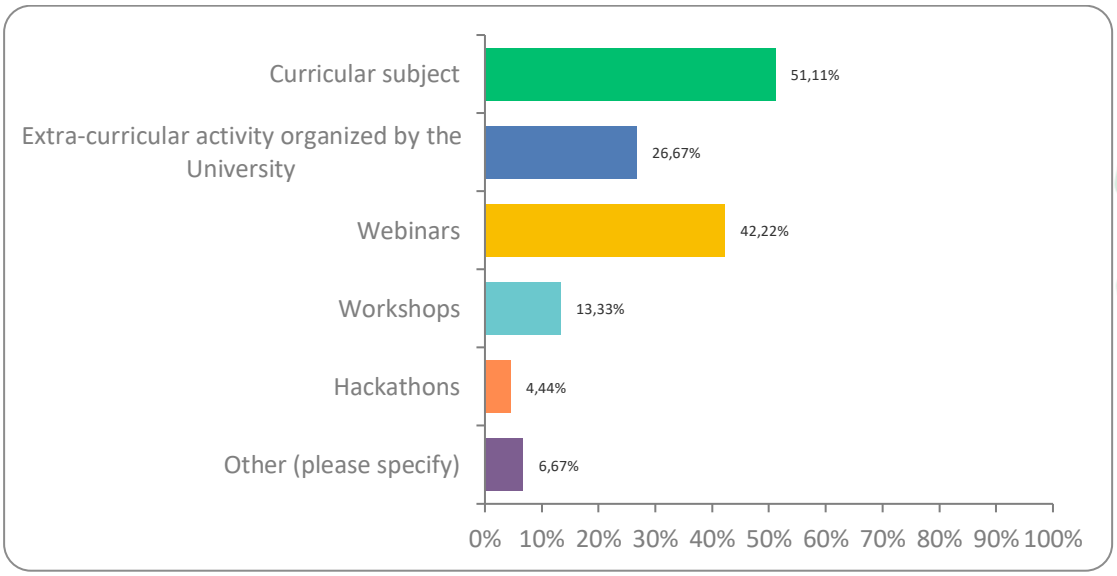
representatives of the business sector in delivering EE programmes, the majority of the educators 'moderately' agreed with the statement, while 33,33% strongly agreed; only 16,67% 'slightly' agreed. These percentages show us that there is still a long way to bring together universities and the business sector for delivering EE programmes that will enable students to create value that will match the social, economic, culture needs of the society and labor market.

Online survey for HEI students

The survey was deployed by BOSEV using Survey Monkey between March and May. In total 63 students answered the survey in conformity with the GDPR regulations.

Students' profile

The students participating in the survey consist of 63 Bachelor students from Gazi University, which give us the overview of only one of the Turkish universities. Out of the 63 respondents, 53 are male, and only 10 are male. Finally, the research sample consists of students attending courses in the Automotive engineering Faculty.



When they asked whether they have participated in one of the above-mentioned activities where the topic was related to business or entrepreneurship, the majority of the students (51.11%) responded that they had attended curricular subjects related to business and entrepreneurship, while 42.22% stated that they have attended relevant webinars. Participation in extra-curricular activities organised by the university (26.67%) and workshops (13.33%) gathered less responses, while only 4.44% of students have taken part in a hackathon focused on entrepreneurship. Finally, 6.67% responded 'other' stating that they have not participated in any of the above activities.

When students were asked to rank a set of statements on what they consider that Entrepreneurship Education is on a scale from 1 (what it is) to 9 (what it isn't), the average responses are ranking as follows:

1. Developing skills for entering the labor market.

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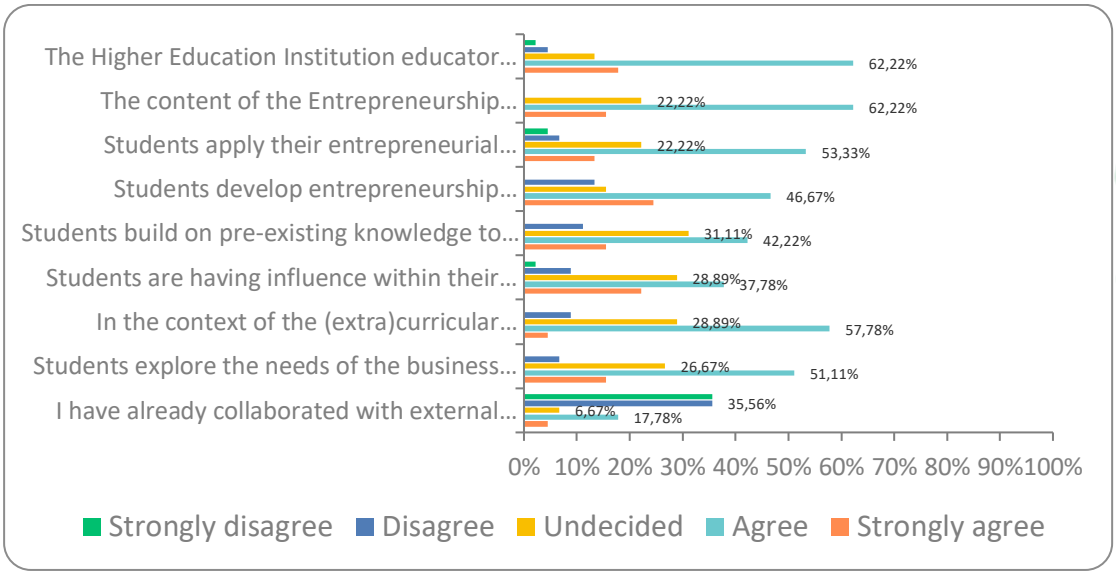
2. Developing new ideas to address various problems/issues.
3. Enhancing your analytical and logical skills for enabling problem solving.
4. Developing skills for starting your own business.
5. Developing skills for working in the business sector.
6. Developing skills to manage your time.
7. Exploring ways to increase your income.
8. Achieving constant growth and development.
9. Creating a positive impact through your work.

The ranking scale above indicates that 3 out of the 5 first-selected statements are related to establishing a business or entering the labor market/business sector. However, it is intriguing to note that that 'developing skills for entering the labor market' and 'developing new ideas to address various problems' has the same percentage of respondents, which shows that there is an increased number of respondents that consider entrepreneurship as a catalyst for problem-solving. As it was revealed in the partner countries' surveys, soft skills, like time management and skills for creating positive impact, gathered less responses, which – once again – confirms that soft skills or skills related to creating positive impact and achieving personal growth are not considered as an integral part of the Entrepreneurship Education.



With regards to the structure of the curriculum in Turkish HEIs, 62.22% of the students agree that the educators deliver a fixed curriculum within their department, while equal percentage also agrees that the content of the EE programme within their university is derived from students' and business sectors' needs. However, regarding the second statement there is 22.22% of students, who are undecided and 13.51%, with the respective statement. In this case, there is a contradiction between a curriculum that is fixed but at the same time reflects students' and business sector's needs.

When they asked whether they apply their entrepreneurial knowledge and competences to create value for other, most of the students (53.33%) agreed, while 22.22% were undecided, which shows that – even if the sample is attending courses in the same Faculty – students do not have equal opportunities for applying entrepreneurial competences for value creation. More specifically, with regards to developing entrepreneurship projects to create economic value- profit for business owners, 46.67% of the students agreed that they have developed such projects, while 24.44% stated that they strongly agree. In this case, we observe a

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tendency to the economic value creation targeted at the business sector instead of social or cultural value creation, given that the percentage of students, who are undecided or disagree are much lower.

In addition, when they asked whether students build on pre-existing knowledge to create value for others, 42.22% agree with this statement, while 31.11% consider themselves undecided. Given that students attend courses in the same Faculty, we can attribute this difference to the teaching approaches utilized or even the different academic years. With regards to students' role within their university, 37.78% agree that they have influence within their university and community, either formally or informally, while 28.89% of students are undecided, which shows that even the same department may not offer equal opportunities for students to get actively involved within their university depending on the available projects, educators' training capacity, etc.

With regards to students' collaboration with the business sector, most of the students (57.78%) agree that they explore the needs of the business sector by collaborating with business owners, employees, or representatives of the business sector. However, a lower percentage of students declares 'undecided' (28.89%) on the respective statement, which indicates that collaboration with the business sector is not a mainstream teaching strategy even within the same faculty; it can also rely upon educators' initiative. On the other hand, most of the students disagreed (35.56%) or strongly disagreed (35.56%) that they have already collaborated with external stakeholders in the context of EE programme in their university. Even though the majority of students have indicated their involvement with representatives from the business sector in a general context, their active participation in EE programs seems to be deficient. This implies that the incorporation of co-creation, experiential, and active learning approaches, including collaboration with the business sector, may be lagging in the realm of EE training programs.

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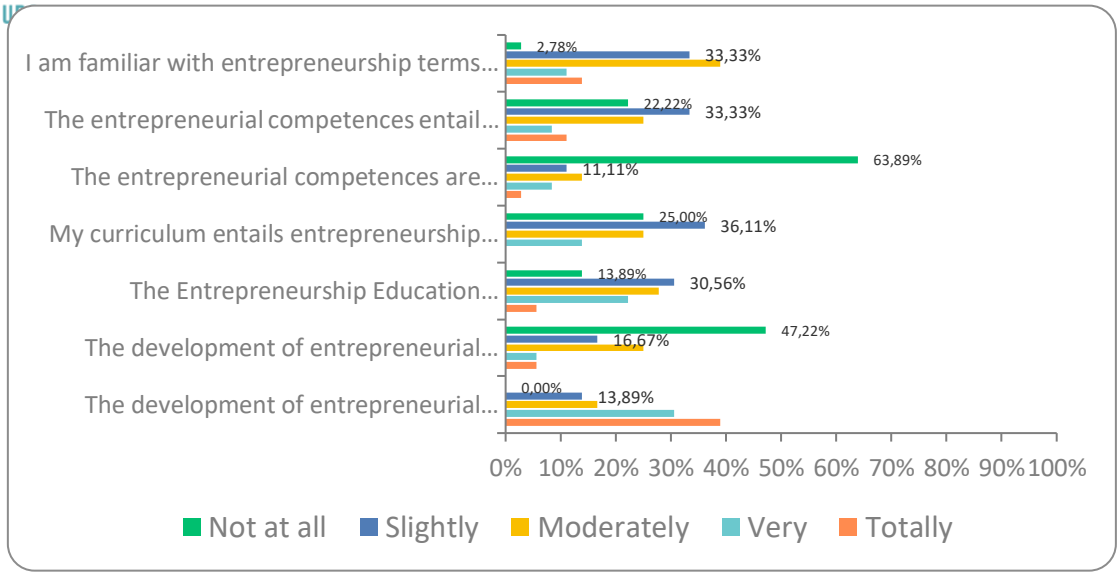

At this part of the survey, students were asked to rate 7 statements based on their level of agreement or familiarity. In specific, 38.89% of the students responded that they are 'moderately' familiar with entrepreneurship terms and concepts, while – equally high percentage – 33.33% of students were 'slightly' familiar. Such percentages show that students have not yet developed an increased level of familiarity with entrepreneurship terms and concepts. Moving on to the perceptions of students on entrepreneurial competences, students responded that they slightly agree that all that 'the entrepreneurial competences entail only "hard skills" (technical skills) related to business professions' (33.33%), while 22.22% of students do not agree at all, which confirms that students acknowledge the need of non-business faculties to deliver EE training programmes.

With regards to entrepreneurial competences, 63.89% of students do not agree at all with the statement 'the entrepreneurial competences are needed only in the case that someone wants to establish a firm'. It's intriguing to note that most students don't associate entrepreneurial competencies solely with starting a business, even though in prior questions, students primarily link entrepreneurial education with general employability skills, such as entering the job market.

When they asked whether their curriculum entails entrepreneurship education programmes and related activities (curricular or extracurricular), most students (36.11%) 'slightly' agreed, while 25% of students do not agree at all. This unanimous answer indicates that the specific Faculty has a long way in introducing EE in its curriculum. On the other hand, this response contradicts the results of the first question, where almost half of the respondents stated that they have attended curricular subjects related to entrepreneurship. In this case, it is possible that students may imply the lack of a stricture EE curriculum. Moving on to another statement, 30.56% of the students 'slightly' agreed that the EE programmes within their university department offer opportunities for creating value for others, while 27.78% 'moderately' agreed with the respective statement. Such percentages indicate that the Faculty of Automatic Engineering needs to offer more opportunities to its students for value creation and social impact.

With regards to the development of entrepreneurial competences, 47.22% of the respondents do not agree at all that entrepreneurial competences are solely related to business faculties,

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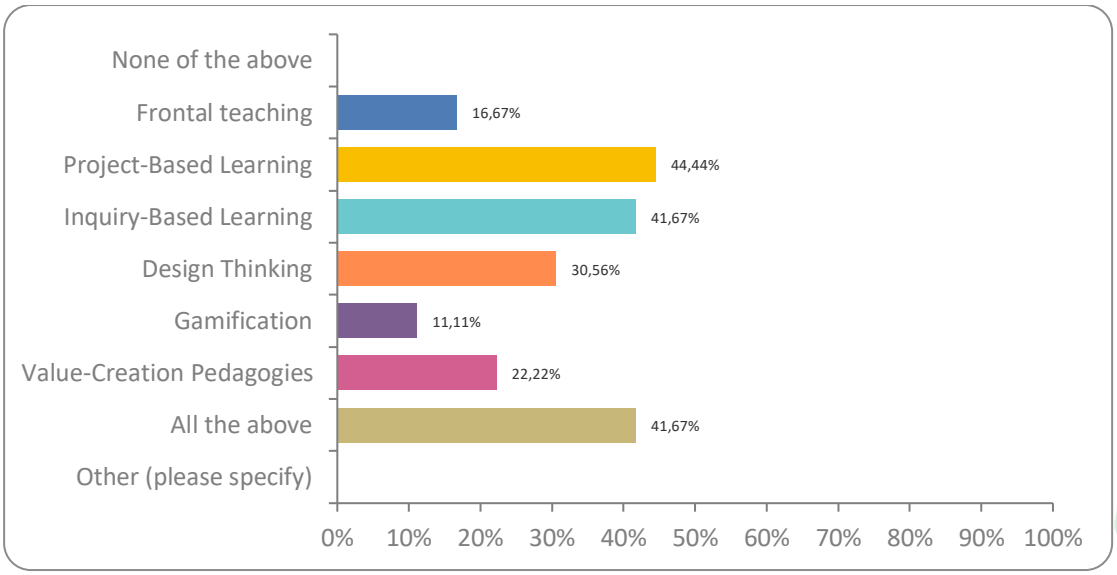
while 25% 'moderately' agree with the respective statement. These percentages highlight that students from non-business faculties acknowledge the importance of entrepreneurial competences. Finally, it is interesting to observe that 38.89% of students responded that they 'totally agree that the development of entrepreneurial competence can create positive impact for non-business-related faculties, while 30.56% 'very' agreed with this statement. These responses suggest that students recognize the potential positive influence of entrepreneurial competencies across various faculties.



With regards to which of the above-mentioned approaches students consider as appropriate for teaching Entrepreneurship Education in non-business faculties, 44.44% of the students responded project-based learning, followed by 41.67% that selected inquiry-based learning, and 30.56% that chose design thinking; less respondents (22.22%) selected value-creation pedagogies, which may indicate that students are not acquainted with this approach. Frontal teaching (16.67%) also gathered very few responses that may be attributed to students' preference for more active learning approaches. Finally, the majority of respondents (41.67%) consider a combination of all the above approaches as appropriate for teaching EE.

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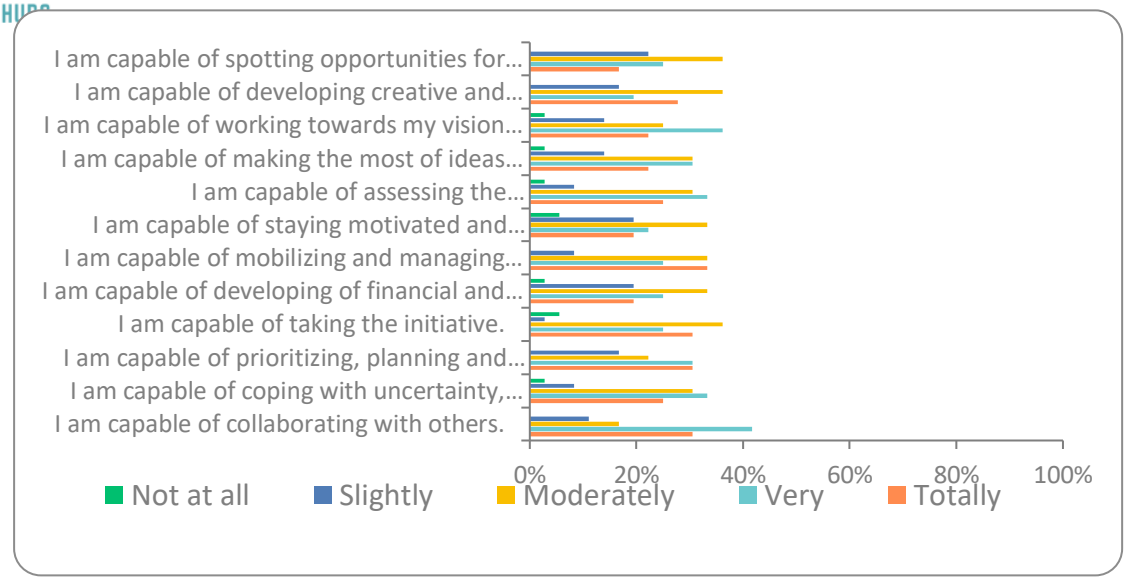

When students were asked to evaluate their capability on some entrepreneurial competences, students consider themselves 'moderately' capable of spotting opportunities for creating value for others (36.11%); developing creative and purposeful ideas (36.11%); staying motivated and consistent (33.33%); mobilizing and managing resources (33.33%); developing financial and economic know-how (33.33%). It is intriguing to observe that there are quite few respondents that feel 'slightly' capable in the aforementioned competences. On the other hand, students consider themselves 'very' capable of working towards their vision of the future (36.11%); coping with uncertainty, ambiguity and risks (33.33%); prioritizing, planning and management (30.56%); and collaboration with others (41.67%). In this case, it is evident that students feel more confident of their capability in soft skills rather than on hard skills, like financial planning, etc. Finally, there is a percentage of students, who feel 'totally' capable of developing creative and purposeful ideas (27.78%); mobilizing and managing resources (33.33%); prioritizing, planning and management (30.56%), which correspond mainly to soft skills. Consequently, there is need to develop students' entrepreneurial skills in a holistic fashion addressing both soft and hard skills.

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Focus Group

Introduction to professional background and Entrepreneurship Education

This focus group comprised a panel of experts with diverse backgrounds and expertise in entrepreneurship and entrepreneurship education (EE). This diversity in expertise added depth to the conversation. All participants were actively engaged in academia, either as professors or lecturers, which demonstrated their commitment to educating the next generation of entrepreneurs. Notably, several members of the panel had a strong professional background and experience in the business sector. This provides us with useful insights of both sides regarding the current state-of-the-art of collaboration between universities and the business sector, as well as of the challenges that need to be addressed. More specifically, the participants included:

Integration of Entrepreneurship Education in Higher Education Institutions

Regarding the participants' level of awareness on EE programmes outside business schools, the participants from Gazi University Technology Faculty Machinery Department lecturer Fatih ŞAHİN shared the knowledge that there are elective and non-field courses related to entrepreneurship in the curriculum. For example, one academic educator from Karabük University stated that the entrepreneurship course is given as an elective course at the university for 2 hours a week in the 3rd and 4th years, and that all students can choose it if desired, while another academic educator from Gazi University mentioned that the entrepreneurship course in automotive engineering is given as an elective 3 hours a week. One of the participants supported that during the career days organized for the students, graduate students working in the sector met with the experienced and supported them as mentors. Another participant, employed in the university, stated that the experiences of the students employed in the sector are shared with the students, who will graduate, and the peer counseling is used effectively.

Apart from this, many participants supported that some students participated in some programs after acting upon personal initiative, and in that way, they develop knowledge and skills in the entrepreneurial sector. It was also shared that the students in the 1st and 2nd grades followed their education under the name of on-the-job training or internships in some companies or institutions, and with these studies, experience was gained for employment and students got on-site information about the work of the job market. Besides these initiatives, participants were not aware of structure Entrepreneurship Education programmes delivered by the university in non-business departments.

Discussing on participants' perceptions of EE in non-business departments, many of them recognized that students in non-business departments do not have a clear understanding of how entrepreneurship can benefit them in their professional career or personal growth. This may lie in the fact that such courses are taught as elective ones, including mainly theoretical aspects, such as the definition of entrepreneurship, its functions, principles, types of innovation, brainstorming, obstacles faced by entrepreneurs, etc. However, as participants

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supported there is need for more practical engagement of students with the business sector, in order to recognize the prospects of entrepreneurship in non-business departments.

With regards to the benefits of integrating EE to the HEIs curricula of non-business departments, academicians unanimously agreed that delivering EE courses to students of non-business departments will equip them with knowledge and competences on how to enter the labor market, either as entrepreneurs or employees, while providing them with skills on how to create impact through their work at multiple levels (e.g. financial, cultural, social, etc.).

Training Programmes for HEIs educators on Entrepreneurship Education

Participants discussed various teaching and training approaches used in Entrepreneurship Education (EE) programs for HEI educators. Project-based learning was one of the approaches that participants found more engaging and meaningful for students to be immersed in the entrepreneurial sector. One of the educators shared his experience gained from his participation in an entrepreneurship project in Kosgeb. Participants also referred to the workplace training opportunities, such as internship programmes, that provide students with significant experience in entrepreneurship by developing responsibility, management and entrepreneurship skills.

Moving on to the support and teacher training tools that HEIs educators of non-business departments need to integrate EE within the curriculum, participants unanimously agreed on academics working at Kütahya Dumlupınar University stated that while training intermediate staff, the entrepreneurship course in the curriculum related to entrepreneurship helped to develop their skills in 4 semesters. More specifically, they stated that their aim is to ensure that graduates are well employed, as well as actively using their entrepreneurial skills in employment. In this case, the focus in shifted on equipping students to become future employees for benefiting the enterprise, where they will be employed, while – on the other hand – overlooking the personal growth and the creation of social impact through entrepreneurship. In addition, another educator stated that the courses related to career management of the Presidency's Communication Department are delivered to students of different disciplines, and that together with the social responsibility course, the development of fine skills such as decision-making, risk-taking, innovation, perseverance, recognizing the leadership ability, which make significant contributions to employment, is supported.

Existing collaborations between Higher Education Institutions (HEIs) and Industry

The participants discussed university programmes that promote active cooperation between universities and the business community. As an example, participants referred that they brought together the successful students who opened their own businesses in Sakarya and Kocaeli with the new students developing mentoring relationships among students and young, aspiring entrepreneurs. Academicians at Ordu University reported that 3 hours of compulsory elective courses are given in departments, and they give practical training to authorized services on some days, as other schools do, and they plan career days with successful students. In general, they stated that they established strong connections with companies in the job market and that they provided the same opportunities in the summer for the students that apply for internship (applied training) to improve their entrepreneurial skills.

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Delving into the kind of cooperation between HEIs and the business sector, academicians at Samsun 19 Mayıs University stated that they received a certain amount of budget from the ministry of industry every year, and they also apply 3+1 workplaces like other universities. Another participant also stated that OKAF (Middle Black Sea Career Fair) has been held under the leadership of 19 Mayıs University with the participation of Hitit, Sinop, Çankırı, Bartın, Kastamonu, Karabük, Amasya, Ordu and Gaziosmanpaşa universities for about 2 years. As he stated, most of his students were directed to the talent gate within the Presidency for internships. In addition, an educator mentioned that an entrepreneurship program was given through the Technopark, where entrepreneurship courses were opened according to student demand, and upon a request from KOSGEB (Small and Medium Enterprises Development Organization), these courses were given and a certificate was given after the training; after the training programme, students evaluated these processes in the advisory board at their school.

With regards to the benefits of collaboration between HEIs and the business sector, one of the participants expressed that "*it would be beneficial to come together at the stage of development to the curriculum, implementation and dissemination*" and the rest of the participants unanimously agreed on the need for meaningful collaboration during all the training programme's phases, not just in the delivery of the course.

Moreover, the participants elaborated on the active involvement of business sector representatives in EE programmes and highlighted their roles in different phases of the programmes, which mainly includes the provision of internship programmes, support through mentoring, organizing visit studies in some companies, provision of workspace for research teams.

Participants concluded that among the main benefits of collaborations between HEIs and the business sector include knowledge and innovation transfer, exploration of the labor market needs, interconnection between academic knowledge and practical entrepreneurial application of this knowledge, experience of a real working environment.

Challenges and solutions for fostering the collaboration between HEIs and industry

The focus group discussion centered on the challenges and potential solutions for effectively integrating EE within the curriculum of non-business departments in Turkish HEIs. The participants shared their insights and recommendations on how to address these challenges. Firstly among the factors that participants identified as obstacles to fostering collaboration between universities and the business industry was the lack of enthusiasm to entrepreneurship, especially on behalf of non-business faculty students, which may be attributed to the fact that they do not have a clear understanding of how entrepreneurship can become beneficial across different disciplines. One more challenge mentioned by the participants was the shortage of skills in terms of interacting with the business sector, such as networking skills, competences on how to sustain efficient collaborations, etc.

With regard to the solutions that the participants suggested, integration of action-oriented approaches to the existing curriculum, and more structured and systematic collaboration between universities and the business industry were among the ones that participants mostly mentioned, along with on-site training opportunities, such as job-shadowing and internships.

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The implementation of events and projects for knowledge transfer and experience sharing, like career days, role-model projects, study visits, experience sharing days were also supported by educators and representatives of the business sector.

When participants were asked about the support that educators need to establish cooperations with the business sector, all the participants agreed that they need support on how to establish strong and sustainable cooperation across the different training course stages, starting from designing a programme to its delivery and assessment. Besides educators' training, participants focused also on the need to train representatives of the business sector regarding the basic principles of teaching (e.g. approaches, learning outcomes, etc.) and enabled them to see the benefits and prospects of such collaboration in the long-run.

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Comparative analysis insights

The comparative analysis will focus on four key aspects: 1) the perception and delivery of Entrepreneurship Education (EE) across disciplinary areas, 2) the structure of existing Entrepreneurship Training Programmes, 3) the state of value co-creation in EE, and 4) the collaboration between universities and the business sector across Germany, Greece, Cyprus, and Turkey.

- **Perception and Delivery of EE Across Disciplinary Areas**

The perception of EE varies significantly across the four countries studied. In Germany, EE has a long-standing presence in higher education, though it remains predominantly concentrated in business-related faculties. However, the integration of EE into non-business faculties is growing, especially in interdisciplinary fields such as technology, design, and social sciences, where entrepreneurship is seen as crucial for innovation and problem-solving. Germany's EE initiatives emphasize hands-on learning through incubators, accelerators, and partnerships with industry, though non-business faculties are still less exposed to formal EE programs.

In Greece, EE is still primarily associated with business and economic faculties, although efforts to expand its reach are increasing. Interdisciplinary programs in engineering and other sectors are being introduced, reflecting the country's focus on entrepreneurship as a tool for economic growth and regional development. However, in non-business faculties, EE remains in its nascent stages, and there is a need for more formal structures to integrate entrepreneurial thinking into diverse disciplines.

Cyprus shows a similar trend to Greece, with EE primarily housed within business faculties but slowly expanding into other areas. Focus group participants emphasized the importance of EE in fostering creativity and problem-solving across various sectors. In Turkey, EE is more varied, with some non-business faculties engaging in entrepreneurial education through collaborations with local businesses and project-based learning, although the implementation remains inconsistent across institutions

- **Structure of Existing Entrepreneurship Training Programmes**

The structure of entrepreneurship training programmes differs across countries, reflecting varying levels of institutional support and curriculum integration. In Germany, EE programmes are well-structured and include both formal curricular activities and extracurricular options such as workshops, internships, and real-world business projects. Programs often focus on practical skills like financial management, marketing, and leadership, with a strong emphasis on experiential learning. German universities also integrate incubators and accelerators, providing students with opportunities to apply entrepreneurial concepts in real-world settings.

In Greece, entrepreneurship training is often integrated into graduate-level programs, with a focus on formal education such as lectures and case studies. While extracurricular activities like hackathons and business competitions are becoming more common, there is a lack of cohesive structures that embed entrepreneurship into non-business curricula. Greek universities are increasingly relying on project-based learning and mentorship programs to bridge this gap.

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On the other hand, Cyprus has developed a flexible approach to EE, offering both curricular and extracurricular programs that focus on practical skills such as project management and opportunity identification. However, as in Greece, there is a need for more formalized structures that support entrepreneurship in non-business fields. In Turkey, EE programs tend to focus on practical experience, with students engaging in real-world projects and collaborations with businesses. However, these programs are often optional or extracurricular, and their integration into the formal curriculum is still limited.

- **State of Value Co-Creation and Entrepreneurship Education**

Value co-creation is increasingly recognized as an important element of entrepreneurship education in all four countries, though its implementation varies. In Germany, value co-creation is a key focus of EE programs, with students encouraged to develop projects that create social, cultural, and financial value. This is often achieved through collaborations with industry partners, where students apply their entrepreneurial skills to real-world challenges.

In Greece, value co-creation is less prominent but growing, particularly in sectors like engineering and agriculture. Greek universities are beginning to emphasize the importance of creating value beyond traditional business outcomes, such as fostering innovation in local economies and addressing social challenges. Cyprus shows a similar trend, with EE programs incorporating value co-creation, though it is still not a central component of most curricula. In Turkey, value co-creation is recognized, especially in programs that engage students in community-based projects and collaborations with local businesses, though its integration into the broader EE framework remains limited.

- **Collaboration Between Universities and the Business Sector**

Collaboration between universities and the business sector is a central element of entrepreneurship education in all four countries, though the extent and nature of these collaborations vary. In Germany, such collaborations are well-established, with universities partnering with industry to provide students with internships, real-world projects, and mentorship opportunities. These collaborations are often formalized through incubators and accelerators, where students can develop their entrepreneurial skills while contributing to industry innovation.

In Greece, university-business collaborations are less formalized but growing, particularly through initiatives like entrepreneurship competitions and internships. However, there is still a gap in integrating these collaborations into the formal curriculum. Cyprus follows a similar pattern, with a strong emphasis on project-based learning and partnerships with businesses, though the collaboration is often extracurricular. In Turkey, collaborations between universities and businesses are varied, with some institutions offering well-established partnerships that provide students with hands-on entrepreneurial experience, while others lack formal structures to support these collaborations.

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Conclusion and future directions

The research activities and data analysis conducted under the ENTREHUBS project show that while Entrepreneurship Education (EE) is increasingly gaining traction across various disciplines, the level of integration and the structure of existing programs vary significantly between Germany, Greece, Cyprus, and Turkey. Germany leads with well-structured programs, extensive university-business collaborations, and strong support for value co-creation through real-world projects and incubator involvement. In contrast, Greece and Cyprus are still in the process of expanding EE into non-business faculties, focusing primarily on project-based learning and extracurricular activities. Turkey, while offering strong practical components through community-based and industry collaborations, lacks the formal curricular integration of EE, especially in non-business disciplines.

Looking forward, several future directions emerge for the evolution of EE in these countries. A key priority should be the formal integration of EE into non-business curricula. While entrepreneurship is recognized as a valuable skill across disciplines, most programs outside of business faculties are still offered on an extracurricular basis. Integrating entrepreneurship-related modules into core curricula for disciplines such as engineering, social sciences, and the arts can help foster a more holistic understanding of entrepreneurship and its applications beyond traditional business contexts.

Furthermore, there is a strong case for expanding the concept of value co-creation within EE programs. The ability to create social, cultural, and financial value is becoming increasingly important in modern entrepreneurship, particularly with the rise of social enterprises and impact-driven businesses. This would not only equip students with the skills needed for modern economies but also align EE with the broader goals of higher education institutions, such as promoting social responsibility and community engagement.

Collaboration between universities and the business sector will continue to be a cornerstone of EE development. However, there is a need to move beyond traditional models of collaboration, such as internships and business competitions, toward deeper partnerships that involve co-designing curricula with industry experts and real-time problem-solving projects. This will ensure that students are exposed to cutting-edge industry practices and can develop entrepreneurial solutions that are directly applicable to the challenges faced by businesses and society. Additionally, fostering international collaborations between universities and businesses can offer students a global perspective on entrepreneurship, preparing them to navigate the complexities of an increasingly interconnected world economy.

In terms of educator training, there is a growing need for professional development opportunities that help university staff understand and implement entrepreneurial pedagogies. By equipping educators with the tools and frameworks needed to foster entrepreneurial mindsets in students, universities can more effectively integrate EE across disciplines. This includes training on value co-creation, project-based learning, and interdisciplinary innovation, all of which are critical for future EE programs.

In summary, the future of EE across these four countries lies in a holistic, interdisciplinary, and value-driven approach, supported by strong industry partnerships and innovative teaching methodologies. By focusing on these areas, EE can become a powerful tool not only for

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economic development but also for addressing societal challenges and driving positive change across a variety of sectors.

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