GÖTEBORGS UNIVERSITET
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Master Degree Project in Knowledge-based Entrepreneurship

Entrepreneurship Education in HEIs: Comparing Innovative Teaching Methods and Curriculum Design Approaches

A Multiple Case Study of 5 European HEIs

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Abstract

The thesis addresses modern practices in teaching methods and curriculum design approaches that are currently being used by top-ranked European higher education institutions (HEIs) in delivering their entrepreneurship programs. It reveals key differences and similarities in terms of what content and teaching methods the programs are using to teach entrepreneurship. The thesis also addresses the question of which of the practices and approaches can be considered innovative. In light of absence of the optimal model for teaching entrepreneurship education (EE), the thesis aims at presenting a snapshot of what is happening in the field of EE in European HIEs in order to provide the opportunity for EE actors to learn from the examples.

The study is designed as a multiple case study and includes 5 cases of entrepreneurship programs taught at Antwerp Management School (Belgium), Rotterdam School of Management (The Netherlands), Copenhagen Business School (Denmark), ESADE (Spain), and Chalmers University of Technology (Sweden). It is based on both primary data collected through interviews with students, alumni, professors, and program coordinators; and secondary data that includes programs websites and brochures. Furthermore, the thesis presents a comprehensive literature review of modern practices and innovations in the field EE.

The empirical findings clearly illustrate the uniqueness of the programs and the vast diversity of practices used in delivering entrepreneurship education. The thematic analysis showed that in relation to curriculum design the programs are involving external actors, structuring their education in form of stages of venture, providing customization options, using track-dependent content, and adding personal-development- and technologies-focused content to the core entrepreneurship subjects. From the perspective of teaching methods, the programs are actively using role plays, hands-on simulations, multidisciplinary projects, games and competitions, experiential learning, internships and international trips.

The study argues that even though most of the practices used by the programs can be considered innovative from the perspective of being the opposite of traditional approach, the programs are lagging behind what is happening in the field of real-life entrepreneurship. There is a room for use of more advanced technologies, a demand for making the content more target group specific, a need to gamify EE and make it more relevant to what is happening in real entrepreneurship.

Keywords: entrepreneurship education, innovations in entrepreneurship education, entrepreneurship education in universities, practices in entrepreneurship education, teaching methods, curriculum and content design

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This could not have been possible without you and the authors wish you the best luck in all your future endeavours.

Thank you!

Aleksei Kuchera and Douglas Redman

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1 Introduction

The following chapter presents research background, selected research area, aim of study, research question, and research problem.

1.1 Background

'Entrepreneurship can be taught, or at least encouraged, by entrepreneurship education'
Gary Gorman

Having taken its roots in the first half of the 20th century from courses like "family business" and "new enterprises", entrepreneurship education (EE) is now becoming more and more popular all over the world. In particular, there has been a vast spread of EE programs over the past decades (Rauch and Hulsink, 2015).

The popularity of EE among policy-makers, academics, researchers, and trainers could be explained by its positive impact on venture creation (Petridou et al. 2009). It was observed by a number of researchers that EE does facilitate economic development of the country it is performed in (Carree and Thurik, 2010). But how exactly does EE improve economies and why does it boost venture creation? Previous researchers explain this with a help of a reaction chain scheme: entrepreneurship education → entrepreneurial learning → entrepreneurial intention, traits, competences → entrepreneurial behaviour → entrepreneurial achievement (Manimala and Thomas, 2017).

Started from EE, the chain results in creation of new ventures and growth of existing ones through activating entrepreneurial behaviour in individuals. As a result, academia and governments are trying to facilitate the development of EE in order to create global entrepreneurial culture. For them, EE is a way to encourage individuals to behave entrepreneurially, and thus create new ventures and develop existing ones (Manimala and Thomas, 2017).

According to the broad definition given by Fiet (2000), EE is a formalized conveyance of entrepreneurial knowledge and competences which include concepts, skills and mental awareness on each step of entrepreneurial journey from starting to growing ventures. The process of EE, therefore, implies at least 2 sides: the one that gives it (instructors), and the other that receives it (students). In general, EE's focus sets around 3 areas: teaching about (theoretical concepts), for (venture creation) and through (methodological approach) entrepreneurship (Fayolle, 2007). Usually, such focus varies depending on the needs of a particular target group it addresses.

EE is performed on various levels of both formal and informal education (WEF, 2009). Considering formal educational system, EE has been intruduced on all primary, secondary, and tertiary levels. This study focuses solely on the tertiary level of formal education, that is higher education in Higher Education Institutions (HIEs). With its raising global significance over the past decades, EE is perceived as a lifelong learning process in which HEIs play a crucial role (Volkmann and Audretsch, 2017). What EE in universities aims at is developing entrepreneurial knowledge, skills, and attitudes (KSAs) in their students which allows them to act entrepreneurial (Volkmann and Audretsch, 2017).

The number of EE programs around the world has grown exponentially over the last 20 years (Fayolle, 2019). The leap in EE programs offerings has been especially noticeable within the European higher education sector (Volkmann and Audretsch, 2017). Not only was there progress in the number of university entrepreneurship programs in Europe, but also in use of innovative learning and teaching practices (European Commission, 2015). This study investigates EE within the scope of Europe and attempts to capture a fracture of the vast range of teaching methods, approaches, and strategies in delivering university EE in the continent. According to Volkmann and Audretsch (2017), such 'exchange of best practices is essential and can contribute to the growth and development of the educational field'.

It is clear what EE is and why it is important to develop it, but it is a big mystery what is the right way to do that. There are several reasons for that. First of all, it is difficult to assess EE outcomes as it is typically of a long-term nature (Manimala and Thomas, 2017). Thus, the impact of whatever is being done in the field in the here and now, will only become measurable in years to come. Secondly, there is simply no 'silver bullet' for developing EE since it exists within a broad range of pedagogical approaches and diversity of unique national, cultural, and social contexts (Fayolle and Gailly, 2008). However, learning from each other's experience might help EE educators find their tailored approach and develop their programs more effectively.

Overall, the current situation in EE in general and in European universities in particular could be describe this way: (i) there is a large number of E programs which exist within their own unique contexts and (ii) understanding the need to develop EE, they are trying to arrive at the best design (Manimala and Thomas, 2017; Volkmann and Audretsch, 2017). And these programs' contextual differences – in approaches, target groups, formal requirements, human resources etc. – have led to a great deal of innovations in teaching methods, curriculum design, target groups, and levels of these programs (Manimala and Thomas, 2017). Designed as a multiple case study, the thesis is aimed at capturing and presenting examples of such innovations within the scope of European higher education.

To document and classify the EE innovations, previous researchers developed a 4-dimensional WHAT-HOW-WHO-WHERE model based on where they can occur (WEF, 2009). According to the model, the evolution in EE is highly related to (i) curriculum design and content, (ii) teaching methods and pedagogies, (iii) target groups and instructors, and (iv) levels of education. The model underlies the research structure, data collection and analysis methods. However, the authors of this study focus solely on curriculum design approaches and teaching methods, or on the WHAT and WHO dimensions of the model.

In general, innovative approach to EE is defined by being the opposite of traditional one (Gibb, 1987). It is characterized by being student-centered, future-oriented, vastly adopting learning-by-doing and experience-based practices (Manimala and Thomas, 2017). In the curriculum design dimension, among already known and broadly applied innovative practices there are customization of content, audience-dependent program design, use of practice-oriented content, use of mix of project- and person-based content, use of experience-simulation-based content, intertwined and interrelated courses (WEF, 2009; Fayolle et al. 2019). In regard to the teaching methods dimension, the most common innovative practices are associated with learning-by-doing, role plays, hands-on simulations, multidisciplinary projects, games and competitions, experiential learning, and involvement students into entrepreneurship ecosystem (WEF, 2009; Fayolle et al. 2019). This study is dedicated to revealing specific examples of usage of such forward-looking EE practices by European HIEs.

1.2 Research Question

Since the authors aspire to answer several interrelated questions, it was decided to do that in chronological order. It was also established that some of the questions in the study were secondary to other fundamental ones. Thus, 2 core research questions were formulated supported by 1 sub-question each.

RQ1: *What teaching methods and curriculum design approaches are being used by top-ranked European HEIs in delivering their entrepreneurship programs?*

> ***Sub-RQ1:*** *What are the differences and similarities between teaching methods and curriculum design approaches used by top-ranked European HEIs in delivering their entrepreneurship programs?*

The research question 1 (RQ1) is solely dedicated to revealing what the studied programs are doing with EE at the moment from the perspective of (i) 'what is being taught' and (ii) 'how it is being taught'. 'What is being taught' relates to curriculum design, program content and structure. 'How it is being taught' focuses on teaching methods, pedagogies, and educational methods used to deliver the content. Such snapshot of EE is an objective reflection of reality, and hence, the authors will use descriptive approach to address it. The answer to RQ1 will be presented in the *Results* section of the study. The sub research question 1 (Sub-RQ1) is a logical continuation of the RQ1. Its focus is set around examining how similar or different the presented programs are in terms of their practices in teaching methods and curriculum design. The answer to Sub-RQ1 will be presented in the *Analysis* section of the study. To address it the authors will perform coding and thematic analysis.

RQ 2: *Which teaching methods and curriculum design approaches used by top-ranked European HEIs in delivering their entrepreneurship programs can be considered innovative?*

> ***Sub-RQ2:*** *What EE actors can learn from innovative practices used by the top-ranked HEIs in delivering their entrepreneurship programs?*

The research question 2 (RQ2) addresses the question of innovativeness of the practices and approaches revealed in answering RQ1. In order to answer RQ2 the authors will relate the results to what is already known from the literature and use criteria of EE innovativeness offered by other researchers. The answer to the question will be presented in the *Analysis* section of the study. The practice-oriented sub-research question 2 (Sub-RQ2) focuses on important lessons the EE field can learn from innovative practices that the programs are applying. In other words, Sub-RQ2 addresses 'what can we learn from this' side of the study. The answer to the question will be presented in the *Discussion and Conclusion* chapter of the study.

Research Question Prerequisites

Authors' personal experience in studying an entrepreneurship program at the University of Gothenburg became the main *source of the research question.* The authors felt that the gap between the development of E and EE has been increasing with the latter vastly lagging behind

the former. Therefore, the initial questions arose ‘what is the state of EE now?’ and ‘is it different in other national contexts?’. Later these were transformed into the final research questions for the study.

The *significance of the research* is that it has potential to add on to the existing research and ultimately improve EE all over the world. It sheds light upon valuable practical experiences of top-ranked EE actors that have not been broadly known before. Although, the research is focusing on EE, it does not mean that the insights the study reveals could not be translated into other areas of education. If this holds true, the study could have a positive impact on future generations via improving their education.

The *motivation* for the authors to pick the topic of EE comes from them being a part of it themselves as well as from their passion for entrepreneurship and education in general. The authors truly believe that education is the way to build a good society. And by focusing on the field of EE in particular, the authors aspire to help teachers and students jointly improve their performance, and hence, increase the quality of EE outcomes.

Methodological Approach Overview

The study employs a qualitative research strategy and is designed as a multiple case study. It is comparative in its nature and, in general, follows a descriptive approach in the research purpose. The authors used abductive reasoning in designing their research, and based their data collection and analysis on frameworks and theories discovered from previous research in the field of EE. Data collection methods combine both primary and secondary data. In-person and Skype interviews with students, alumni, professors, and program coordinators were conducted to generate primary data. Articles and books about EE as well as program brochures and websites were used as secondary data sources. For the data analysis methods, the authors used a qualitative approach, exploiting coding and thematic analysis. Unit of analysis in the paper is a postgraduate university entrepreneurship program.

1.3 Aim of Study

Research Problem

A research problem is defined as ‘a statement about an area of concern, a condition to be improved, a difficulty to be eliminated, or a troubling question that exists in scholarly literature, in theory, or in practice that points to the need for meaningful understanding and deliberate investigation’ (Organizing Academic Research Papers, 2020).

Declaring a clear research problem was crucial for the authors to formulate the research aim. From conducting the literature review in EE it became clear that there were several ‘problem spaces’ in the field.

First and foremost, several researchers claim there is no universal model for what constitutes effective EE (Fayolle and Gailly, 2015; Volkmanm and Audretsch, 2017). Since there is no ‘silver bullet’ for EE and its optimal model has yet to be found, the authors consider it important and useful to share how different EE actors answer this question in different environments. And it is their unique E programs that is this answer. It is the programs that reflect HEIs’ attempts to perform effective EE.

Secondly, there was no proof found that what is happening in the field of university EE is common knowledge. By way of contrast, the authors managed to find only limited amount of case studies presenting a snapshot of what particular HEIs are doing with their E programs. Thus, it is suggested that formal exchange of EE experiences might be improved. Because ultimately, as Volkmann and Audretsch (2017) state, HEIs can learn a lot from each other. But is what they are doing known and addressed?

Finally, according to Fayolle et al. (2019), due to its existing conventional EE modalities, EE is lagging behind the pace at which E is developing. And even though it is clear that 'EE must reinvent itself and support entrepreneurial developments' there is no answer to what is the right way to do that (Fayolle et al. 2019). In other words, there is a need for innovations in EE, but what these innovations are is under debate. Thus, the authors again considered that particular E programs are HEIs' suggestions to how EE might be innovated and that is why it is so important to share these experiences.

Aim of Study

A research aim 'expresses the intention or an aspiration of the research study; it summarises in what authors hope to achieve at the end of a research project' (Organizing Academic Research Papers, 2020).

Thus, the aim of the research project is to provide insights in modern and innovative practices and activities used by European HEIs to design and teach their entrepreneurship programs. In other words, the study attempts to present a snapshot of the field of European university EE in relation to contemporary cutting-edge approaches to what might be taught in EE and how EE might be taught.

Presented examples (cases) might be adopted by those delivering and managing EE. They will allow EE actors to learn from what is already done in the field as well as relate their own experience to the unfolded examples. Moreover, the study thrives for facilitating exchange of EE experiences, in general. It is important that sharing of EE expertise becomes a common practice.

Potential Outcomes

The authors were looking for teaching methods and curriculum design approaches within European university EE that might be in any way characterized by at least one of several words: unconventional, non-traditional, non-standard, non-conservative, novel, innovating, cutting-edge, or forward-looking. In general, what is already known theoretically was related to what is actually being done in practice. Therefore, the authors are not hoping to argue or build any new theory, but rather add to what is already known about EE and make the practices that are taking place here and now common knowledge.

It was unclear prior to the research how similar and different the cases would happen to be to one another. Nor was it clear how innovative or conventional the programs would prove to be. The authors assumed they would see a number of unique 'inventions', but they would all follow the same logic.

1.4 Delimitations

The are several limitations to the study. Being a multiple case, it primarily focuses on the unique context of the entrepreneurship programs. The authors believe that the chosen research scope and the number of programs in the study is insufficient to neither make fundamental assumptions nor ground theory. However, due to the format of the master thesis, such study parameters allow the work to be feasible within the given time frame and available resources.

Delimitations Related to Scope and Context

The authors acknowledge that the same study conducted internationally (that is, including regions with more advanced EE, such as Canada and the USA) would show a significantly larger number of interesting EE practices. However, due to limitations in time and movement, the scope of the study sets merely around Europe. It was important for the authors to include HEIs that represent different countries so as to highlight their unique context. Thus, each of the 5 chosen programs originates from 5 different countries: Belgium, The Netherlands, Denmark, Spain, and Sweden. Furthermore, the study focuses only on formal tertiary education. That means that only HEIs were investigated. In addition to this, all programs in the research are master's programs and are provided for those with undergraduate university experience.

Another major limitation hides in how the programs were selected. Firstly, the authors used European business schools rankings (FT European Business School Rankings 2019, Bloomberg European B-Schools Ranking Entrepreneurship 2019-20, and Top 2019 Eduniversal Best Masters Ranking in Entrepreneurship) presented by such trustworthy media as Financial Times, Bloomberg, and Eduniversal. However, being 'top-ranked' does not necessarily mean being best or innovative. Secondly, in their pursuit to pick only critical type of cases, the authors used subjective selective sampling. Thus, only those cases were selected which were considered interesting and relevant to the theory, such as Chalmers University of Technology (Sweden), Copenhagen Business School (Denmark), Rotterdam School of Management (The Netherlands), Antwerp Management School (Belgium), and ESADE (Spain).

By no means do the authors claim that the chosen selection method is the most optimal one. On the contrary, they admit that the list could have been very different, had other approaches to programs selection been used.

Delimitations Related to Data Collection Process

Due to the outbreak of COVID-19 in March 2020, a big part of pre-arranged in-person interviews and HEIs visits ceased to be possible. First of all, that caused the authors to not use observations as a data collection method which, of course, would have increased the quality of collected data. Secondly, 14 out of 20 interviews had to be conducted over Skype which effect on the quality of data is debatable.

Moreover, a vast majority of HEIs were forced to start transforming their education to an online format. That resulted in a significant workload increase on the side of professors and academic directors. Thus, several interviews were canceled and in the cases of CBS, ESADE, and Chalmers only students and alumni were interviewed. The authors hugely regret not having been able to present all sides' views for all cases.

1.5 Organization of The Thesis

The thesis follows a standard structure. First, the authors present *Literature Review* where they have compiled main theories and concepts about teaching methods, curriculum design

approaches, and innovations in EE. Secondly, methodological approach to the study is described in the *Research Methods* section. Thirdly, in the *Results* section, organized empirical data is presented for each of the 5 cases individually, focusing on answering RQ1. Fourthly, the *Analysis* part addresses Sub-RQ1 and RQ2. It discovers differences and similarities between cases through coding and thematic analysis, as well as addresses the question if the revealed practices are innovative. Finally, the *Discussion and Conclusion* section investigates Sub-RQ2 and presents lessons learned from the study, practical proposals for EE actors, and authors' suggestions for future research.

2 Literature Review

This section provides an overview of sources the authors used researching the topic of EE and reveals synthesis of relevant concepts and theories unfolded in the field of EE.

2.1 Introduction to EE

2.1.1 What is EE

Definitions, objectives, types of EE

It is important to define what Entrepreneurship Education (EE) is and where its boundaries lie, prior to going deeper into specific frameworks and theories of innovations in the field. There have been different EE definitions found in the literature which all share a common idea, of having knowledge as a core of the concept. According to Young (1997) EE is a formalized conveyance of entrepreneurial knowledge. Fiet (2000) expands on this definition adding entrepreneurial competences which include concepts, skills and mental awareness by individuals on each step of entrepreneurial journey from starting to growing ventures. It is also important to mention that most of the attempts to defining EE imply that it is, in fact, a continuous process. In this paper, the authors will be using the latter EE definition.

A better understanding of the concept of EE and reasons of its importance can be reached through defining objectives it tries to focus on. Kirby (2004) states that there are three main goals EE pursues:

1. EE pursues to build up awareness of new venture creation and knowledge related to it;
2. EE pursues to encourage self-employment and jobs creation;
3. EE pursues to help ventures grow and develop.

Deriving from absence of agreement in academic circles in what EE is and how it should be taught, there is a number of opinions on what angle EE might be investigated from. ‘As yet, there is no common agreement over what constitutes entrepreneurship education or how it is and should be taught.’ (Fayolle, 2007). Typically, researchers divide EE into 3 big categories:

1. Education *about* entrepreneurship;
2. Education *for* entrepreneurship;
3. Education *through* entrepreneurship.

EE narrates *about* entrepreneurship. Education about entrepreneurship focuses mainly on raising awareness of the topic and providing an overview of how it functions. According to (Fayolle, 2007), it ‘teaches students about entrepreneurs and, in particular, their roles and functions in the economy and society’. Education about entrepreneurship is also claimed to be the most popular approach to teaching entrepreneurship in Higher Education Institutions (HEIs), (Mwasalwiba, 2010).

EE educates *for* entrepreneurship. Education for entrepreneurship focuses on developing and stimulating entrepreneurial process. It is about ‘developing in their students the attributes of the

successful entrepreneur and/or equipping them with the knowledge and skills to start and grow a business' (Fayolle, 2007).

EE is also seen as education *through* entrepreneurship implying that entrepreneurship becomes more of a method than an object of study. According to (Kyrö, 2005), this type of EE leans on a learning through doing approach, often of an experiential nature and could be used not only in the field on entrepreneurship, but in other fields of education. And 'while the "about" and "for" approaches are relevant primarily to a subset of students on secondary and higher levels of education, the embedded approach of teaching "through" entrepreneurship can be relevant to all students and on all levels of education', (Lackeus, 2015).

Finally, it is significant to point out that all the three categories of EE imply focusing on different target groups. Thus, education *about* entrepreneurship can focus on a broader audience on any level of education or professionals and policy-makers who have connection with the field of entrepreneurship. Education *for* entrepreneurship is specifically directed on current and potential entrepreneurs. Education *through* entrepreneurship could be used in educational processes that might share principles of venture creation (Fayolle, 2007). The authors consider that a particular focus around education about, for, and through entrepreneurship gives a better understanding in how particular E programs approach teaching entrepreneurship.

EE in Higher Education

Entrepreneurship can be taught on different levels of education: primary, secondary, tertiary. However, since the scope of the study is exclusively on higher education, it is important to highlight EE's distinct features on a university level. What follows are four synthesized trends in EE in HEI.

First of all, EE is becoming more and more popular. Because together with HEI and research community governments acknowledged the significance of EE's positive impact on the global economy, it has been widely introduced everywhere in the world, mainly on the university level. It has become common for education institutions to have courses on entrepreneurship within their other programs, and not only business-related (Licha and Brem, 2018). Policy-makers are getting involved into EE in HEI. According to Voigt et al. (2006), including discussion of the national policy in entrepreneurship into governments' everyday matters and developing effective curriculum guidelines and principles have now become a common international practice.

Secondly, HEIs are not ivory-towers any more. According to Audretsch (2014), universities are no longer only responsible for technology transfer and creation of academic spin-offs, rather they are becoming centers of entrepreneurial society. EE in HEIs does not seem to be a particular narrow issue. Now, it forms an entrepreneurial ecosystem which contains the university, the local region, existing and emerging companies, and other stakeholders (Morris et al. 2013). EE falls beyond the borders of university campus and requires broader university strategies and institutional frameworks (Jackson, 2015).

Finally, EE's target audience is not homogeneous. There are two main groups of EE students, the first being those with positive or neutral entrepreneurial prior experience and knowledge, and the second being those who 'had never been exposed to entrepreneurship or had been negatively influenced by a prior experience of entrepreneurship' (Fayolle and Gailly, 2015). This point is especially relevant to the study since it investigated entrepreneurship programs which students represent very different target audiences.

2.1.2 Innovations in EE

This study is partly devoted to innovative, cutting-edge practices in EE on a university level. And since it focuses on the 'innovation' part of modern developments in EE, it is crucial to define criteria for the practices to be innovative. Therefore, it is supposed of first priority to give a definition to what is considered an innovation in EE. According to Volkmann and Audretsch (2017), 'Innovation in EE is a representation of new approaches of EE with a sufficient time horizon of successful implementation'. Due to psychological, social and cultural constrains on one hand, and specific nature of entrepreneurship on the other, it is simply impossible to use a similar approach that is exploited in any other field of education. Hence, 'there is clearly a need to devise new strategies and methods for improving the effectiveness of entrepreneurship education' (Mitra and Manimala, 2009).

In order to describe the concept of innovation in EE, it is common to compare it to what is considered traditional. Such distinguishing between traditional and innovative practices in EE was applied by a number of researchers (Hytti and Gorman, 2004; Pittaway and Cope, 2007; Fayolle, 2007; Spiteri and Maringe, 2014; Maritz et al. 2014) and displays the contrast between the past and future of EE evolution. What follows will provide a comparison of the two.

Comparing traditional and innovative approaches to EE, Gibb (1987) states that the former focuses on objectivism philosophy and uses the past as the core if teaching, whereas the latter adopts focus on the future and advocates subjectivism philosophy. Contrasting the two approaches, Gibb (1987) and other researchers emphasize inadequacies of the traditional EE teaching approach and support an alternative experimental one (Gorman et al., 1997; Fiet, 2000; Kirby, 2004). Moreover, it is often stated that, unlike conventional teaching, the innovative approach requires approaching teaching EE in an experience-based way (Jossberger et al. 2010; Maritz et al. 2014). Even though presented more than 30 years ago, Gibbs' model is used by researches as a core of distinguishing between tradition and innovative approaches in EE.

Traditional Approach	*Innovative Approach*
The past	The future
Critical analysis	Creativity
Knowledge	Insight
Passive understanding	Active understating
Absolute detachment	Emotional involvement
Written communication and neutrality	Personal communication and influence
Concept development	Skill development

Figure 1. Traditional and innovative (entrepreneurial) approaches (Gibb, 1987)

The *traditional* approach to teaching and learning EE has a teacher in the core of the concept and does not imply direct or active involvement from students. Among other common techniques and principles used in the approach, there are formal lectures and presentations, guided group discussions, organized seminars and workshops where note-taking and essay-writing is a broadly used practice (Manimala and Thomas, 2017).

By way of contrast, the more *innovative* or entrepreneurial techniques and methods put a student in the center of the model, and imply they learn by doing. Furthermore, such approach employs experience-based practices, case studies, workshops with practitioners, game-like simulations with active students' participation. It is applying theories in real-life cases that lies in the core of it (Manimala and Thomas, 2017).

2.2 WHAT-HOW-WHO-WHERE EE Framework

Prior to investigating EE innovations, it is crucial to understand where exactly they might occur. To answer this question, it was offered by previous researchers to use frameworks of EE composition and elements. Overall, these frameworks are built around evergreen questions of education: who should study, who should teach, what should be taught, how should it be taught, and finally where should it be taught. Thus, these questions form so-called interconnected dimensions of education which, using a business analogy, are problem spaces of any HEI program.

The framework that underlies the conducted study is the WHAT-HOW-WHO-WHERE model. Dedicated to representation of holistic picture of EE, it was offered by the authors of World Economic Forum report (WEF, 2009) in their attempt to formulate principles and display best practices from the world of EE on different levels of education. It was claimed by the authors of the framework, that ‘the evolution of entrepreneurship education is closely associated with the changes made in the WHAT-HOW-WHO-WHERE parameters, which have led to periodic innovations in the content, methodology, target groups and the levels of these programs’ (Manimala and Thomas, 2017). The purpose of the framework was to enable the authors to describe existing practices in EE is a logical and structural way, which intention is fully shared by the authors of the thesis.

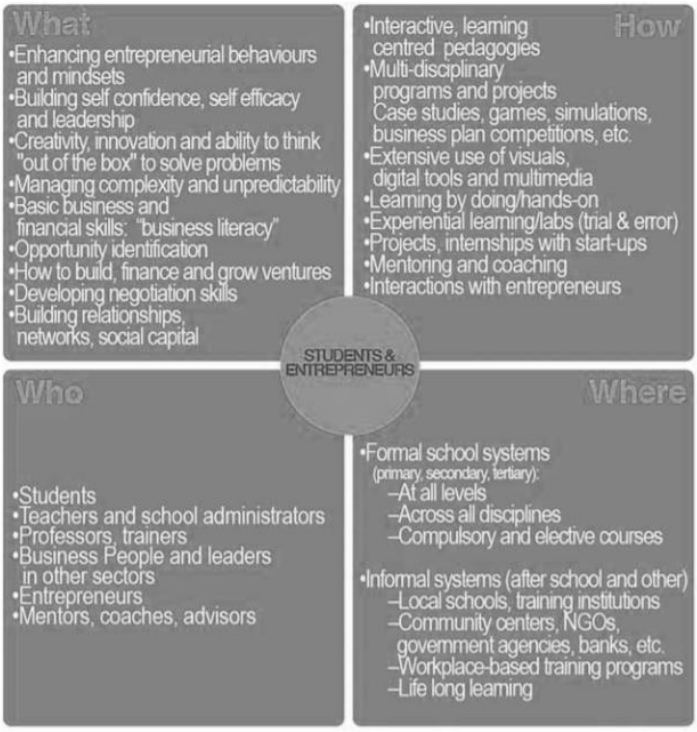

Figure 2. EE composition - contents, methods, target groups and levels (WEF, 2009)

In the model, the *'WHAT'* dimension refers to the content that entrepreneurship program curriculum is based on. It includes topics, courses, disciplines, processes, skills, knowledge, abilities that should be learned and adopted by those receiving the education. In other words, the 'WHAT' dimension focuses on a variety of courses, topics, and sequence in which they are taught, covering curriculum of an EE program. For instance, in the WEF report, the following practices lie under the 'what should be taught' in EE for youth: empathy, comparative advantage, laws of supply and demand (WEF, 2009).

The *'HOW'* dimension focuses on pedagogical tools, teaching methodologies, and delivery methods that are used to teach entrepreneurship. It is a set of pedagogies and teaching practices that constitutes the 'HOW' of EE. In other words, the 'how to teach' section of EE includes procedures, techniques, strategies, and ways of teaching in accordance with a defined plan that is used for in-class and out-of-class instructions. For instance, among other practices the authors of WEF report adduce simulations and games, interactive teamwork and group activities, field trips to local businesses as an answer to how should entrepreneurship be taught on a school and pre-school levels (WEF, 2009). To illustrate the issue on another example, answering the question 'how should be entrepreneurship taught' Fayolle (2007) mention that among a variety of specific practices, EE in HEIs should be done 'experientially; creatively; joyously; respectfully; adaptively and – dare one say it – entrepreneurially'.

The *'WHO'* dimension investigates stakeholders who take part in EE, such as students, instructors, mentors, program management, and external stakeholders. Its two core questions are who should receive EE and who should teach entrepreneurship. Apart from giving-receiving sides, it focuses on external environment of EE in HEIs alongside with organizations and individuals who affect it. The 'WHO' dimension addresses the matters of internal and external communications in the EE processes. It is claimed by researchers to be one of the most

important EE dimension since EE target groups hugely influence both what is taught and how it is taught (Manimala and Thomas, 2017).

Last but not least, being intrinsically linked with the choice of the target group, the *'WHERE'* dimension addresses the issues of level of education where EE should take its place. Typically, it is primary, secondary, and tertiary level of formal educational system where the issue is investigated. However, EE could be and has been provided outside the formal system by various actors, such as government agencies, training institutions, consultants, trainers, NGOs, banks, etc (Manimala and Thomas, 2017). This study's scope lies solely on postgraduate level within formal higher education.

Different researchers have different opinions towards which of the EE components are dominant and which are secondary. According to Fayolle (2007), among the questions of 'where', 'why', 'what', 'when', 'what', 'who' to teach, it is the last two that create the crucial combination for EE in HEI and are mostly worth paying attention to. He continues that the 'what' (specific curriculum subject choices and the 'when' (undergraduate or postgraduate) issues are still important but are totally subsidiary to 'who' and 'how'. On the other hand, in author's attempt to define the key elements of EE, Kyrö (2005) claims that 'what to learn' refers to the EE substance and states that is it 'what to learn' and 'how to learn' dimensions that are in core of EE. Finally, according to Manimala and Thomas (2017), it is identification and development of necessary entrepreneurial knowledge, skills, and abilities that should be the primary focus of EE.

This study, however, focuses on 'what to teach' and 'how to teach' aspects of EE in HEI as the authors' first priority was to reveal mechanics of student-teacher interaction within the process of entrepreneurial education and what principles it could be built on. Therefore, only WHAT and HOW dimensions of the framework are used in the study.

2.3 The 'WHAT': Practices and Innovations in Curricula Design

This section of literature review will narrate about current principles and specific approaches used by researchers and practitioners in order to develop an up-to-date effective content and curricula structure of EE programs. The section's focus is thus to reveal different approaches to answering the question 'what should be taught in entrepreneurship programs in HEI?'.

2.3.1 Introduction

A number of researchers agree on the perspective that the content of EE should primarily focus on behavioral characteristics of entrepreneur, thus stating that EE program curriculum's key *goals* should be aspired to:

1. allow students to recognize opportunities, develop entrepreneurial ideas, perform customer development, evaluate their creativity, asses project feasibility, and develop entry strategies;
2. enable students to assess resources and risks, write a business plan, and attract financial and non-financial investment;

3. familiarize students with venture creation process, provide knowledge how to allocate and manage various resources, and use marketing strategies (Manimala and Thomas, 2017).

Another attempt to define EE content goals was made by Vesper (1998), who claims that students should be provided with four types of knowledge: what a new business is, what types of a venture there are, how to recognize and embrace a market opportunity, and how to create a particular solution.

Finally, according to Kourilsky (1995), an ideal EE content should satisfy three criteria in order to allow students to create new ventures. Firstly, students should learn how to recognize opportunities and use them to fill a gap in the market. Secondly, they should learn how to take risks. Finally, they should learn how to establish businesses and deliver a product or service to the market through performing operational, marketing, and financial activities.

Summarizing the different goals and functions of EE curriculum mentioned above, the authors share the belief that it is the ability to create a real-life business that should lie in the core of EE content.

2.3.2 Some of EE Curriculum Design Innovative Principles

Approaching answering what it is that entrepreneurship programs should teach, different researchers suggest different principles that are to be used when building modern EE curricula. The following is a compilation of 7 selected propositions for designing EE programs' structure and content.

Academic vs Entrepreneur's Approaches

The academic approach to developing entrepreneurship curriculum takes its roots in addressing pre-venture creation process, putting venture management and development on a second priority list (Ibrahim and Soufani, 2002). A similar opinion was expressed by McMullan et al. (1985) suggesting that it is opportunity recognition, planning, and new market development that should be in the core of EE structure. By way of contrast, functional management courses have a tendency to form the primary focus of those practice-oriented entrepreneurs (Henry et al. 2005). The authors of the research conducted a study asking 100 Harvard Business School's management program graduates who became entrepreneurs after to define the most important aspects that can be taught in EE. As a result, the participants claimed it was business functional areas that shape successful managing of their business. However, such differences in academic and entrepreneurial approach are dictated by different target audiences, first of which wants to establish a business and second to manage and develop already existing venture.

Target Group Dependence

As it was pointed out above, EE content is highly depended on target groups who are receiving it. Such view on EE curriculum is shared by a vast majority of researchers and raises the main question of the 'WHO' dimension of holistic EE model – 'who should study entrepreneurship?'. In regards to educational content its target group dependence implies that curriculum should vary according to who the education is aimed at (Manimala and Thomas, 2017). Such groups can include individuals already working in the field of corporate entrepreneurship or start-ups, professionals from other business fields who have yet to start their company, social entrepreneurs, engineering/health care/creative industries/management/agriculture

professionals. The authors claim 'The courses for each of these groups would need to have customized content'. According to Morris and Kuratko (2014), target groups' needs vary dramatically from getting entrepreneurial KSAs to developing entrepreneurial behavior, depending on which stage of their entrepreneurial careers they are. HEIs, however, address extremely different kinds of target audiences, and thus they are obliged to offer eclectic fusion of courses (Manimala and Thomas, 2017). They also claim that the more specialized a HEI's entrepreneurship program is, the more unique its content tends to be.

Outcome Dependence

In their study dedicated to designing curricula in enterprise and EE, Rae et al (2014) suggest that outcomes criteria could be used to help HEIs develop their educational content for teaching entrepreneurship. Basing their theory on three roles for EE defined by Heinonen and Poikkijoki, (2005), who stated that students studying E might want to (i) learn about entrepreneurship as a concept, (ii) become entrepreneurial and develop related KSA, or (iii) learn to become new venture entrepreneurs and actually start their business, the authors suggested that EE curriculum can be based on 'what students need to know, understand and can do in relation to enterprise and entrepreneurship' (Rae et al. 2014).

Person- vs Project-focused Approaches

Another point of view on content design implies division of what courses might be targeted at: person-focused and project-focused (Manimala and Thomas, 2017). There is no agreement on which approach is most suitable for EE and different researchers demonstrate different opinions on the topic. For example, Volery et al. (2013) advocates the need of EE content to be person-focused claiming that it is entrepreneurial traits, motives, knowledge, behaviors, skills, abilities, and beliefs that generate most value for learners. Other researchers, however, support a view of significance of project-focused content. According to Kirby (2004), the following topics ought to shape the core of EE curriculum: opportunity recognition, market entry strategies, financial analysis, investment attraction, resources allocation, planning, business modelling and writing a business plan, marketing activities etc. In other words, such A-to-B entrepreneurial processes should be widely adopted in the EE content agenda and form its main focus.

Although the reality shows that the majority of EE programs provide a mixture of both project- and person-based content, the choice of approach depends dramatically on a particular program specificity (Manimala and Thomas, 2017). Moreover, the researchers express a true belief that EE curriculum are to combine the two, thus both facilitating students' personal development and suppling them with KSAs for creating and managing their future venture.

Experience-simulation-based Content

Some researchers made a suggestion that the question 'what should be taught in EE?' can be answered from a perspective of what learning opportunities students should obtain whilst learning. Thus, some of them asserted that EE curricula and courses ought to provide participants with a chance to experience entrepreneurship and venture management (Solomon, 2007). In order to highlight a similar point, others offered to design EE content so as to satisfy the students' need to actively participate in practice-based activities to enhance their creative thinking skills (Hamidi et al. 2008; Spiteri and Maringe 2014). Overall, this approach's main focus leans on the idea of providing learners with experience-based environment.

Practice- vs Theory-oriented Content

In their attempt to offer a methodology for designing and outreaching EE courses, Piperopoulos and Dimov (2015) investigate 'the relationship between student's self-efficacy beliefs and

entrepreneurial intentions in the content and pedagogy of the entrepreneurship course'. They state that EE courses are dichotomist and classify them into theoretically oriented and practically oriented. The first group comprises such topics as entrepreneurial traits, opportunity recognition, decision making, acquiring resources, idea implementation. It addresses such questions as what is entrepreneurial thinking and what risks entrepreneurship is associated with. On the contrary, practice-oriented content include a set of techniques of entrepreneurship encouragement, team building, creativity, generating ideas, pitching, selling, networking, marketing, inspiration. As a result of the study, the authors claim that there should be a balance between those 'building steam' courses and 'bursting bubbles' ones. They continue that, due to specific features and resource limits, some courses just cannot be taught in a practically oriented way. The authors believe that HEIs should offer a wide range of E courses, theory-based, practice-based, or even a combination of the two 'in order to meet the needs and expectations of the wide range of EE stakeholders' (Piperopoulos and Dimov, 2015).

Standard MBA Approach

In his attempt to address the question 'how to design what might be taught?', Fayolle (2007) advocates opinion expressed by other researchers that 'rigid and compartmentalized standard MBA approach is not the way to go'. Prior proposal lied in the fact that mechanistic business school model to designing content for EE was not consistent with and relevant to the needs and demands of multifaceted and many-sided nature of entrepreneurship (Aronsson, 2004). In such hierarchical approach, Fayolle (2007) claims, self-contained independent blocks of different disciplines build a strict structure of curriculum. The author continues that as opposed to EE such conventional sterile pyramid approach may be beneficial. Nevertheless, it is totally irrelevant and falls short of EE needs, since its fragmented nature does not let the structure to cross boundaries which is exactly what EE should be aspired to do Fayolle (2007). Thus, an alternative approach to designing EE curriculum content should be employed.

2.3.3 Specific Approaches to EE Curriculum Design

Fayolle's Plus-Zone Content Design Template

Discussing irrelevance of mechanistic MBA content design approach, Fayolle (2007) offers a different method. The model for university EE consists of 4 concentric circles or areas of EE curriculum structure. The author claims, that *first of all*, a crucial role of external actors must be acknowledged as only this way an active interaction between an E program and the real world of E can be created. The 'ivory-tower' mentality should be overcome and the connect between those learning and those doing E (e.g. VCs, serial entrepreneurs, company owners, business areas professionals) must be established. Fayolle (2007) believes that formats of these external actors' participation can vary from reading in-class lectures to providing graduates with networking opportunities.

Subsequently, the model's *second circle* includes particular interconnected and interrelated courses that might coincide with the subjects taught in MBA programs. The author states it is not the courses but their depths that should vary depending on if they are taught to aspiring or already active entrepreneurs. 'The boundaries between courses should be flexible' says the researcher. On the *next level*, different subjects and disciplines converge and blend into the core business plan course. Its purpose is to melt the limits of program particular courses and prevent content to follow the hierarchical pyramid structure described earlier. *Finally*, in the very center of the model there is the so-called 'plus-zone'. This is the point where universities may insert a

‘special flavor’ to their programs based on unique national, cultural, and economic features of their environment. The plus-zone is the place for HEIs to add special value based on their competences specificity. The key point of the model is that by using the plus-zone principles universities should make their E programs ‘something truly special for the students’ Fayolle (2007). And as it was mentioned before, one of the key aims of the study is to reveal what it is that different HEIs add in their plus-zones.

Morris’ Guide to EE Program Development

In their endeavor to develop a guide to academic E program development, Morris et al (2013) claim that there have been two main practical approaches to designing EE content in HEIs. Schools either based their curriculum on stages of venture approach (e.g. pre-launching, early days, take-off, growth, exit etc.) or followed functional areas principle (e.g. marketing, finance, VC, law, opportunity recognition etc.). The authors, however, offered a synthesized approached that includes the two mentioned above. Morris et al (2013) suggest that a general roadmap of EE program development consists of two main elements. Firstly, there are various contexts where entrepreneurial behavior occurs. For example, it could be family business, an existing company, an NPO etc. On the other side of the model, there are facilitators which focus on enabling entrepreneurial behavior. Among other, the authors make an example of planning, business modelling, creativity, and venture financing.

Based on their target audience’s background and experience, universities should decide what their particular E program will be focusing on. Thus, schools determine contexts of primary importance and mix them with the specific facilitators. Furthermore, the authors claim that on different levels of higher education (undergraduate, postgraduate, and doctoral) EE programs should be aimed at different target. That is, unlike undergraduate programs, they say, MSEs (Master’s of Science in Entrepreneurship) should be aspired to enable students to launch new ventures (Morris et al, 2013).

2.4 The ‘HOW’: Practices and Innovations in Teaching Methods

2.4.1 Introduction

The simplest definition of a teaching method can be found in most dictionaries. Such as imparting knowledge or skill; the giving of instruction (Westwood, 2008). However, this traditional definition has been challenged in the last two decades. Resulting in a redefinition of the teacher role to some degree. This derives from the adoption of new beliefs on how and where learning best occurs. Resulting in teachers being more of a facilitator and supporter rather than an instructor (Westwood, 2008). Further, a teaching method can be characterized by a set of principles, strategies or procedures. The chosen approach is decided on the premise of the subject matter and beliefs on how students learn (Westwood, 2008). Consequently, there has been a central debate around constructed knowledge and instructed knowledge. The concern is whether the process of learning through experience or learning through instructions is the best approach to learning. From research, it appears that a mix between the two is favourable. This was motivated by teachers noticing greater interest and motivation in their students when using said approach (Westwood, 2008). Lastly, the complication when teaching entrepreneurship is that it requires a creative process of teaching, which contrasts traditional teaching methods that could be viewed as more mechanical. The latter approach is therefore ill-equipped to match the need of entrepreneurship students. Thus, this implies that methods for teaching

entrepreneurship require new teaching methods that can fill those criteria (Esmi et al., 2015). Currently, the majority of literature on EE shows that there is a change from conventional teaching towards modern teaching methods. Where these new methods are based on "action-based-learning" (Esmi et al., 2015). Finally, this chapter will bring forth literature that describes the nature of teaching methods in the context of EE.

2.4.2 Some of EE Teaching Methods Principles

According to Balan and Metcalfe (2012), programs should determine their strategy based on their educational goal-orientation. Meaning that they should align their teaching approaches with the aim of the program (Balan & Metcalfe, 2012). Lackéus (2013) proposed a model to identify teaching principles that could be used to achieve a certain type of program. In this progression model, he lays out four different types of E program structures. These are creation, value creation, venture creation, and sustainable venture creation. And is determined on the applied teaching approaches and what benefits and artifacts they create during the process. The teaching methods are divided between non-action-based and action-based programs. While the level of artifacts and benefits build upon each other and are separated into: creation of artifacts that hold no value for stakeholders outside the education; creation of artifacts that is valuable for stakeholders beyond students and teachers; the live process of starting a business; create ventures that survive post-graduation, implying a real and sustainable business. Further, some teaching approaches are given as an example for each structure. Concluding, the model represents a progression that correlates with benefits and challenges. Where learner engagement and motivation increase parallel to the depth of the model while increasing teaching complexity (Lackéus, 2013). The model can be seen below.

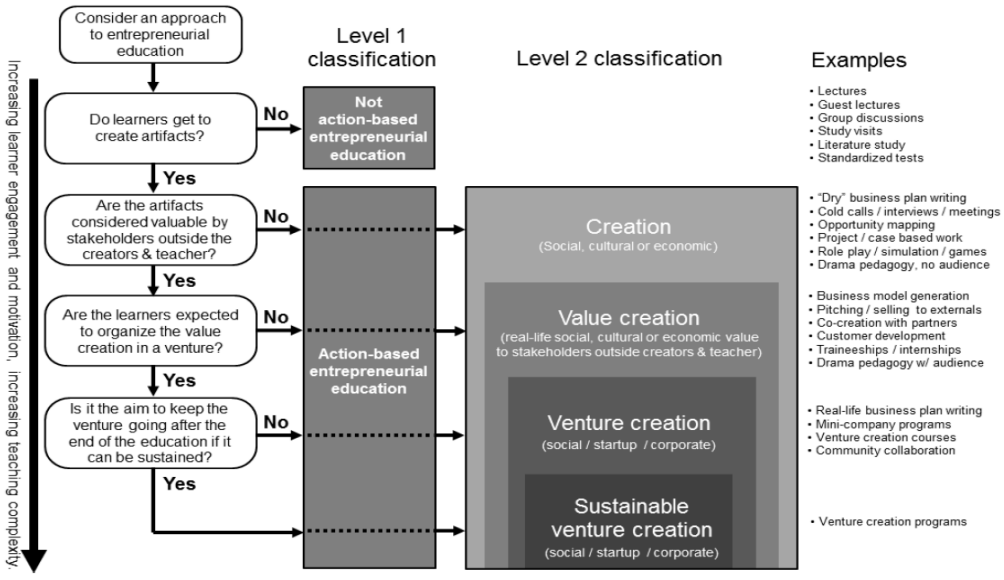

Figure 3. Classification of action-based EE (Lackéus, 2013)

Main principles: Action Based and Non-Action Based learning

The level one classification in figure 3 displays two main principles. These are separated between teaching methods that are either action-based or non-action based. This is a common division made in the literature, where they also refer to them as traditional and innovative methods. Traditional methods, also known as non-action-based learning, is comprised of normal lectures. While innovative methods identify as action-based learning. Which consists of approaches where students actively take part in the learning process (Mwasalwiba, 2010).

Non-action-based Learning

It's argued that non-action-based teaching methods should be limited in its use. And should mainly be used to help students understand the commercial foundation of their entrepreneurial actions (Mwasalwiba et al, 2010). Meaning to instruct students on what they should know and why they should know it, in relation to their entrepreneurial practices. The non-action-based approach is similar to Oyelola's (2013) explanation of content-oriented learning. Which is an approach to introduce concepts and methods (Esmi et al., 2015, p.172). Further, the reason for limiting the application of traditional teaching is because it is deficient at encouraging entrepreneurial qualities (Arsti et al, 2012, p. 4). It could furthermore result in students becoming dormant in their participation. Arsti et al (2012) state that this method of teaching prepares students to work for entrepreneurs rather than becoming one. Finally, motivations for using this method are due to easy execution and that it requires less investment compared to that of action-based learning (Fiet, 2000).

Action-based Learning

In contrast to non-action-based learning, the action-based method should be used when teaching actual knowledge, skills, and attitudes of entrepreneurs (Mwasalwiba et al, 2010). Implying practical practices where students investigate, question, converse and engage with real entrepreneurs. This closely relates to the principle of process-oriented learning. Which focuses on problem-based teaching. Meaning that it applies practical exercises that allow students to learn through experience (Oyelola, 2013; Esmi et al., 2015). The challenge when applying this method is that it can be costly and is difficult to fit in the traditional university system of teaching (Mwasalwiba, 2010).

2.4.3 Specific Approaches to EE Teaching Methods

Figure 4 presents the majority of teaching practices used in EE. Which was gathered from both Arasti et al. (2012), Esmi et al (2015), and Salomon (2007). This is intended to provide a better comprehension of the methods before describing them further. Additionally, Salomon (2007) conducted an American national survey on the most used teaching methods in EE of 2007. This will be included in the figure. However, the insight provided from the survey relates to America and might not translate to EE in Europe. Lastly, it's worth mentioning that some of these teaching methods can be combined (Manimala & Thomas, 2015).

Action-based	**Non-action-based**
Development of business plans*	Case studies*
Computer simulations*	Lecture by business owners*/role model
Small business institute projects*	Discussions*
Research projects*	Lectures by guest speakers*

Internships*	E-Portfolio based pedagogies
On-site visits to new ventures/small businesses*	
Work-related learning	
Experiential learning	
Action-learning	
Active-learning	
Cooperative-learning	
Game-based-learning	
Problem-based-learning	
Project method	
Role-plays and Simulations	
Assignments	
Incubation support	

Figure 4. Teaching methods in EE (Solomon, 2007) *frequently used in EE in America

2.4.3.1 Non-action Based Learning

Bennett (2006) states that the most used teaching methods under non-action-based learning are lectures, case studies, and group discussions. These teaching methods have been further explained by Manimala & Thomas (2017) and will be displayed below.

Case Study Lectures

The case study method presents students with insights into real-world situations and allows them to apply their theoretical knowledge to find solutions. This method is versatile because it can be used in combination with several teaching methods (Manimala & Thomas, 2017) e.g. experiential learning. Some of the benefits of using case studies are because they are effective at improving entrepreneurial decision-making skills (Clark et al., 1984), the ability to synthesis data, and the development of analytical skills (McMullan and Boberg, 199).

E-Portfolio Based Pedagogies

E-portfolios is referring to an electronically stored library that contains teaching contents. Such as entrepreneurship experience from both entrepreneurs or students, artifacts, and achievements. Delivery of this type of content can be through an external online course. Universities might use E-portfolios to complement their education by purchasing online courses (Mitchell and Savill-Smith 2004).

Study Visits & Lectures by Role Models

Study visits can also be referred to as industry visits due to their focus on commerce and business. These visits provide the students with a near real-time experience of businesses (San Tan and Ng 2006). This experience is intended to allow students to develop insights for dealing with the challenges of venture creation in the future. These visits can also be reversed where industry practitioners and entrepreneurs come and visit the campuses (Mitchell and Savill-Smith 2004), also known as guest lectures. Further, lecture by role models can be part of study visits where entrepreneurs or industry experts hold presentations. However, this is not limited to lectures. They could also engage as coaches, mentors, advisors, trainers, and entrepreneurs-

in-residence (Hills and Welsch 1986; Mitchell and Chesteen 1995). The method has shown to be an important tool for stimulating and inspiring entrepreneurial mindsets among students. Thus, motivating them to take on entrepreneurship as a profession (Spiteri and Maringe 2014).

2.4.3.2 Action Based Learning

Work-Related Learning and Active Learning

Worked-related learning is according to Dwerryhouse (2001) a type of learning-by-doing. And can be divided into three settings. Firstly, being through practice. Secondly, through research. Thirdly, through contributing and creating within a related organization or team. The most important innovations of learning-by-doing are based on outside-class activities e.g. internships, working on less sized consulting jobs, and creating & managing small ventures on the university site (Brawer 1997). Thus, it shows the importance of work-related learning. Further, active-learning is similar to the third type of work-related learning, by having students actively observe and engage with entrepreneurs (Prince 2004). This method is supposed to encourage students to get acquainted with entrepreneurial behaviour, especially on the process of how they overcome failure. This is expected to make them more autonomous learners and go beyond external sources of information. An example can be an innovation experiment, where students get involved in an eight-week full-time business development project together with an entrepreneur (Manimala & Thomas, 2017).

Experiential-learning and Action-Learning

Experiential-learning and action-learning are methods to make students learn through experience and can be view as a learning-by-doing method (Kolb, 1984). The process of experiential learning follows the student through the experience and has them reflect on what is being done. This can be achieved by themself being part of the experience or by observing someone else's experience (Manimala & Thomas, 2017). Experiential learning contributes largely to the subject such as opportunity recognition, business plan writing, developing marketing, and more (Morris and Kuratko, 2014). Implying that students explore new ideas based on their previous experience (Corbett, 2005). Further, the main difference between experiential-learning and action-learning is that action-learning focuses more on solving real and complex problems and is done in a group. While experiential learning focuses on any reflection, mostly from the perspective of the performing individual (Stappenbelt, 2010). Action-learning is done by having the student work as the problem solver, while the teachers act as facilitators or coaches (Hytti & Gorman, 2004). The benefit of using this approach is that it can facilitate autonomous learning if it is used as a self-directed mode of operation (Stappenbelt 2009; Stappenbelt 2010; Rowland-Jones 2012).

Cooperative Learning

The cooperative learning method is based on group learning. Here students work together in small groups. Which supposedly helps them develop generic competencies (Ballantine & Larres, 2007). It is crucial to have coordinated activities and structured groups to enable learning in the participants (Johnson & Johnson, 1990). The teacher's role is mainly to be the facilitator of the learning process and has three main tasks. Being handling of group formation, management, and evaluation (Manimala & Thomas, 2017).

Problem-Based Learning: Role-plays, Simulations, and Game-Based-Learning

Problem-based-learning can be viewed as the core of role-plays, simulations, and game-based-learning. And is about having students solve and discuss a chain of real-world problems related to business (Manimala & Thomas, 2017). This method has similarities to the approach of learning-by-doing. However, while learning-by-doing is mostly used outside of class, the problem-based method can be used in class. Students get the problems presented through, role-plays, case studies, and computer simulations. This allows them to create strategies for solving problems and applying them to real-world situations (Brawer, 1997; Shepherd, 2004; San Tan & Ng, 2006). Role-plays, simulations, and game-based-learning are used to give the participants a pretended experience of a phenomenon. Which is considered to be an effective teaching method according to some researchers (Ratner & Song, 2002). Students who part take in the role-play method pretend to be the protagonist of a specific situation. Where they try to behave, think, and imagine, to act accordingly (Shepherd, 2004). This method allows participants to see the situation from a novel perspective (Sogunro 2004), largely from that of other decision-makers. Further, role-paly is part of active learning that takes place in a low-risk environment. Additionally, role-play provides a point of reference for relevant discussions (Brown, 1990) about the circumstances of decision making (Manimala & Thomas, 2017). Next, Game-based-learning is an artificial scenario where the students make a set of choices that affect specific outcome. It can be formatted as role-playing, physical activities, ICT-based simulations, and other variations (Manimala & Thomas, 2017). Lastly, it is shown that these methods can help students develop spatial and cognitive abilities, expert behaviour, as well as decision-making skills (Mitchell & Savill-Smith, 2004; Balasubramanian & Wilson, 2006).

Project Method

In EE the project method is used to allow students to choose action-oriented projects and courses within their program. It has been argued that this method is effective at developing and improving knowledge and comprehension of the subject area, while improving the ability to evaluate decision making (McMullan and Boberg, 1991). An example of this method can be found in Manimala & Thomas (2017) study. They mention a course where students partner with companies or start their own by collaborating with incubators. Thus, becoming fully involved in the real-world entrepreneurship process.

Business Plan Creation

Many studies have highlighted the importance of business plan creation for EE (Hills 1988; Hoing and Karlsson 2004; Hoing 2004). Some stating that the business plan method is the leading most important pedagogical tool and course feature in entrepreneurship programs (Johannisson et al. 1998). In the context of entrepreneurship, a business plan is a layout for how to go about starting a new business. The popularity and usefulness of this approach have resulted in some schools including business model competitions in their curriculum. Some even include prices as incubation support and investments.

Assignments

The most commonly used assignments in entrepreneurship educations are term papers and conducting case studies, which are either based on primary or secondary data while being guided by an educator. When students conduct case-studies, it could be beneficial if they include interviews with entrepreneurs, to get a better understanding of how entrepreneurs think and work (Mitchell & Savill-Smith, 2004). This practical exercise helps students integrate and connect the process of academic learning, experiential learning, and reflective self-awareness (Binks et al. 2006).

Extracurricular Activities and Incubation Support

It's becoming more common to supplement classroom teaching with extracurricular activities. Some variations of extracurricular activities are student consulting companies, internships, and business plan competitions. Another example can be engagement with incubators, where some provide support for venture creation (Potter, 2008). Further, business incubation can be viewed as the most practice-oriented training method for potential entrepreneurs, and is therefore popular amid educational institutions, much so for those teaching on subjects of management and engineering (Mitchell & Savill-Smith, 2004). Incubators provide service both inside and outside the incubator. Implying that they provide interactions with external actors while maintaining a position in the facilitated/protected environment of the incubator, which would equip and prepare the students who are part of it to deal with the external environment when they are ready to start their own venture (Mitchell & Savill-Smith, 2004). An incubator can support and facilitate in various ways, some being through internet access, office space, financial resources (seed funds/venture capital), administrative services, shared resources (Burnett & McMurray, 2008), business monitoring, business advice, seminars on new ventures, strategic networking opportunities (Hansen et al., 2000), assistance for IP protection and navigation, and access to market (Burnett & McMurray, 2008).

2.4.4 Innovations in Teaching Methods

The innovation of teaching methods within EE is focused towards appropriating the teaching method towards the learning objective, by changing the format of teaching to fit the required level of creativity for effective learning (Volkmann & Audretsch, 2017). Many of the creative teaching methods within EE, such as design thinking, are not effectively taught through traditional teaching, and therefore require innovation (Volkmann & Audretsch, 2017). Approaches that might be more appropriate in this situation is the use of action-based teaching methods. However, the challenge with changing from traditional teaching to unconventional teaching methods is to fit them with university requirements. Thus, innovative approaches are associated with fitting teaching techniques and exam methods with the university formalities, while providing the novel and creative ways for teaching entrepreneurship more effectively (Volkmann & Audretsch, 2017).

To generate a better understanding of the direction of innovation, we can look to the past. The purpose is to describe the EE trends from two decades ago, to later contrast them with current practices. And by doing so get a better understanding of what could be considered innovative. In 2001 Sandercock (2001) provided one of the most extensive lists of best practices and trends for EE in the US. This was later adopted by Potter (2008) as the most prominent practices. This section will present 3 of those trends. Firstly, the trend of external association and assistance. This is an approach where universities seek external support for their program. Primarily to fill gaps of competencies and resources that are necessary for effective EE. The external support is focused towards: advisory and/or financial support from external organizations; fostering student engagement with practicing entrepreneurs; involving students in consulting work related to entrepreneurship. These practices are to help students gain implicit knowledge generated by industry experts and entrepreneurs (Potter, 2008). Secondly, real-life entrepreneurial opportunities trend. This trend resembles entrepreneurial skill development, where students engage with real businesses and entrepreneurs. And include activities such as internships, incubation, fund and investment management, seed money, among others (Potter, 2008). Third and last, the use of distance education through electronic media. This is mainly when programs apply electronic media as a tool to increase the flexibility and reach of their

programs. Web-based programs provide asynchronous media with high flexibility. Allowing students more freedom to plan their studies. While Video-based lectures are less flexible but remove the need to be present physically. The main benefit of using these methods is because they are cost-effective and provide students with flexibility (Potter, 2008).

2.5 Summary

EE is a formalized conveyance of entrepreneurial KSAs which focus is set around education about, for, and through entrepreneurship. Due to its positive impact on economic development, EE has become an important social issue and gained global significance. A substantial leap in the amount of E programs has been seen in European higher education over past decades, where universities play a crucial role. EE actors, including HIEs, are actively trying to develop EE and make it more effective. That led to a number of innovative and experimental practices introduced in different E programs around the world. An EE innovation is defined as representation of new approaches of EE with a sufficient time horizon of successful implementation. Innovative approach to EE is opposed to traditional approach and is characterized by being student-centered, future-oriented, adopting learning-by-doing-focused, and experience-based. In order to document and classify the innovative practices and approaches in a systematic way, the WHAT-HOW-WHO-WHERE framework was offered by previous researchers. Originated from addressing key spaces of where such innovative practices occur, the framework sets around 4 key dimensions of EE: what should be taught in EE, how EE should be taught, how should teach/study EE, where EE should be taught. The framework was used by the authors to structure their work, collect and analyse data.

The study focuses on the WHAT and HOW dimensions of EE. First of all, it addresses innovative practices and approaches that occur in curriculum design and content of E programs in higher education. Among other innovative practices and approaches in the dimension, previous researchers highlight stages-of ventures structure, creativity-based content, personal-development content, project-based material, customization, and flexible target-group-dependent content. Secondly, the study addresses innovative practices and approaches in EE that take place in delivery methods used by HIEs in their E programs. Previous research showed that there are more innovative practices and experiments in the HOW dimension than in any other. The dimension addresses the question ‘how to teach entrepreneurship’ and focuses on teaching methods, pedagogies, and delivery approaches. Among other noticeable innovative practices in the dimension, the most recent studies set their focus around role plays and simulations, problem-based method, project-based teaching, action-learning, use of games, and experiential learning.

3 Research Methods

This chapter presents research methods for the conducted study, including research strategy, research design, data collection and analysis methods.

3.1 Research Strategy

The research strategy plan follows the logic presented by Saunders (2015), which means that this part will describe the thesis plan to answer the research question. The parts that are intrinsic to the strategy are research philosophy, research method, and research purpose. The following parts will be described and motivated below.

3.1.1 Research Philosophy

Research Philosophy is concerned with how the nature of our knowledge is viewed and can be divided into two main categories, epistemology, and ontology.

Epistemology is in theory the outlook for how information is gathered and how it is interpreted. Epistemology can be divided into different principles e.g. positivism and interpretivism. This specific study follows the principle of interpretivism, which is commonly seen in combination with qualitative research. The main idea behind the principle of interpretivism is that the researcher becomes part of the research, by analysing and interpreting the data, which is the approach through this thesis. Positivism in contrast to interpretivism usually relies on large numbers and statistics to conclude the result, hence, it looks more objectively at the data. This study does not make use of numerical data but qualitative data and is, therefore, less suited to use positivism (Bryman, 2011).

The other part of the research philosophy is ontology and concerns the nature of reality. The foundational beliefs of ontology are whether the knowledge is perceived to be external from the actions of the involved, or if it is a social construct by the social actors. The two most commonly used views are objectivism and constructionism. This thesis looks through the lens of constructionism, which means that it views social actors as a factor for the change of reality. Objectivism, on the other hand, views social actors as independent from the reality, and that they have no way of influencing it (Bryman, 2011).

3.1.2 Choice of Method

There are two main options when choosing a research method, and these are divided between a qualitative and a quantitative. However, some authors opt to combine the two when writing a study. A simplified contrast between the two is that a qualitative method works with sentences and descriptions when collecting and analysing data, while a quantitative method centres on quantification and numerical data. Other differences are that qualitative can be viewed as an approach for exploratory research, while quantitative is a more structured approach that tries to prove statements (Bryman, 2011).

The authors applied a qualitative method for this study, where a framework from the literature was used to collect and analyse data. This implies that the empirical data was built on a foundation from previous research and can be viewed as an abductive approach (Suddaby, 2006). The full process can be viewed in figure 5.

3.1.3 Research Purpose

The purpose of a research can be categorised between exploratory, descriptive, and explanatory (Bryman, 2011). These categories can be conclusive, which means that they can be combined to included multiple purposes within a thesis. The choice of purpose is usually decided on the premise of prior research and the research objective. An exploratory purpose seeks to find out more about a new or a less known phenomenon. The descriptive purpose wants to provide additional details for a topic by exploring and explaining the phenomenon. Lastly, the explanatory purpose is to understand the connections and casualties between specific factors of a phenomenon.

The research purpose for this thesis is descriptive, where it sets out to collect information on how leading business schools approach delivering their EE. Previous research has been done on the topic, but not all on the same universities. The explanatory purpose is ruled out because it seeks to investigate how a phenomenon is affected by the relationship between factors, whereas this research aims to investigate and describe a phenomenon.

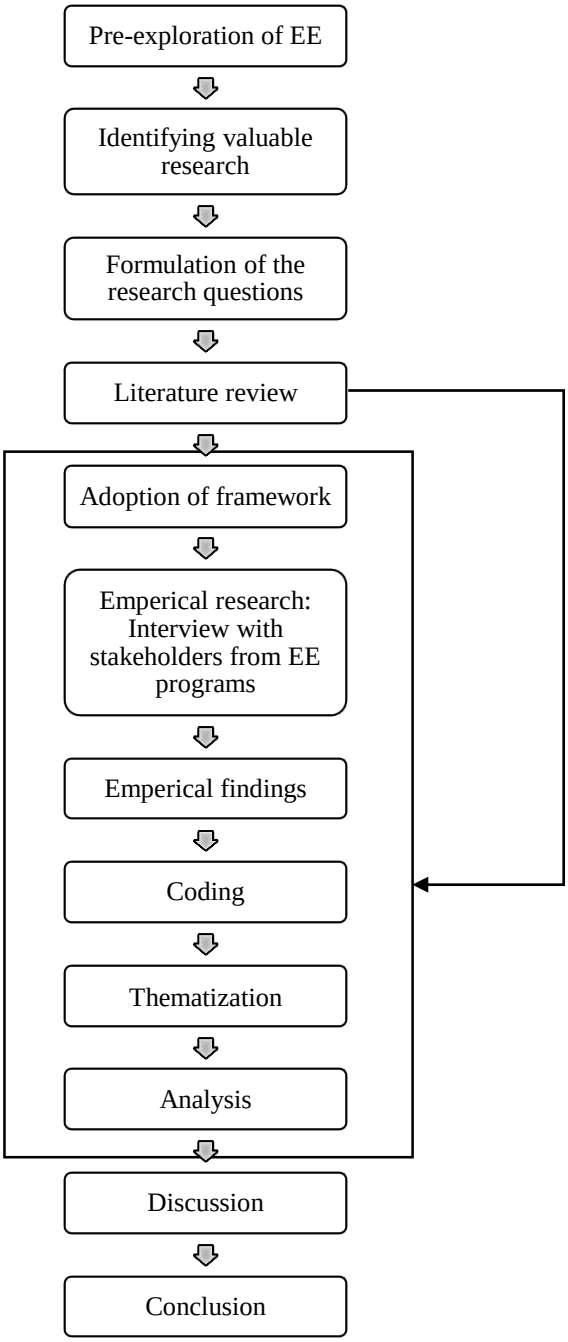

Figure 5. Research process

3.2 Research Design

The thesis is designed as a multiple case study and focuses on how European universities design their entrepreneurship programs. Data was collected from different universities, with the purpose to find different educational practices. The reasoning behind a multiple case study is that educational practices vary from program to program, hence there was a need to investigate multiple programs to find a higher variety of approaches. In addition, the study adopts a comparative research, where the result is compared to unveil unique and common practices. Furthermore, the authors also analysed the findings to discover potential innovative practices through the cases. Lastly, the reason why a multiple case study was suited for this research is

because it covers the attributes of a case study. These are: investigating the how and why; the respondents' behaviours are independent of the researchers; and there is an intention to describe the conditions that are relevant to the focused phenomenon. This is what this study proceeds to do and it is what Stake (1995) and Yin (2009) names to be key characteristics for a case study.

3.3 Data Collection

The data is divided into primary and secondary data. The primary data consists of data that was collected through in-depth interviewees with actors from the entrepreneurship programs. Secondary data was collected from literature, the programs' websites, and university brochures. Furthermore, primary data was used to describe the cases. And the secondary data was used to fill the gaps in EE knowledge and give more details about the programs.

Primary Data

University	Interviewee	Date	Duration
AMS	Student 1	09/03/2020	00:25:40h
	Student 2	09/03/2020	00:32:34h
	Student 3	10/03/2020	00:48:21h
	Alumnus	12/03/2020	00:32:52h
	Professor	10/03/2020	00:22:16h
	Academic Director	10/03/2020	00:48:49h
RSM	Student	23/03/2020	00:44:29h
	Alumnus	19/03/2020	00:37:45h
	Academic Director	17/03/2020	00:46:27h
CBS	Student 1	02/04/2020	00:56:45h
	Student 2	02/04/2020	00:48:14h
	Student 3	03/04/2020	00:42:18h
	Alumnus 1	03/04/2020	00:46:32h
	Alumnus 2	03/04/2020	00:29:01h
ESADE	Student 1	07/04/2020	00:53:40h
	Student 2	07/04/2020	00:44:56h
	Alumnus	07/04/2020	00:43:66h
Chalmers	Student 1	14/04/2020	01:11:49h
	Student 2	14/04/2020	00:50:42h
	Alumnus	15/04/2020	01:31:56h

Secondary Data

Sources
Books
Reports
Articles
Program brochures
Program websites

Figure 6. Collected primary and secondary data

3.3.1 Primary Data

Semi-structured interviews were used to collect all primary data. The researched universities were Antwerp School of Management (AMS), Rotterdam School of Management (RSM),

ESADE Ramon Llull University (ESADE), Copenhagen Business School (CBS), and Chalmers University (Chalmers). All the universities were interviewed in chronological order and the interviews were conducted with students, alumni, professors, and academic directors.

3.3.1.1 Semi-structured Interviews

The decision for using semi-structured interviews over structured and unstructured is because they are better adapted for a descriptive research purpose that conducts interviews with multiple sources that might differ in their response. A factor for choosing this approach is because it provides flexibility. The implication is that the interview process holds a structured and consistent format across all interviews while giving the interviewers the possibility to move beyond the set questions, to unveil nuances unique to each interview. This is needed because it allows the discovery of answers or new questions that originally were not planned for, but could be vital to the research. It is contrary to the structured interview method, where expansion beyond the specifically planned questions is neglected. Furthermore, an unstructured format would make a bad fit due to its lack of guided questions, which is needed in this study to assist with comparing the relevant areas of the cases.

3.3.1.2 Interview Guide

The interview guide was developed on the foundation of the World Economic Forum WHAT-HOW-WHO-WHERE framework (WEF, 2009). The study focuses on the WHAT and HOW dimensions of the model, thus addressing the questions what do universities teach and how do they teach. This relates to the curriculum and teaching methods and is the core of the interview guide. The interview guide starts by providing students with the background of the thesis as well as to learn more about the respondents. Questions revolved around their motivations and their previous education. After this, the interviews moved on to the WHAT part, where the questions were aimed towards how programs' curriculum was structured and what content was used. Subsequently, the section HOW regards inquiry about the teaching methods that are applied in both in-class and out-of-class activities. The last two parts were added by the authors which consist of other activities and outroduction. Other activities concerned subjects such as examination, after-graduation activities, and selection of professors/students. Lastly, the outroduction was designed to get the respondents' opinions about their program. The interviewees were asked about what they thought was for better or worse in their program, and what they would change if they had the opportunity. The full interview guide can be found in the appendix.

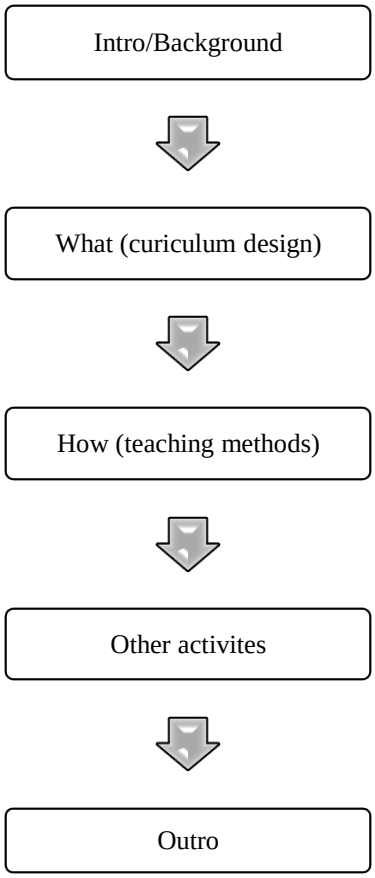

Figure 7. Interview process

3.3.1.3 Sampling

The sampling was done on multiple stages, one for selecting universities and programs, another for which roles to target, and lastly on which individuals in those roles that should be contacted for an interview.

A purposive sampling method was used for selecting universities and entrepreneurship programs. The criteria for the majority of the educations were to be among top 100 schools on 3 ranking lists: FT European Business School Rankings 2019, Bloomberg European B-Schools Ranking Entrepreneurship 2019-20, and Top 2019 Eduniversal Best Masters Ranking in Entrepreneurship. The programs on the list were selected on the author's judgments and were based on the level of perceived innovativeness, higher being more desirable. The university of Chalmers was chosen by the authors despite it being unlisted, the reason being that the authors considered the program to be innovative.

The purposive sampling method was further used in the sampling of which roles to include in the study. Focusing on individuals who have or are experiencing the phenomenon of EE and those who are delivering and managing it. This narrowed the scope down to students, alumni, professors, and academic directors. The reason for including alumni as well as students is due to the changes programs can do yearly, which allowed to find larger variations in educational approaches. Lastly, professors and program coordinators were required to have a role that involved program delivering and managing, and were contacted via their university email.

A simple random sampling technique was used for contacting students and alumni. Students and alumni were reached out to via Facebook and LinkedIn. Reaching out was done by sending multiple contact requests and asking them if they would want to share their insights and experience of their program.

3.3.1.4 Interview Transcription

All the interviews were audibly recorded. This was important because it helped with recalling answers for a more accurate representation of the cases. It also assisted in finding nuances that were unique for each university, that otherwise could have been missed without being recorded.

The transcribing was done through an assisting web-application called Trint. The common focus was on keeping the interviewees' exact statements and to save any nuances in their language, in purpose to avoid biases that could occur in sentence reconstruction or clustering.

3.3.2 Secondary Data

Secondary data was collected from literature and the respective programs' websites and brochures. The literature consists of previous research on the topic of EE, specifically on curriculum and teaching methods. While the programs' information consists of formal descriptions. The information was used to fill gaps in knowledge and to create a more accurate view of the programs. Inaccuracy derived from what the interviewees were not able to mention. Fortunately, many of these details could be found in the secondary data in illustrative tables and text. This was later combined with the answers and details provided by the respondents.

3.4 Data Analysis

The data analysis was done on the result from the cases in combination with literature from the literature review section. Firstly, the authors adopted a thematic analysis methodology to find specific themes through the cases. The process included generating frequently occurring codes from the transcripts, which were later categorized into themes, to highlight program similarities. Secondly, the findings were then analysed further to find differences and potential innovations of the different educational practices. In this process, literature was used to support or explain any of the findings. Lastly, field notes were used as support throughout this process.

3.5 Reliability and Validity

The authors' perspective for reliability and validity shares the view of LeCompte and Goetz (1982). This paradigm is tailored for qualitative research and is divided into four categories: external reliability, internal reliability, external validity, and internal validity. Below it will describe how these categories affected the research and how they were approached.

External reliability regards to what degree a study can be replicated. This is a challenge for qualitative research according to Bryman (2012), due to the difficulty of freezing social settings. COVID-19 was an obstacle in this regard because it created a rare setting. Many schools adopted distant learning which affected the students and their answers, which could relate to participant error. However, interviewing multiple stakeholders under different circumstances presumably decreased the impact of the COVID-19 pandemic. This situation could have affected the result of this study. Another factor to consider is the participant bias that derives from students feeling unsafe to give honest answers due to possible repercussions from the universities. The approach for addressing this was by allowing students to be anonymous and to asking specific questions. Thus, it is believed that the variance of the results would be decreased for a new study with the same strategy. Lastly, augmentation of the external reliability was done by setting a defined scope for which roles to interview.

Internal reliability concerns the internal agreements done between researchers, on what they observe and how it is interpreted (Bryman, 2011). The potential issue in this situation is the lack of consistency in their decisions. This was acknowledged by the authors and they responded to the issue by creating guiding frameworks, appointing one chief researcher, and having in-depth discussions about how to conduct the interviews and how to interpret the results.

Internal validity is measured with the correlation between the authors' observations and their developed primary data (Bryman, 2011). One benefit in this case is that the researchers are students themselves and understand how the educational system functions. This assisted the authors to ask relevant questions during the interviews and to interpret the results with greater insight.

External validity refers to the degree of how well the results can be applied across social settings. To increase this measure is a challenge for qualitative studies since they often are conducted through case studies and small samples (Bryman, 2011). To counteract this the authors interviewed a larger sample of individuals from 5 different programs located in different countries. However, this sampling size might still be considered as small and was limited to Europe, hence it might affect the generalisability.

4 Empirical Findings

This chapter presents empirical findings for each of the 5 cases individually. Each case provides structured data about HIEs background followed by curriculum design approaches and teaching methods used in delivering the E program.

4.1 Introduction

In March and April 2020, the authors conducted 20 interviews with students, alumni, professors and program coordinators in 5 European HEIs. Only 6 interviews (all with interviewees from Antwerp Management School) were conducted in-person, before the outbreak of COVID-19. Primary data for the rest 4 cases (14 interviews) was collected via Skype interviews. These interviews as well as data taken from the programs' websites and brochures underlie the content of this section. It addresses the RQ1 and reveals HEIs' practices and approaches to delivering their E programs in terms of curriculum design and teaching methods.

All the 5 cases are presented individually and follow the structure:

1. Background information about university and program;
2. Practices related to curriculum design;
3. Practices related to teaching methods
    a. In-class activities that happen in the setting of university
    b. Out-of-class activities that happen outside university;
4. Other noticeable findings.

Unfortunately, the authors were not able to use observations to collect data. Thus, all data presented is based solely on the interviewees' perspective, both students and teachers. While most paragraphs describe practices for what they are, highlighted quotes from the interviews express interviewees' personal experience with the programs. There is no authors' opinion presented in this section.

In it also important to point out that only AMS and CBS cases include interviews with professors and program coordinators. The cases of RMS, ESADE, and Chalmers are based merely on interviews with students and alumni. Even though it is a significant limitation, the authors believe that it did not play a crucial role in the study. There was no opinion or judgment expressed in describing the practices, rather the interviewees objectively depicted how the practices work.

The interview guide and the interviews themselves were based on the theories and frameworks collected in the literature review. The flow of the study was not iterative. Literature review was gather. Interview guide was developed. Semi-structured interviews were conducted. Finally, they were transcribed, organized and presented following the WHAT and HOW parts of the WHAT-HOW-WHO-WHERE EE framework.

The cases are presented in the following order: Master in Innovation and Entrepreneurship at Antwerp Management School (Belgium); Master of Strategic Entrepreneurship at Rotterdam School of Management (The Netherlands); MSc in Organizational Innovation and Entrepreneurship at Copenhagen Business School (Denmark);

MSc In Innovation and Entrepreneurship at ESADE (Spain); MSc Entrepreneurship and Business Design at Chalmers University of Technology (Sweden).

4.2 Antwerp Management School Case

Background

Antwerp Management School (AMS) is an autonomous business school, established in 1959 in the city of Antwerp, Belgium. The school offers 8 full-time master programs and more than 60 short or long-term executive programs on management, economic, and social studies. Antwerp Management School is a AACSB and NVAO accreditations holder. It is a home university for about 2900 students and 90 professors. The Innovation and Entrepreneurship program is a 1-year master program that is taught in English and first opened its doors to the students back in 2006. As for 2020, the program provides education to approximately 45 students, almost 60% of whom are students from outside Belgium.

Data presented below was collected through conducting 5 in-person (at AMS main campus) and 1 Skype interviews. In the course of the study, 2 program managers, 3 students, and 1 alumnus who graduated in 2015 were interviewed. All of interviews were conducted in April, 2020. Program's official webpage and its brochure were also used as an additional source of information.

According to the program's official brochure, the IE program focuses on giving its students the skills, tools and knowledge to become the kind of leader to take any company, whether a start-up, large company or SME, to the next level. The structure, format and content of the Master in Innovation and Entrepreneurship are to provide its students with practical guidance through all stages of growing an emerging, innovative business - whether in a corporate, university or independent environment. It is dedicated to allow students to acquire state-of-the-art knowledge of, and practice with digital & disruptive business models, design thinking, innovation strategy and management, lean start-up methods and tools and marketing and finance for new entrepreneurs and innovators.

The What: Practices Related to Curriculum Design and Courses

The 1-year IE program consists of 3 main sections, called Inspire, Build, and Grow, which represent a real-life entrepreneurial workflow from establishing a company to scaling it up. Each of the section lasts for about 3 months and contains four 3-week-long courses dedicated to a particular phase of business development. In the end of the program, students are expected to present and defend their master projects which they develop for 8 months since the beginning of the first section.

Start-up Boot Camp

The students' journey kicks off with a start-up boot camp which is also the first step of the Inspire chapter. The idea behind this 1-week activity is, firstly, to briefly get students introduced to the entrepreneurial journey they will be going through during 1 year of the program, and secondly, to get them to generate ideas to be potentially used for their master projects. Having formed working groups based on their preferences, participants work on creating business ideas and developing mini-business plans for them during this period. This includes focusing on such aspects of business development as preparing a marketing strategy, doing preliminary market research, and building up a financial plan. Later on, students may also use these start-up ideas for working on them for the final master project.

Module 'Inspire'

The main part of the Inspire chapter begins right after the 1 week of start-up boot camp. It is entirely devoted to helping students create and assess opportunities. It is the entrepreneurial mindset and passion for invention that is in the core of this module of the program. Students take 2 mandatory courses called Creative Thinking and Technologies of Tomorrow, and choose 1 of many specialized elective courses the program offers.

As for 2020, Technologies of Tomorrow is a newly introduced course which purpose is to let many of the program students with non-IT background explore the world of tech and get inspiration for their future business ventures. Focusing on the solution side, the course introduces main principles of block chain, AI, 3D printing, and provide knowledge on how these technologies might be used in students' business projects. It is a logical continuation of the Creative Thinking course where having learned how to generate ideas, students investigate possible ways of executing them.

In addition, the Inspire module provides students with an opportunity to customize their curriculum. The program offers a range of 12 elective courses on the topics like technologies, leadership, design thinking, innovation, finance, and world's economies.

Module 'Build'

The next module called Build consists of 4 following courses: Entrepreneurial Strategy, Finance for New Businesses, Innovation Management, and Design Thinking. This section of the program focuses on turning a recognized opportunity or a generated idea into an actual business. Students learn to make strategic decisions in the early stage of a venture's lifetime, create entrepreneurial strategies, and pivot their ideas. In addition, they are to obtain the knowledge on how to finance and valuate their business. In order to master their design thinking and prototyping skills, students spend 1 week in School of Design of Politecnico di Milano, where

they are jointly working on a project for a real-life company together with Italian design students.

Module 'Grow'

Lastly, in the third and final phase called Grow, students focus on how to scale up their project exploring different growth paths. The module includes 4 courses: Sales and Negotiation, Entrepreneurial Marketing, Business Planning and Modelling, and Growth Strategy Ecosystem Trip. The core of the module is to teach the students to draft growth trajectories for their business which includes planning their budgets and organizing general financial strategy. Having learnt how to 'make it' in the Build phase, students are to find out how to 'make it big' in this final stage of the program. To help them succeed with that, there is an international ecosystem trip, whereby students visit an upcoming highly innovative ecosystem, that might become a place to scale up their projects in the future.

Master Project

As opposed to entrepreneurship programs where writing a master thesis is not combined with other curriculum activities and usually is performed at the last stage of education, IE students work on their master projects throughout the whole program uninterruptedly. It all starts with the start-up boot camp where they get to try generating their own ideas and are to find out if they want to proceed with them or not. After that, students are to pick one of two tracks for their upcoming master project: a start-up track for those who pursue a career in business, and a corporate track for those intrapreneurship-focused ones. What is different in those two tracks is that the former allows students to continue working on their own projects developed during the start-up boot camp period, and the later implies getting involved into corporate innovation project for an established external company. To get into the entrepreneurial track students must pitch their business projects and get them approved by the board of professors. As for 2020, there were 6 groups of students working on 6 different ideas of their own (entrepreneurial track), and 6 groups of students working with real external companies (intrapreneurial track) for their final master project. From the middle of October, students start working on the projects and continue to do so up until the final presentation of their work in June. Their goal is to develop a detailed business plan, including marketing and financial strategies, for the chosen business. Each group is assisted by a coach who is either a venture capitalist, or a corporate entrepreneurship specialist, or a field professional. Their role is to personally guide students during their work on the projects. Moreover, all program courses are designed in the way that students have to immediately apply obtained knowledge on their master projects, thus gradually developing them as they are proceeding with the program modules. To help students with that, there are so-called project labs which are scheduled time slots for the groups to work jointly on their master projects throughout the whole program. In the end of the program, students pitch their business or innovation projects in front of a panel of professors and entrepreneurs in a format of shark tank, and later submit a written version of their business plan on which they get graded.

Personal Development

Lastly, one of the key focuses of the program is to let the students become aware of who they are and how they can grow as individuals. Amongst other in- and out-of-class activities, students work on their Personal Development Plan, reflecting on their peers' group performance and their own soft skills improvements. An example of it is students getting to draw how they see their class and themselves in it or building their DISC profiles.

Testing and Grading

IE examination system varies from course to course but usually exploit common higher education formats of testing and grading. However, the professors have the freedom to design their course testing and assessment structure.

'Our professors are free to test the students in any way they want. But we ask professors to get minimum 2 different scores. And then they have a range of how they can score: participating in the classroom, handling a group or individual assignment, a presentation, a peer to peer review, a written or an oral exam, whatever they come up with is fine by us. But we need two different scores so that we can see it's not a matter of just learning by heart and then doing an exam and that's it. Because all our students have proven themselves, they already have a degree. So we know they can do that. What we want them to do is to reproduce their knowledge in a different way other than just saying what you've learned from a book.'

Program Coordinator

Since every course in the program is taught at a time and is a 3-week sprint, there is a number of short examination periods after each course. Because of the way the curriculum is structured, students often get evaluated on their master project related assignment, for example, a marketing plan or idea prototyping. The final master project is a 20-minute pitch presentation in front of a jury of professors, mentors, and guest entrepreneurs, where environment is simulated to be as close to a real shark tank as possible.

The How: Practices Related to Teaching Methods

In-class Activities

According to the program's study board, the educational process is organized in the way that does not use traditional lectures and pursues maximum students' involvement alongside with direct application of the theories learned in classes. Usually, a class consists of three parts. Firstly, having done some preliminary research on a study topic from home, students get involved into a flipped classroom process whereby they break down theories working on building up cases, presenting, and discussing them with the fellow students. Secondly, a course professor delivers contextualized material through an interactive lecture classes. Finally, the class holds a workshop with a field practitioner which is to give them real-life insights on the topic. Subsequently, students are to incorporate received knowledge into their business or innovation projects working in groups in the lab format. The last stage of a typical IE class is a group pitch of the results they achieved whilst applying course theories on their projects.

'It's all to reflect how we would be in the future workforce areas. This educational environment mimics a business world. You have your higher authorities that you have to listen to, but you can also refer to for advice. And then it's full of classmates who are like your co-workers. So I would say it is very much a simulation. It's an open space, structured so that you can communicate with people easily. After the lectures, teachers immediately ask us to split into groups to practice theories, and that really helps us absorb the material better because in university from my experience all we had to do was just read a textbook and you're just memorizing and then took a test. And then 90 percent of the time we don't retain that information because you are forced to memorize the material, whereas here you get taught bits

and pieces, but then you're practicing it right away. So you can really see a different perspective or how it really applies to the situation itself.'

2020 Student

As it was mentioned before, the innovation and entrepreneurship labs are a big part of students' in-class activities. The purpose of having this format of work is to stimulate application of theories and framework in practice. What happens during the lab periods is that students conduct interviews, do market and customer research, get coaching sessions with their project mentors, and prepare a pitch on their progress. After presenting their update, students receive feedback from program professors and coaches. The program has got several lab periods each of which represents an iteration of business development process.

Out-of-class Activities

The program provides several major mandatory and voluntary study trips abroad. Amongst them are trips to Dublin, Milan, and an ecosystem trip which destinations vary from year to year.

Dublin Trip

First of all, 30 of IE students are offered to go on a study trip to Dublin in the beginning of an academic year. The selection process is based on students' motivation letters explaining why they are suitable for the tour, which they submit alongside with their applications for the program. During the trip, participants visit major international companies such as Google and Accenture, conduct interviews with their employees, learn the way those companies work and do their business, and prepare solutions for the companies' case studies. It is usually the big international companies that invite the students as their own interest is to raise company awareness and scout potential human resources to hire in the future.

Innovation Sprint

Secondly, for a 3-week's time, students work full-time on a design-related exercise for international companies within so-called "innovation sprint". The idea of the sprint is to immerse IE students into an actual business environment by collaborating with another university and well-established companies. Within this collaboration, students are to jointly come up with a new innovation or a product enhancement for real-life well-established external companies. For the past few years, AMS students have teamed up with students from the Poli Design school in Milan. They collaborate with students in product design, graphic and web design, as well as architects who tend to represent more of a creative side of business creation process. Splitting in cross-functional teams of 5 (3 IE students and 2 design students), participants take several classes together, get instructed by the companies, and start working on finding a solution for a real-life challenge the companies are struggling with. The whole process takes up 3 weeks and students from both sides visit each other's schools for 1 week respectively. Week 1 focuses on doing preliminary research on the topic, brainstorming and preparing several possible concepts, and then narrowing it down to the one the group wants to move forward with. Week 2 is all about building mock-ups and prototypes, as well as testing them on the target audience. Finally, students prepare a presentation of their developed solutions and pitch it to the company boards within the course of Week 3. As for 2020, AMS collaborated with Poli Design (Consorzio del Politecnico di Milano), the world's leading school in design thinking, to allow students from both universities to work together on an innovation project for a Belgium eco-soap producing company called Ecover and a Milan-based international chain

of contemporary bars called Illy Café. In the previous year, for comparison, students brought their creative ideas to life for AirFrance and Samsonite, also with design students from the Poli Design school.

'An interesting thing is that our business-oriented students get to work with people from more creative background, product design background, upon a given task by a real-life company. So, they gave a brief to our students. Often companies like the idea of having millennials thinking about what they will need within five years because there will be the new customers. In general, it's all about idea generation. The students have to think about new innovative concepts. We first introduced this innovation sprint 5 years ago, and at the time it only lasted for 5 days. And now our students go to Milan for 1 full week, and the Italian students visit AMS for a week as well. The good thing about the activity, I think, is that it is a collaboration with a school and with actual companies at the same time.'

Program Coordinator

Ecosystem Trip

In this final phase, the class is split up in two or three parts each visiting an upcoming highly innovative ecosystem that could be a possible place to scale-up. The 3-day trip is a part of the Organizing Growth course. What the participants are to find out in the international tour is how and why start-ups and scale-ups move to a certain hub and grow there. They also have to do an in-depth research on how such hubs function and what key stakeholders allow the hubs to exist and grow. For example, in 2019, the students went to Lisbon, Zürich, Stockholm, and in 2020, they were about to go to Tel Aviv and New York. The students' study task during the trip is to get as many company interviews as possible, meet investors, and collect all necessary data to get an understanding about the mechanics behind these innovative ecosystems. Students do all the activities in groups of 4 and, having spent half a week in a location, are to prepare a business report, that they later present to the professors.

'There are hubs of innovation and entrepreneurship everywhere in the world, but each of them has got its own features that might fit your idea better than others. So, the point is that it might not be Antwerp where you should start. As an entrepreneur, you can't change a lot, but you can change your location and that could make a huge difference. And that's different from other entrepreneurship programs where they just go to Silicon Valley because there you only see the outliers, big players who are already extremely successful. However, this environment might be fatal for your start-up, because it is a really expensive place to be and there is high risk that your engineers might get headhunted by bigger players.'

Program Coordinator

The program also organizes various mandatory extracurricular activities. First of all, in the module Inspire, there is a 2-day teambuilding trip that usually takes place in a rented house in the country. In September 2020, IE students went to the Netherlands, where they lived side by side with one another over a weekend and went through a number of teambuilding and personal development activities, getting to know themselves and their classmates.

'It was at the sea in a summerhouse in Holland, like a big house and the whole year actually was there. I remember there were some teambuilding games. It was a lot of fun, you have to do something in a group and then it's difficult and it's funny at the same time. It's always a bit of a playful thing. However, we had to actually do some exercises and fill in some tests for ourselves

to come up with a DISC profile. It was interesting. It was a good mixture of having fun and relaxing a little bit, and at the same time, actually trying to work on your own development, doing these tests and then speaking about it in the peer groups.'

2016 Alumni

Aiming at getting the students familiar with the local innovation and entrepreneurship ecosystem of Antwerp, there is another special activity that normally takes place in the Build module. The purpose of the offline quest-themed game is to get the students connected with the local design and innovation agencies.

'We are going to do a city game. Students are to go to, so to speak, secret locations, which are actually design and innovation agencies here in the neighborhood. And there they have to complete a certain task with them. If they succeed, they get an opportunity to apply to that company and they also get a quote. With these quotes they have to do a little game and another series of tasks. We thought about it, because that way we connect our students with local innovation and design agencies. So they get to know each other. And it worked out well last couple of years. People from the program actually got to work for these innovation agencies after graduation. So, that way you build an entry into the existing ecosystem.'

Program Coordinator

Other Noticeable Findings

After-graduation Support

A rather recent introduction of the program is providing the alumni who are running a new start-up with office facilities in the AMS building. Thus, if a former IE student starts their own business, they can obtain a room to use as their working space for 1 year.

Moreover, IE program organizes networking events for the alumni community. Amongst other activities, they hold sport events (e.g. a golf day), and regular winter and summer get-togethers. In order to improve the local connectivity among IE alumni, the program management is about to introduce a new IE community:

'We have the global AMS alumni network, but we are currently working on establishing a specific community for IE alumni. We noticed that our students look for more specific events. So we're setting a new master innovation and entrepreneurship community. We are reaching out to all our alumni since 2006. And I think not only can the older alumni share their experience after graduation with those who's just getting started, but also hire current students or more recent alumni.'

Program Coordinator

Finally, on a personal level, students and alumni claim to develop strong personal relationships with professors and readiness of the later to share their network and provide personal assistance.

Teachers and Mentors

IE program uses a rather strict guideline for selecting their teaching staff. According to one of the program coordinators, it is their practical background in the field and a PhD degree that is a formula of a perfect tutor for the program. IE management tries to have as many professors from all over the worlds with different cultural and international work experience as possible.

'For example, the finance professor already has his own finance firm. And there is the corporate entrepreneurship teacher who is also a corporate entrepreneur in real life. She's not just there pointing fingers and giving us theories. She's actually giving out her own experience. And for me, this means that I can relate more, I can trust her information more, even though I know that there is no 100 percent true information. But at least it gives her more credibility, in my eyes.'

2020 Student

Furthermore, it is a common practice for IE to bring mentors, business owners, and other people from the strart-up industry to participate in the educational process and share their practical knowledge with the students. They claim to have at least one guest lecture who is a field specialist in every of the program courses.

'These invited business people really tell you their stories of how they started from the bottom up. From when there were students just like us and how they built up their start-up to a business today. And that's part of the learning process as well, because for us to see how it looks like and how we can achieve what they have done is all part of the process.'

2020 Student

4.3 Rotterdam School of Management Case

Background

Rotterdam School of Management is an international business school part of the Erasmus University Rotterdam. The school provides a range of education ranging from undergraduates and postgraduates in business, including PhDs, executive education, and MBAs. The school houses approximately 9,250 students and 3,228 staff members involved in the teaching and research.

The MSc Strategic Entrepreneurship program is taught in English for one year. The classes consist of approximately 48% of international students.

The data presented below were collected through 3 skype interviews: one student, one alumnus graduating in 2018, and the current academic director of the program. All the interviews were conducted in March. Supporting data was collected from the program's official webpage and program brochure.

According to the program's official webpage and brochure, their education is aimed towards people who seek to start their own business or transform existing companies. Their approach is to instil the necessary knowledge and entrepreneurial skills for creating and transforming businesses into their students. The method RSM use is by blending theory and practice based on science.

The What: Practices Related to Curriculum Design and Courses

The curriculum for the Strategic Entrepreneurship master program can be divided into an Autumn and Spring semester. Further, these are divided into a more complex structure. The

Autumn semester contains two blocks which include two core courses each, a total of four. The contents of these blocks are the following:

Core Courses Block 1:

Opportunity Creation (Core Course)

Entrepreneurial Skillset (Core Course)

Research Clinic Strategic Entrepreneurship and Strategic Management

Your Future Career

Core Courses Block 2:

Start-Up and Growth (Core Course)

Corporate Entrepreneurship (Core Course)

Research Clinic Strategic Entrepreneurship and Strategic Management

Your Future Career

The course structure of the program follows a linear process of creating a new business. The sequence for these courses goes as follows; How to identify a business opportunity, how to conduct market research, how to validate the idea, how to promote growth, and lastly how to raise funds and finance your idea.

Core Courses in Block One

These first two core courses, Opportunity Creation and Entrepreneurial skillset, focus on ideation and developing certain skills that are needed to start a business. The methods and principles that they teach for ideations are those applied by leading companies and innovators, such as Google and Bill gates. Such as Design thinking, user innovation, actuation, and systematic search. The skills that are taught in the Entrepreneurial Skillset course are connected to the early start-up process and focus on building teams, how to be a leader, creating a vision, and company culture.

Core Courses in Block Two

The second two core courses consist of Start-up and Growth and Corporate Entrepreneurship. Where the Start-up and Growth course focuses on teaching their students about potential challenges for this process, and how to evaluate opportunities. The skills they should get are how to systematically analyse, deconstruct, and overcome these challenges. Further, Corporate Entrepreneurship focuses on how to manage entrepreneurial opportunities within a corporate environment. It goes deeper into the process of identification, development, and exploitation of entrepreneurial ideas. Students look at how to manage the development of processes and new products, within large corporations. This course is more aimed towards people who want to work within a company rather than starting their own business.

'We have two lines of teaching. Either people follow the Master because they want to start their own company or they are going to be business developers or have a job within an existing company. So therefore, the final core course deals more with a corporate setting. How to be an

entrepreneur within this setting. And the idea is that both ideation and validation also are important in this setting. So, you can use it in different ways, different career trajectory.'

Academic Director

Remaining Courses in Block Two and One

Besides the core courses, RSM has courses and activities regarding the student's careers and their master thesis. The Your Future Career course guides their students on their journey on preparing and discovering what they want to do after their graduation. They do this by helping them to reflect over personal motivations and interest, by introducing them to different career paths, and how to apply for jobs. In the Research Clinic Strategic Entrepreneurship and Strategic Management course, they teach the students about the fundamentals of the master thesis, by looking at theory and previously published work.

First Courses in The Spring Semester

At the start of the spring semester, students have courses regarding the writing of their master thesis. The courses are either Qualitative or Quantitative research in Strategic Management & Strategic Entrepreneurship, which depends on what kind of master thesis the students want to write. In this course, they provide the students with the tools necessary to write a high-quality master thesis, while going through the thesis research process.

Elective Courses in The Spring Semester

After the research courses, students move on to a program structure that is based on electives. The idea is that students will be able to tailor their educational plans according to their desired career. If they either want to start their own business or work for a company. This period is divided into three blocks. In each block, they are allowed to choose one program-specific elective and one elective that is outside their program. The program-specific electives are the following:

- Financial Intelligence for Entrepreneurs
- Organizing for Technological Transformation
- Entrepreneurial Lab
- New Business Development
- Getting Things Done Without Resources (entrepreneurial bootstrapping)
- Venture Governance

Some of these electives are more practical than others, for example, Entrepreneurial Lab and New Business Development. The Entrepreneurial Lab is a practice-oriented elective towards the start-up of a new business. It's an independent course that allows the students to develop their idea from A-Z. It focuses on the process of business planning, where they have to follow up with a weekly journal, write a business report, and pitch in front of a jury. The New Business Development course is for students who would like to be entrepreneurs within an existing company. This course is also practice-oriented, but instead of working on their own idea, students work on projects within companies. The projects allow students to tackle real business challenges related to business development. Where they collaborate with companies that are pooled by the university.

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'Entrepreneurial lab, it was way different than what I had before. You were actually making a product or an idea and working with it and doing pitches. That was my first elective course. And it was really cool. And I never had something like that, compared to my bachelor, for instance. And I learned a lot from it, I think it was because you were going through the process of coming up with ideas of products and it was used to a lot during my master'

2018 Alumni

Testing and Grading

The grade assessments of the students are a mix between, written exams, reflection reports, project/group work, and presentation. Where each part represented a certain amount of the final grade. A lot of the grading is based on project work. However, the university requires to find a way to make 60 percent of the grading based on individual components. This is usually done with essays and reflection reports. An example of this type of grading is from the Opportunity Creation course. Here RSM has students interview entrepreneurs to gather insights, which is later used to write a rapport in combination with their learned theory from class. About half of the courses consisted of exams.

The How: Practices Related to Teaching Methods

In-class Activities

Teaching Methods

The teaching methods applied by the program are workshops, reading of academic papers, and normal lectures. In every class, there is usually a combination of these methodologies. A common structure for a class is to start by introducing their students with a description of a theoretical method. After this, the teacher starts an activity that they call a breakout session, which means that the students start implementing what they have learned by using it in a practical sense. Some teaching also incorporates case studies to teach their students. Where a Harvard based approach is used, that use case methods or case studies to demonstrate what kind of problems entrepreneurs have or can run into when they start companies. Group work and challenges were also an integral part of their classes. Where students competed in pitches and their business ideas.

'Every class had a team project, so we worked in teams. There were a lot of competitions and challenges and they were really great. An example, the first course was all based on the competition we learned techniques on how to come up with new ideas. And every week we had to come up with an idea based on these techniques' ideas for a new business, and pitch it in front of the class. And the best pitches got bonus points. So, one of the best ideas presented in a final pitch competition which we did in an event in a different place in Rotterdam and which was really, really fun. So, I would say that the whole course was based on this, like competition.'

2020 Student

Pressure Cooker Method

During the core courses, the teaching is done through a pressure cooker method. This means that the program holds a high pace between learning and implementation. The usual scenario is

that students have one class lecture on a specific method, and in the following lecture they present an idea based on the application of this method. An example can be that they have a lecture on design thinking on Monday, and on Friday they need to pitch their idea based on design thinking. The idea behind the pressure cooker method is to make the students take action and not freeze in the analysing stage, and hence teach the students that they are capable of generating results as entrepreneurs and actually are able to come up with ideas.

Guest Lectures

The program also incorporates guest lectures into their education, where RSM invite local entrepreneurs and VC's to come and talk about different topics regarding their experiences.

'We had a lot of guest lectures. That was really good for my motivation. We also had VC guys from Amsterdam come to Rotterdam talking about VC capital.'

2020 Student

Technologies Used in Class

Some classes incorporate a quiz and live poll methodology to make inquiries from students, which were used to foster discussions in-class. The used software is Mentimeter, which collects input from online students and displays live polls, word clouds, and more.

Gamification

One of RSM's projects for the program is to add gamification to their education. The idea is that gamification is supposed to teach their students to be comfortable with the uncertainty that every entrepreneur encounter when starting a new business. To become comfortable with the uncomfortable. They believe that gamification can help by creating a safe environment, where students can feel free to experiment, and by doing so, create the mind-set necessary to be an entrepreneur. They are currently working with a neuroscientist that is doing gamification research within their department.

'I am now contacting a neuroscientist's that is going to do gamification research within our department. And the idea is she's trying to see how gamification can be implemented within our education system. It's not there yet. And we have experimented with it ourselves. It was not well integrated. But I do believe that gamification is the future that we should take into account. And I see that there's opportunities as well in the future. Especially given that you want to create an entrepreneurial mindset in students. Well, we see in practice that we give students a lot of freedom. Sometimes in these courses and they don't know what to do with it because they need guidelines. So, they feel very insecure while in fact, real entrepreneurs need to be able to deal with this uncertainty. They need to be and feel comfortable with the uncomfortable. And in fact, that's not what we see in practice. So therefore, we do think that gamification might actually help us to kind of achieve the shift in mindset. Because within a game, you can actually create. You can make a game out of reality and create a safe environment for people to experiment.'

Academic Director

Out-of-class Activities

Tel Aviv Study Trip

One of the programs out of class activities is a study trip to Tel Aviv. On this trip, they go to visit Venture capitalists who hold lectures for them. Besides this trip, they also have local company visits. The purpose of these local company visits is for students to learn from companies that are closer to them and to show them contrast against American companies.

'We went to Israel to Tel Aviv, because they have a lot of startups. It was a really cool trip. We went to a VC like venture capitalists and it was really nice. And also, I think that was the coolest about my study, we went to a company visit of Thuisbezorgd takeaway dot com. It's like a food delivery in the Netherlands. They started like in a student's room, like really small in 2002. And they grew really big. So, they're like now on the stock exchange of Amsterdam. And they are growing to Germany, to Europe, maybe also to Sweden soon. But the founder of that company went to our class, like, really personal, like 30, 40 people. And he told us about how to grow your company. So, that was really the coolest thing.'

2018 Alumni

Kick off and Speed Dating

At the start of the education, RSM coordinates two kick-offs, to create an environment where students can meet and learn to know each other. It starts with a general master kick-off and continues to a program-specific one. RSM also invites some alumni to the event, where they can mingle with the new students. The event takes place at the incubator Erasmus Centre for Entrepreneurship. The reason for this is that it creates a more dynamic environment outside the classroom setting. Besides this, the program sets up speed dating where the students can meet likeminded individuals.

'We have a program kick off where everyone meets at the start of the program. And there's sometimes there's even speed dating. And we spend a lot of time on having everyone introduce themselves, because I think this is important. You want to create a community of like minded individuals that actually are going to build this master program together. The kick off always takes place inside the incubator, which is really important because it's not a standard classroom where you sit in the rows, so instead you have a more dynamic session there*'*

2020 Academic Director

Other Noticeable Findings

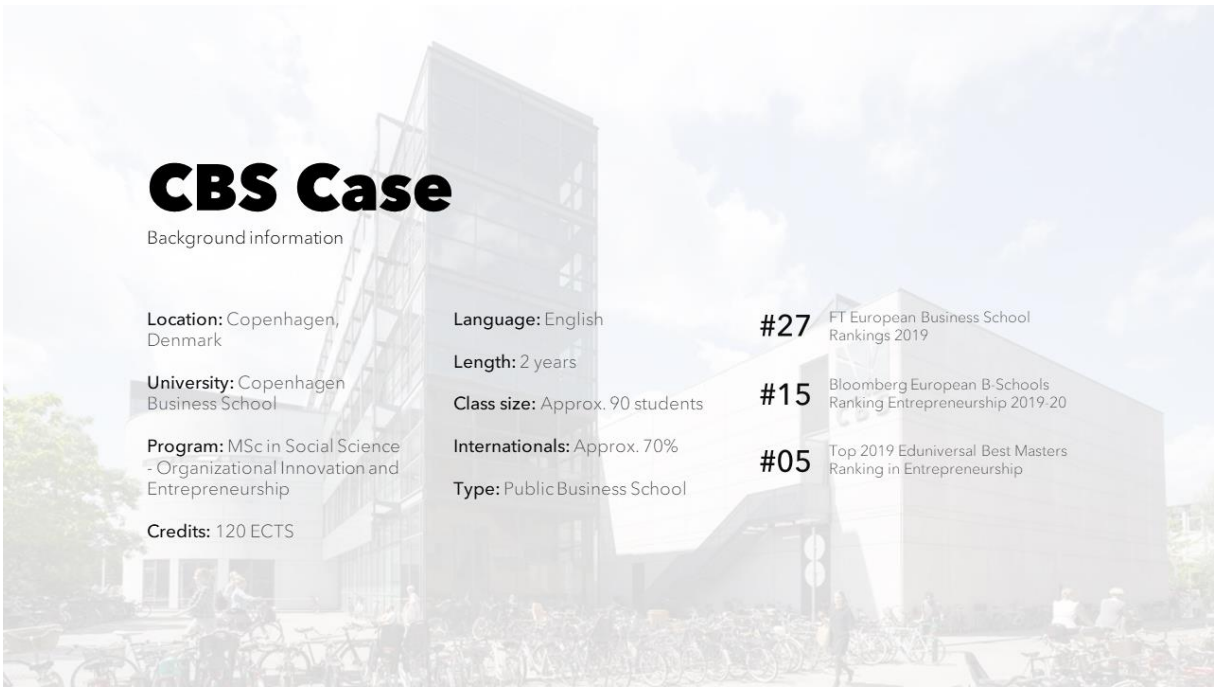
After-graduation Support

After the students graduate, they can join the alumni network which is a part of the Erasmus Centre for Entrepreneurship, where they can get support and a possible mentor. Further, the students also have a course that is called Your Future Career, which is ongoing during their first semester and is supposed to prepare them for post-graduation.

University Incubator

The university incubator Erasmus Centre for Entrepreneurship is open to RSM students if they are interested in starting a company. Besides this having some of their classes there, the incubator also provides programs and coaches for those who are interested.

4.4 Copenhagen Business School Case



Background

Copenhagen Business School is a public university that offers 18 bachelor's and 9 master programs in the field of business and social studies. Situated in the city of Copenhagen, it is a home university for about 22 000 students and 1400 professors. The Organizational Innovation and Entrepreneurship program is one the 2-year full-time master in social science programs taught in English. It first saw the light in 2010. According to the official website of the program, OIE has one of the most diverse student populations at CBS, with many international students of different academic backgrounds. As for 2020, there are about 90 2-year students, almost 70% of which are students from outside Denmark.

Data presented below was collected through conducting 5 Skype interviews with: one 1st-year student, two 2nd-year students, and two program alumni who graduated in 2019. All the interviews were carried out in April, 2020. Program's official webpage and its brochure were also used as an additional source of information.

According to the program's official website, the program focuses on how to design and manage processes of innovation and entrepreneurship at all levels in society and businesses. In a co-creative and case-based learning environment, it is to uncover both the theoretical and practical aspects of managing the processes that lead to creation, implementation, and growth of new innovative ventures. With this approach, the program is to allow students to acquire the necessary skills to start a business, create innovations, manage change and resources, and lead others in the process of turning a new idea into a viable business.

The What: Practices Related to Curriculum Design and Courses

Speaking of general curriculum structure, the Organizational Innovation and Entrepreneurship program consists of three main parts that its students take in chronological order: two semesters of core courses, one semester of customized education, and one semester of writing the master thesis.

Core courses

The first 2-semester-long stage is structured with eight compulsory courses that provide the tools and knowledge needed for managing innovation and engaging in entrepreneurial organizations. The way the curriculum is organized during this period follows the so-called 'life cycle model of an organization'. According to the program's official brochure, the eight core courses explore turning innovative ideas into prototypes, business models and organizations, as well as growing and managing these organizations successfully, to eventually considering exit options and opportunities for serial entrepreneurship. The whole year consists of four quarters each of which is dedicated to a particular topic from the ones mentioned above. Thus, the first year's focus is providing students with tools, skills, and knowledge on every stage of their future company's development.

'We had this idea in the first quarter that we were working in groups on. And to begin with it was all about building a prototype for it. And then we tried to transfer it into the next quarter working on the business plan and cash flow scenario for it. And then in the third quarter there was a course called Organizing Growth. So, what we did there was that we tried this whole idea, tried to facilitate its growth. Everyone had to pitch their idea in front of the class. Finally, the fourth quarter focused on social innovation and social science.'

2nd-year Student

Going deeper in the structure of the first two semesters, each of the four quarters consist of two seven-week-long courses that are read simultaneously combining business-relevant analytical discussions with practical applications. One of the courses is a so-called lecture course (where students are given theoretical background and frameworks), and the other one is a studio course (where they are able to test their knowledge in practice).

Lecture courses are based on a mix of lectures, exercises and Harvard Business School case study discussions. They are typical in-class lectures that implies students doing preliminary reading prior to a class. What happens in such an educational format is lecturer presenting their material in front of the class by using slides and case studies.

On the other hand, studio courses mainly consist of workshop and gamified activities where everyone works in teams. They are to engage students in experimental learning and help them apply their theoretical knowledge into real business situations. Studio courses include simulations, games, team-based exercises and video creation and always take place in a special work space with movable chairs and tables.

'It wasn't one of those typical classrooms where you have normal lectures. It was a studio with Lego bricks and a lot of white walls which you can scribble on. And it was really kind of a learning brainstorming environment, which was nice because I think that helps a lot to brainstorm new business ideas. And a lot of stuff was like we had to stand instead of sitting, and then if we were sitting, that was in a circle and not like front facing lectures.'

2nd-year Student

As for 2020, the program includes eight following core courses: Entrepreneurship and Innovation in Context (L), Business: Concepts and Prototypes (S), Strategic Management and Innovation (L), Entrepreneurial Processes (S), The Art of Innovation (L), Organizing Growth (S), Social Innovation and Entrepreneurship (L), Making Social Science Matter (S).

Customized Semester

The second 1-semester-long stage of the program provides the students with an opportunity to fully customize their education. They are free to choose between the three following options:

- Elective courses at CBS;
- An exchange semester abroad;
- Internship at CBS's Copenhagen School of Entrepreneurship.

Firstly, the program offers a wide range of electives courses covering most of the fields of business-related and social sciences. Students are allowed to take any of over 100 courses that are taught at CBS, including courses on technologies (e.g. Artificial Intelligence in the Marketplace) and advanced specialized courses (e.g. Advanced Marketing). Most of the courses are full-time and are held offline, however, students also have an opportunity to enrol in CBS's online courses. Choosing a package of pre-selected electives will gain students the title of a Minor in a particular field. Moreover, one of the many elective courses is a three-week trip to Silicon Valley. This trip is always organized by students and includes company visits, interviews, and ecosystem observations. The university provides students with contacts and financial aid in form of special grants and scholarships for the trip.

Second of the three customization options is studying abroad for one semester as an exchange student. CBS is a partnering university with more than 300 schools across the globe which makes it beneficial for those who are seeking international experience. Three out of five interviewed students and alumni went abroad during their customized semester (China, Portugal, South Africa), and other two took electives and went on the Silicon Valley trip.

The last option to design curriculum during the third semester is internships. This path implies working closely with one of CSE's or any other company of students' choice, and then writing a paper on the achieved results during it.

'You have the feeling of having the choice. I think that's a major part. I think it's really nice that you can choose a topic which you have no idea about and dive in it a little bit and figure out if you like it or not. I had not worked with AI before, for example. I had not work with digital transformation. I went into that course. And now I can say either I like this thing or don't. And it's the same with all the sustainability courses, with courses that are not directly related to the studies. That gives you a chance to look into topics that you might not be able to look at before you actually start working with it. But if you take a course on it, you can figure out if you like it, rather than starting with a job in the field and figuring out you don't like it only then, that's way worse.'

2nd-year Student

Master Thesis

Finally, a one-semester-long master thesis project is written in the end of the program. Here, students have two options to choose from. They can either write an academic paper or work together with a company on a particular topic within such collaboration. The result of the project is a written academic research paper of up to 80 pages per person.

The How: Practices Related to Teaching Methods

In-class Activities

YouTube Channel Creation

A part of the above-mentioned Organizing Growth course is a video creation project. What happens in this project is that students split in groups and work jointly on creating a YouTube channel dedicated to a topic of their choice. The idea is to upload a new video every week and try to promote it everywhere in order to get as many views and followers as possible. Working in teams, students are to follow and comment each other's projects, cooperate, and help collaborate on video production.

Students produce content themselves, using university's facilities and equipment. The whole course is design as a competition, where the team that gets most amount of views and followers gets a special prize at the end of the course. The course also consists of studio classes where students get supervision by their professor and learn different growth strategies, that they are later to apply in their YouTube channels.

'What my group did was of a yoga channel. We promoted our content, measured conversion. In the end we had 24 followers and one video had 241 views. Also, one of the groups was doing sport videos trying out different sport activities. So, of course, we partnered up with them and did a video together. It was there was quite cool!'

2nd-year Student

Building Prototypes

In the course called Business: Concepts and Prototypes that takes place in the beginning of the first semester, students build prototypes of their business ideas and then compete against each other. The class splits up into several teams, five to six students each. They brainstorm ideas and pick one that they will proceed with during the development stage. What happens next is they are to do an actual field research wherein they arrange meetings, conduct interviews with industry experts, do online market research, thus gaining industry-specific knowledge. Subsequently, the participants are to build real-life prototypes making use of university facilities. In the end of the course, all teams present their projects in an all-day-long trade show. What happens after sharing results part is that all teams wander around asking questions and discussing their projects with their classmates. The whole event is finished with an evaluation part where teams are to pick best three projects. The winners get a private coaching session at CSE (Copenhagen School of Entrepreneurship) incubator where they get consulted on how to further develop and grow their business.

'Some people had super crazy things. For example, one group was building this huge scale model that was filled with plants because they were thinking about having vertical forests. You could actually enter it and see it from inside.'

2019 Alumnus

Guest Lectures

Another common practice of OIE in-class activities is having guest lectures with industry experts, CEOs, top management, venture capitalists, and start-ups founders. The Copenhagen Business School invites lecturers from McKinsey & Company, MAERSK, LEGO and other companies to speak about their professional life. Especially for OIE students, the program management also arranges guest lectures with alumni and school-related people to talk about their personal experience in starting and running their companies.

Out-of-class Activities

International Study Trip

In the third customizable semester, students have an opportunity to go on a self-organized international study trip. The whole trip is one of the elective courses meaning that if students decide to participate in it, they also need to take three more electives. The event is organized by students themselves with a help of program coordinators and program management. A special committee of students is created that is responsible for arranging the activity. The students' visit to the chosen country is always accompanied and supervised by one of the program professors. While program management provides participants with network, helps find and contact companies, students are expected to reach out to the companies they want to visit and arrange meetings, interviews, and workshops with them themselves, as well. A proposed curriculum of the trip needs to be approved by the CBS study board. It is usually that only up to 30 people from the class can take part in the activity. What happens during the travel is that students visit companies, interview their top management professionals, and hold workshops with them. Students are not limited in their choice of countries nor companies, but in the amount of time they spend during the study trip. Usually, the length of such annual activity is two to three weeks, after what the participants take exam writing a paper about their experience.

'Last year, we flew to Silicon Valley. I was part of the organizing team. We organized a two-week trip with 28 students from OIE. So it's either we organize it or it's just doesn't happen. We were five people organizing it. It took us about five to six months to make sure we get all the companies on board, we needed to get all the students on board, as well. Got this course approved by the city board of CBS. And we had a professor who supervised us on the trip and also checked the exam. In two weeks' time, we did about 25 different company visits. Each of them was approximately two-hour long. We had workshops and interviews with companies like Salesforce, BCG, Digital Ventures, SAP, Optimist's Studios, and other. And then we had a huge workshop with Ultimate Ears' global head of branding and global head of product. They brought all the cool people in. And then we had a huge workshop with them, had to write down what we learned, what kind of stuff we used from our study program. We had to write a paper basically the minute we returned from the US back to Copenhagen. I know that this year, for example, students were about to go to South Korea. I would say that that was the main highlight of the entire program.'

2nd-year Student

Copenhagen School of Entrepreneurship

CBS's OIE program works closely with the Copenhagen School of Entrepreneurship (CSE). CSE is an entrepreneurial organization with student incubator programmes, accelerator and growth programmes, entrepreneurial events, and workshops rooted at Copenhagen Business School. Although it is not obligatory for the students to start their own company during the period of their studies, they are encouraged to present their ideas to the incubation centre and get knowledge from the professionals working there. Having had an idea approved by the CSE board, applicants obtain a year of mentorship to help them get started with their business. CSE also actively invests in their projects and help their companies seek further investment opportunities. In the courses like Business: Concepts and Prototypes or Organizing growth, students get encouragement by their professors to proceed with the ideas that arise during the course in CSE. They are presented real-life examples of successful attempts by the program alumnus and are shared their stories with, as well.

CBS Case Competition

Another out-of-class activity opportunity for the OIE students is to get engaged into the CBS Case Competition. The organization is dedicated to holding case competitions in CBS and is run completely by CBS students. During such events, teams of students compete against each other by developing solutions for real-life problems in form of business cases. Alongside with this, there is a management consultant club which role is organizing events jointly with companies and inviting business professionals to speak about their experience.

Orientation Week

Last but not least, OIE organizes am orientation week before the beginning of the academic semester for all program students. This series of events is dedicated to letting the students get to know each other as well as get acquainted with the entrepreneurship ecosystem in the country. The participants visit various companies throughout Denmark (e.g. Lego, MAERSK), mingle with the companies' staff, thus, expanding their network and establishing relationships with their classmates. Accompanied by a program supervisor, students visit co-working spaces (e.g. Talent Garden Rainmaking) and hackathons exploring opportunities for their future work.

Other Noticeable Findings

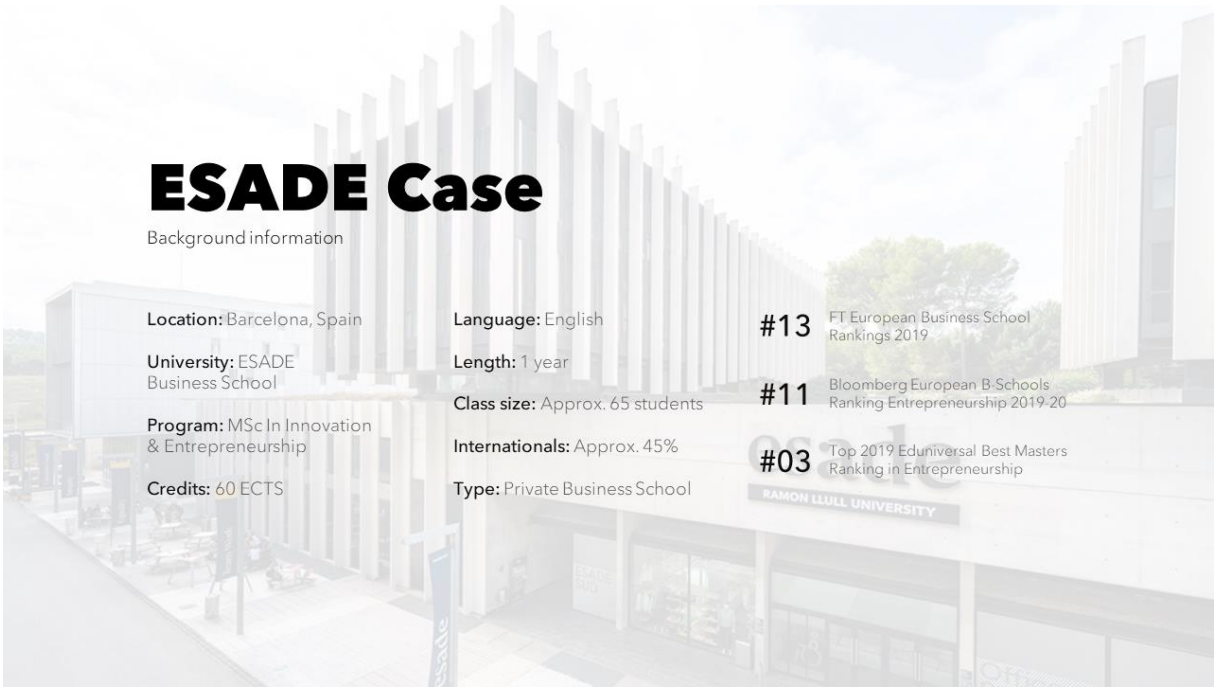
After graduating from the university, OIE students receive e-mails offering job opportunities. They also become members of CBS alumni network, which they use to facilitate their career development.

Among other practices, students showed a lot of appreciation towards working space they occasionally have their classes in. All the interviewees mentioned how important it was for them to be able to use that creative working facilities provided by the university during the studio classes.

'There were no rigid seating areas. We really had a studio where all the chairs and tables are movable. The class was smaller and the shape of the class was meant for the teacher to be in between the students. I think, you have this freedom that helps you be more creative and better at brainstorming ideas because of how that working space was designed.'

2019 Alumnus

4.5 ESADE Case



Background

ESADE Business School is a private university that offers 5 bachelor's, 7 masters, 2 MBA's, 1 MRes, and 1 Ph.D. program in the field of business and management. Situated in the city of Barcelona and Madrid, it is the home university for about 9400 students and 262 professors. The students at the university amount to nearly 60 different nationalities.

The Innovation & Entrepreneurship program is a 1-year full-time master taught in English. According to their master's brochure, the school offers a highly international experience through their international students and abroad study trips. They focus on providing world-class faculty that are active in their respective teaching areas, and a study environment that provides real business challenges. The class of 2020 amounted to approximately 65 students where 45% of them were internationals.

The data presented below were collected by conducting 2 skype interviews and 1 phone interview with two enrolled students, and one alumnus who graduated in 2019. All the interviews were carried out in April 2020. The program's official webpage and its brochure were also used as additional sources of information.

According to the program's official website and brochure, the program focuses on challenging, stretching, and guiding students to rethink their ideas and approaches. They do this by exploring all aspects and perspectives of the innovative journey while building skills and cultivating mindsets. In a hands-on and co-operative learning environment, they learn to solve real-life challenges for companies while being taught by successful entrepreneurs. The program teaches five specific skills:

1. How to find, manage, and launch new ventures
2. How to seek and evaluate business opportunities

3. How to design and validate business models
4. How to design, manage, and implement a company's innovation strategy
5. How to analyse and participate in any start-up funding process.

The What: Practices Related to Curriculum Design and Courses

The general curriculum structure of the Innovation & Entrepreneurship program at ESADE consists of three terms including some additional parts. The students take these in the following chronological order:

- (Business Integration Path);
- Term 1: Consists of Core Courses;
- (Study Trip & Skill Seminars);
- (Internship Innovation Project);
- Term 2: Consists of Specialized Courses;
- Term 3: Consists of Electives;
- (Master's Project).

Before they start their first term, there is a part called the Business Integration Path (BIP). BIP is a course aimed at new students that lack an undergraduate degree in business and administration or economics. This course should give them a grounding in management basics. The course starts with online modules on the 1st of July and continues to the 23rd of August. After that, they have courses on campus until the 10th of September, which is close to the start of their regular masterclasses.

Before the start of the second term, the students have international study trips and skill seminars. At the end of term three, they start working on their master's projects, which is done over the summer, from June to September. Besides this, they have a project that is called the Internship Innovation Project (I2P), which takes place during the second and third term. This is a project that connects the students with companies. A more detailed description will be presenter later on.

First Term

The first term is structured by 5 core courses. These courses are meant to be an introduction to the world of entrepreneurship and innovation. These core courses consist of a wide range of disciplines. The courses they explore are the following: Creative Thinking, Innovation Management, Exploring the Opportunity, Entrepreneurship, and Business in Society. The students are taught both through lectures and workshops. The teachers of the subjects are themselves experienced in their respective subjects. Guest lectures are a big part of the education, where they invite people who are well renowned in their current subject to teach the students.

The first two weeks of the program is an intensive design thinking course. Afterward, they go through a deep step by step processes from idea, to prototyping, to the first MVP, and then move on to finance and scaling IP. All courses include project work in teams.

Study Trip and Skill Seminars

After the first term, they have the opportunity to go on an intensive week abroad to one of the world's leading universities, to experience a different culture. Different locations cover different topics, these topics are: Doing business in Different Countries, Global Topics in Finance,

Global Topics in Data Science, Marketing Strategies in a New Digital Era, Finance in Asia, Public Affairs & International Political Economy, and the Silicon Valley Experience. Here is a what one student had to say about their Silicon Valley Experience:

'It was an immersion class for one week and it was quite intensive activities, every day from morning until evening. We had lectures that were organized together with the University of San Francisco. We also had talks with local entrepreneurs and partners of the local venture capitals. So, we got real hands-on advice and insights on how it works in Silicon Valley. So, it was quite useful.'

2020 Student

Internships Innovation Project

Internship Innovation Project (I2P) is a project that is part of the curriculum. The project exposes the students to real-life business challenges provided by a range of Spanish companies. During the project, they collaborate with science and technology students from the Universitat Politècnica de Catalunya BarcelonaTech (UPC) to discover innovative solutions to actual business problems. In the course, the students get separated into groups and can apply for different company projects. An example can be that two teams work with a large company, two teams work legal attack, two teams work on digital nomad projects, and they always work with companies. The whole course is a project with a company from ideation to implementation.

Second Term

Term two is called Advanced Innovation and Entrepreneurship and focuses on the four following areas: finance, marketing, product management, and advanced strategy. These courses go deeper into strategy, marketing, finance, and product management. All the classes are general management classes that are related to entrepreneurship. For example, finance is not about corporate finance, instead, it was about how you generate financing for your start-up. ESADE does this by teaching students about the venture capital method among others.

Third Term

The third term is about electives. The idea is that this stage allows students to tailor their education towards their specific career goals. They have to choose electives that represent at least 8ETCS, which amounts to approximately 3 courses. They can choose from a wide range of electives, both from their program and outside their program, which all features an interactive methodology. These courses are highly based on the student's own initiative and work. There are two program-specific electives named Start-up Immersion class, that takes the students to either London or Berlin, depending on which one they chose. Here they immerse themselves into the world of entrepreneurship, by visiting companies and entrepreneurs, for interactive workshops and lectures.

Master's Project

The master project is divided into three options, for the benefit of the students who have different career goals. They can choose between a research master thesis, creating a business plan, and an in-company project. Creating a business plan is aimed towards the people who want to start their own company, while the in-company project is more focused on people who want to work in a company. Below is one student expressing their experience of this process:

‘You can write a business plan, build your own start-up. That's, for example, what I'm doing at the moment. And that's super cool because it's basically, for our master, 10 credits. So, it's a lot. And the university matches you with a mentor. And the mentor is from your start-up industry’

2020 Student

Testing and Grading

The most used grading system in the program is a combination of group work, exams, and participation. How much each part makes up of the grade depends on the class. The university measured the participation of the students by having a TA sitting in on classes while taking notes. A reason for this is to encourage their students to take an active part in the lectures.

CEO Exam

One exam that stood out for a student was from their final exam in a simulated environment. A gamified exam. The simulation was based on them being a CEO for a company for a year, where they had to make innovative decisions. It was a multiple-choice exam, where the questions were based on their previous answers and would be presented in a tree diagram during the exam. The grading would be done based on how well the students could motivate their decisions.

‘The structure was like a multiple-choice exam, and you always made your decision of whether you would invest in, you had a budget. And you always had to justify your decisions from three bullet points. So, it was basically not written but with super quick decision, it was also timed and done like just three bullet points than really quick why. And then your answer led to another question depending on your answer previously. It wasn't like you could go like that far above, it was always with derivatives. And it was pretty cool because it was not one right solution for them. So, it was designed in a way that people who justified why they wouldn't invest in it. And in the end, it somehow turned out that budgeting and like the decision making in a different way. They had the same grade as the person walked completely through it and said, OK, I had the risk-averse approach. It was more like justifying your perspective rather than just making random decisions.’

2020 Student

The How: Practices Related to Teaching Methods

In-class Activities

Teaching Methods

The teaching methods used in the Innovation and Entrepreneurship program at ESADE is both highly practical and based on real-world business challenges. This reflects some of ESADE’s selling points to join their master's program, which is, engagement in real business challenges, insights from experienced guest speakers, and their innovative hands-on learning methodology. This combination is supposed to ensure that students know the theory and have the practical know-how to implement it effectively. The classroom classes at ESADE are usually divided into two parts, the first half starts with the professor holding a lecture, and in the second half a guest speaker comes in to speak or hold a workshop. The guest speakers are either entrepreneurs

or VC partners. Something to note is that the many professors at ESADE are entrepreneurs outside their teaching profession, which could add further benefits for the entrepreneurship students.

A large number of case study teachings are part of the education. The practice is that they usually have one or two case studies in every class, which they have to prepare and solve for the next class.

Technologies Used in Class

Some technologies that are used in class are Kahoot and Mentimeter. Kahoot is used for live questionnaires during class. With Kahoot, the students go online on their laptops and answer questions that later shows up on a screen in class. In some cases, this was timed to create a competing element between the students. Mentimeter is used in their strategy class to figure out the opinion of the masses through questions and live polling for voting.

They also make use of the software Scratch during prototyping. Further, ESADE provides a professional programming tool for people who don't know how to code. The program is a modular programming software that has a UX that allow students to create their program through drag & drop and tweaking of settings and functions.

Money Challenge

A money growing project was mentioned by an alumnus. In the project, the students were divided into teams of 5 and were given 200€ to use to generate money over eight weeks. In the end, they were evaluated on the project result, innovativeness, and originality. For example, someone who sold sweatshirts with logos on them and generated a lot of money quickly, wouldn't score high on the innovative and original scale, and would, therefore, get a decent grade but not the highest.

Out-of-class Activities

Study Trips

ESADE provides an international experience by allowing students to go abroad during different periods of their studies. One abroad experience can be done during their Study trip and skills seminar period, right after the first term, and the other ones can be done during their third term in the form of electives. These trips are done to let the students learn more about different business environments around the globe. It is an immersive period where they get to visit companies, have guest lectures from experienced entrepreneurs and VC's, and take part in challenging workshops.

The Silicon Valley Experience was highly appreciated by the interviewed students, which occurred after the first term. Here is one student explaining their experience:

> *'So, we had like five days, I think, or six days where we like from morning to evening visited startups. VC's who went to Stanford for guest lectures. You could choose which startups you want to see if you want to go for technology or if you wanted to go more into business. And it was cool. It wasn't intense. It was like always really open. So, you could ask the founders questions. it was a really eye opening, a cool experience, and I met cool people'*
>
> *2020 Student*

Besides the Silicon Valley Experience, students could opt to go somewhere else to experience the business environment in other cultures. They could go to countries like China, Africa, India, Israel, and many more. However, the Silicon Valley trip was especially reserved for the Innovation and Entrepreneurship students.

In the third term, students could choose two electives to enhance their abroad experience further, which would take place in London and/or Berlin. These two experiences are similar to the Silicon Valley trip but take place at different entrepreneurial ecosystems.

'We went to London to do the start-up ecosystem trip. There were lots of guest speakers, we visited a lot of companies, talked to alumni, got to hear from people about what they do, what their companies do, and how they have built their companies. We basically did the same thing in London and Berlin as we did in the Silicon Valley.'

2019 Alumnus

Rambla of Innovation

Something unique about the ESADE Business School was that they provided an area called Rambla of Innovation. This area is a street containing seven learning labs. These workshops and studios are a way for the university to reinvent their learning methods, and it focuses on preparing for future challenges and new demands of education. These labs are open to everyone at the university and range from 3D printing to Finance lab. Besides this, they also have a food lab. The labs are the following:

- **Fusion point:** An innovation lab where students from business, technology, design, and law backgrounds, come together to solve real challenges that lead to new products, services, and processes.
- **Decision lab:** is an experimental lab for innovative research. And provides resources such as rooms for tests, computer simulation, questionnaires, and observational studies.
- **Fab lab:** A lab for prototyping. Includes tools as laser cutters, 3D printers, milling machines, and an electronics laboratory.
- **eGarage:** That focuses on ideation. It focuses on fostering student's entrepreneurial initiatives. It provides resources for fostering new business opportunities and sharing ideas.
- **Eworks:** A lab for people with a clear business plan and who wants to start working on it. They provided meetings with founders, co-working spaces, and accelerators.
- **Finance lab:** This is for students with an interest in finance. Equipped with professional software used by the financial sector, and worldwide data provided by the biggest financial institutions. They will learn the tasks required to become a financial analyst or investment banker, by experimenting with real data.
- **Media room:** A studio that is used to help students create all kinds of audio-visual content.

Here is what one student had to say about Rambla of innovation:

'It's called Rambla of Innovation. And it's like a long walk, like long street on campus. And there is a Fab labs where you have 3D printers, you have super small class meeting rooms with all kind of technology unique. You have Eworks, basically, which is designed to pitch ideas. We have a food lab on campus where people can experiment with new food creations.'

2020 Student

ESADE also provides a skill seminar that is used with Fab lab (3D printers etc.) and is called 3D Printing and Rapid Prototyping. Here they learn to use the advanced tools, and how to design for digital fabrication and techniques for rapid prototyping.

Gamification

Gamification was incorporated into some of the classes according to one alumnus. These games were done within the innovation management course and gave students a business scenario that they had to innovate. An example is where students get a scenario such as selling hot dogs, then have them figure out what type of hot dogs they would sell, to which market, and how much to invest. Other areas were battery cases and ice cream. The students were graded on their results. Below is the extraction from the interview with the alumnus.

'One thing that comes to mind when thinking of a weird or unusual delivery method was a game. It was a game where basically the entire class participated in a strategic innovation game. Where you had to apply your logic, math, and creative problem-solving. And then we were in a free market of ice cream, which was one game in innovation management. And well, the winner would then get the best grade and the loser would get the worse grades. The funny thing about it was that it seemed to work pretty well because the people that were really good at these games were usually as good in the first game as they were in the second game. And that's obviously subjective. But they were usually also among the smart people. Not that anyone that I consider anyone dumb or dumber, but yeah, these games were pretty interesting the strategic games. These were fairly realistic and sophisticated cases.'

2019 Alumnus

eFounders Meet Up

To help the students improve their network and get in contact with real entrepreneurs, ESADE hosted bi-weekly founder meetups. They called it eFounders Meet up, and they invite founders, advisors, investors, experts, and individuals who are looking to start up a business or looking to work for a high growth company. The university wants to create an event where people can exchange ideas, provide support, and improve their network.

'We meet at a part evening. Where entrepreneurs and founders and also some professors come over and they just like have a fireside chat, which is pretty cool because it's super informal and you can approach new people. You can also always pitch your own idea and like you can bring whoever you want to it. So, if you have friends over and she wants to pitch, you just have to say one day or two days ahead, hey, can you pitch this idea. Then you get feedback. You can talk with the entrepreneurs about jobs in their companies.'

2020 Student

Other Noticeable Findings

When students graduate, they could get support from the network that they created during their studies. This means students, teachers, as well as people they met along the way. Due to their teachers being entrepreneurs themselves, they could be a valuable asset for the students if they ever need any help in the future. When it comes to financing, they have the opportunity to find

investors through the ESADE BAN (Business angel network), which is a network organized by ESADE Alumni.

'Our professors are either entrepreneurs themselves or business angels. So, they have a huge knowledge and experience to help you on the road. As for advice, they would be very open to helping you with financing. Either through ESADE business angel network, which you can use. Also, through the professors, which I'm sure would make it easier to find the possible financing sources. I'm not saying that it would be so easy to get the financing, of course, but at least to know who or which venture capital, or business angels, or who is worth trying to convince or to talk to.'

2020 Student

Entrepreneurial Faculty

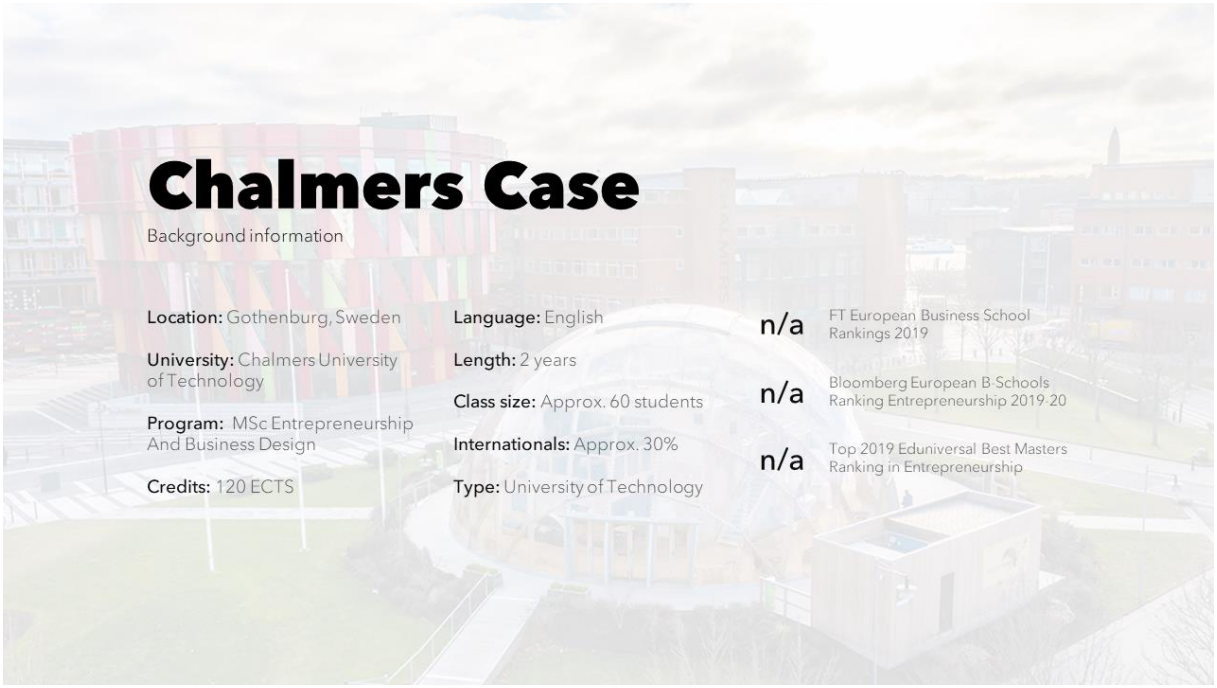
One thing that the students appreciated about their program was the Academic Director Jan Brinckmann. The reason for this was that he was a serial entrepreneur and was able to inspire them. Here is the expression from one of the students:

'The guy who runs this master, which is Dr. Jan Brinckmann. He is a serial entrepreneur. He lives for it. It is crazy, he is basically the best network connection ever. And he is also authentic in what he tells you. He built a couple of companies, he's invested in many, and his enthusiasm is maybe the most innovative teaching you can have, because like, it's not like a person who comes from theory and like reads down to you. Yeah, and you know, this and that, but like, he's always like it's nuts Guys! imagine this and that.'

2020 Student

Most of the teachers at ESADE are entrepreneurs, which is different from many other universities. And could help create an environment that is highly connected to entrepreneurship.

4.6 Chalmers University of Technology Case



Background

The Chalmers University of Technology was founded in 1829 and has since 1937 held the position as a University. The school offers a wide range of programs, both in Bachelors and Masters. The variation ranges within technology, architecture, management, economics, and seafaring. They offer 30 bachelor programs and 40 master programs. With these programs, they host approximately 9415 full-year students, with a teacher force of approximately 2020 teachers.

The Entrepreneurship and Design program consists of 2-years in engineering and management, which is taught in English and holds close to 60 students, with three individual tracks.

The data for this particular case was collected by conducting 2 skype/zoom interviews and one in-person interview. The respondents consist of one 1st-year student, one 2nd-year student, and one program alumnus who graduated in 2016. All the interviews were carried out in April 2020. The program's official webpage and brochure were used as additional sources of information.

The Entrepreneurship and design program aims to teach and provide the tools necessary for students to realize new ideas and innovations into society. They do this through an action-pedagogy, that includes venture creation and real-life innovation management. One ambition of the programs is to make the students co-create technological ventures. This is done by connecting them with, for example, patent-holding idea providers with their students.

The What: Practices Related to Curriculum Design and Courses

The curriculum of the Entrepreneurship and Design program is a two-year program and consists of three different tracks. Each track has its own special area of education. The three tracks are the following:

- Intellectual Capital Management track (ICM): *Focuses on intellectual property and intellectual management.*
- Corporate Entrepreneurship track (CORP): *Focuses on entrepreneurship within a corporate setting.*
- Venture Creation in Tech or Bio track (VENTURE): *Focuses on entrepreneurship as venture creation.*

First Term

In the first semester of the program all of the tracks participate in the same three mandatory courses, this semester is also known as Business Creation Lab. These courses are; Intellectual Property Strategies, Design of Technological Innovations and Markets, and Technology Based Entrepreneurship. The purpose of this semester is to build a foundation of business knowledge, that students will use when they later start on their personal track profiles. The courses teach students about innovation strategies, intellectual property strategies, and general frameworks and concepts of entrepreneurship.

During the first semester, students additionally conduct a group project that is based on their concluding three courses. This group project is a simulation for starting a new venture, and the course assignments during this period are connected to the project. At the start of the project they get assigned a case and a portfolio of high patents, that is considered to be their technological resource for their fictional venture. The venture simulation proceeds as the course goes on, meaning that the project starts by having students evaluate their patent situation and create strategies accordingly, later they move on to looking at value perspective and where to focus R&D. This simulation also includes pitching their venture and negotiation.

Second Term

The second term in spring is based on elective courses, the alternatives for electives depend on the students' chosen track. In the Venture track and Corporate Entrepreneurship track, they are free to choose any electives available at the University of Chalmers. While the students in the Intellectual Capital Management track are required to take part in two compulsory electives; Brand Management and Patents and Innovation Engineering. However, they are still able to choose any additional electives at Chalmers. These two compulsory courses are meant to bring the students more in-depth knowledge of intellectual property rights, like brands and patents, as well as to develop business development skills in certain stages of a company.

The free electives that students can choose from are within engineering and management. However, Chalmers always has recommendations for the respective tracks. Example of recommendations for the Venture track is Organizational Behaviour, Creating New Business, Brand Management, and Patent Innovation Engineering. The reason for giving the students the option to choose free electives is to allow the students to create their own educational profile. Some students might have a background and interest in Biotechnology and can consequently choose any electives from the Biotechnology department of the university.

Second Year, The Last Two Terms

The last year, or the last two semesters, are unique for all tracks, due to their different educational objectives.

Venture Track

The Venture track devotes this whole period to a venture project and their master thesis. In the Venture project, the school conducts a rigorous team-building process where they take into consideration the students' backgrounds and profiles. The students have to send in a type of resume to the program coordinators. The reason for this is that Chalmers wants to create well-balanced groups for the projects. After the coordinators have assessed everything, they create groups that contain 2 to 3 students, which will work together for the rest of the year. The groups then get presentations from idea providers and patent holders that have challenges in the business aspect of their ideas. These patent holders and idea providers are sourced by Chalmers Ventures (Universities incubator) and comes from Chalmers University, start up's, and private individuals. The project requirements are that the ideas should be within technology or biosciences, while also being commercially viable.

Their master thesis is connected to their venture creation project, which means that their venture project experience will build the foundation for their thesis. Further, the thesis is divided into three components; one individual part on entrepreneurship, one on technology product development, and the last part on entrepreneurial sales and strategies. The individual part is written on a topic that relates to entrepreneurship as a whole, the technology product development part is written on how they can develop the technology in their project, and the entrepreneurial sales and strategies part is written about the marketing and sales strategy for their project.

'We basically pair up with researchers and we do business development on whatever they have, and it could be that they just have a patent and they don't know what to do with it. And in close correlation to this, you sort of make the master thesis components based on the learnings that you have for this year. So, one of the first assignments we have is that we're creating a business model canvas for whatever we're creating. And then, later on, there's another part where we make a go-to-market strategy. And after that, we create a financial plan that we are supposed to meet. And then the idea is that you have these venture documents and you continuously update them and then you go like, OK, we've found a new customer segment or something for whatever we're doing. So, then we do a new business model canvas, a new go-to-market strategy, and a new financial plan. So, in that way, we work closely and we also continuously hand this into the teachers as well at some different points. So that's how they get to see the learnings.'

2nd-year Student

Intellectual Capital Management Track

The second-year of the Intellectual Capital Management track consists of two terms, where the first term is dedicated to two courses, while the second term is devoted to their master thesis. These courses are; Applied Intellectual Capital Management (ICM) and Advanced ICM Theory. In the ICM course, the students work in teams and participate in real innovation projects. The projects are based on multiple contexts such as industry, venture, research, and challenges. During these projects, they collaborate with healthcare systems, incubators & science parks, research centres, and relevant industries. This implies that they work with small

projects, where a project can be to work on development within a certain field for three weeks. This is usually done with the collaboration of Sahlgrenska which is a prominent health institution in Sweden. The purpose of the Advanced ICM theory course is to prepare the students for their master thesis and to teaches them about the development of innovation, organizational structure & strategies, and policy/business/law methods that could be used in their writing. Their master thesis is most often written in pairs and is many times combined with their internships.

Corporate Entrepreneurship Track

The Corporate Entrepreneurship track focuses the last year on corporate projects and the writing of their master thesis. Most of the student's time is spent on working in partnering companies, where they usually work in a team of two. However, they also have some peer learning sessions scheduled at their university. By teaming up with the management of the partnering companies the students get to work, hands-on, with real innovative projects in organizations. During these projects, they should develop and reflect on entrepreneurial skills and behaviours that they later use when writing their master thesis. The partnering companies that the program aims for are those who have difficulties in improving their business, and those that have strategic importance when it comes to innovative opportunities.

Testing and Grading

The program evaluates the students through a variety of approaches. Such as individual work, participation in exercises and seminars, quizzes, group work, exams, and oral presentations. The written exams usually ask students to account for relevant theory and to connect it to classroom activities and previous cases.

The How: Practices Related to Teaching Methods

In-class Activities

Teaching Methods

Chalmers's mentality for the program is not to limit teaching to in-class lectures about theory, but to teach their students how to act, reflect, and to take action, by putting them in the driving seat. This is demonstrated in how they teach. They use an action-based educational method, which is built on interactiveness and an action-based pedagogy. The students participate in many team-based simulations that keep a high pace. The idea is that this will prepare the students to have a head start after they are done with their studies.

Money Challenge

At the start of the program, the whole class participates in a one-week money challenge. Students get divided into groups, and each group gets one hundred Swedish kroner, approximately 10€, that they will try to grow. The best team was supposedly able to generate 50 000 sek, approximately 4 700€. The students get to keep the money they make or give it to charity, but they have to return the 100 sek that they were provided at the start. The activity is also seen to be a good activity for getting to know their classmates.

'We have one week of what's called the start-up challenge. You get handed hundred kroner and then you have to use those to get as much money as possible. So that's like the first week and that was really nice to get to know people.'

2nd-year Student

Simulations

As mentioned before, the school uses a lot of simulations to educate their students. An example is in the first semester when they are participating in the Business Creation Lab. During this process, they get a patent portfolio that they have to use to create a made-up business. They start by discovering application areas for the patents, then they develop the idea through a marketing analysis. This is done besides simulated negotiations and pitching in front of a dragon den jury. Another example where Chalmers uses simulations is in a course where the students get to be responsible for a fictional biotech company. In eight weeks of simulation, the students play the CEO of a biotech company that has many difficulties. During this period, they get informed about new developments regarding their company, and they have to figure out ways to deal with arising issues. The areas of these challenges are everything from strategy, strategic plans for exits, extensive HR plans, and how to retain a good company culture.

'And the moment we're doing a simulation course which is about being responsible for a biotech company, and they basically were throwing facts on us and we're just need to deal with it, so they're trying to simulate a real case scenario when you are the CEO of a new start-up. And that could be everything from just doing a strategic plan for the company to exist, then also to work with extensive HR extensive plan, and stuff like that to retain a good culture in the company.'

1-year Student

Co-Creating Venture

In the Venture track during their second year, students start their co-creation project with an idea provider. The aim is to start a real business. During this process, they don't have many classes and their sole focus is to work on this business idea. However, they do have some assignments along this process to show how they are progressing with their project. At the beginning of the project, they divide the company shares between the students, idea providers, and Chalmers Venture. The division is that Chalmers Ventures get 12 percent and the idea provider gets 30 to 40%. The students start at 3% each, and if they continue with the project, they get to split the difference between themselves.

Guest Lectures

The teaching also includes guest lectures of leading experts within their fields. These guest lectures come in to talk about their experiences and hold workshops. They supposedly have some of the most prominent figures in Intellectual property as well as entrepreneurs and founders. Adding to this, there was recently a guest lecturer who came in and held a guest lecture on Blockchain technology. The guest lectures often come into class and give the students a lecture, and at the end of the lecture, they give the students a case that they have to solve within 24 hours.

'Industry leaders came from companies. And then it gets really relevant what they speak about'

1-year Student

In-Class Technologies

The in-class activities also made use of Mentimeter, which is a software used for quizzes, live polls, and Q&As.

Out-of-class Activities

Social Class Trips

Some of the students out of out-of-class activities are about getting to know each other. The program had, for example, one trip to Copenhagen and one to a country house, where the students got together in a social setting to get more acquainted with each other.

> *'In the tech classes, we have had team formation. And, you know, team is very important if you're going to start a company. We've done a lot of activities outside of school to get to know each other so we have done two class trips, one to Copenhagen and another one to a country house. And also, some game night like which is more on the social side of it.'*
>
> *1-year Student*

There is also a grant provided to the students that allow them to choose their own out-of-class activities. As long as the experience is part of their learning, they can get funding for it. This will be mentioned further in the next part of this case.

Other Noticeable Findings

Chalmers Venture (Incubator)

The university has its own Incubator by the name of Chalmers Ventures. This incubator helps their students if they would like to start their own company. If the students have a valid business plan that is approved by the incubator, they provide the students with coaching, a relevant network, and seed money to start their business.

Pre-Program Application Process

One of the program's special practices is how they decide on who is accepted into the program. They have a rigorous application process because they seek to create a dynamic class of students with different backgrounds and a certain drive and ambition. For each track, there are different requirements for the students. Where the Intellectual Capital Management track might look for students with a law background and the Venture track might look for students with different technical backgrounds. The special application process starts after the students have applied to the program. The first things they have to provide is a personal statement, resume, and a video presentation of themselves (YouTube). The Personal Statement and Resume are mandatory, while the video presentation is optional. The personal statement should contain their motivations for why they want to join the program and a vision of how they will use the knowledge they gain to make an impact on people and society. The personal statement should contain at least 500 words and no more than 800. In the resume, they present their previous work experiences and projects. The video presentation is complementation to the personal statement and is meant to create a better picture of students for the people who decide who gets accepted into the program. If students seem like a good fit for the program, Chalmers will then call them in for a last interview with the admission board. If they pass all these steps they are accepted into the program.

Technological and Innovation Focus

The program has an intense focus on tech and innovation. One of the ambitions of the education is for the students to co-create technological ventures. This is done by partnering with idea providers that, for example, have their own patents.

Summer Internships

During the summer break, the schools help the students get internships at different start-ups and companies that are interested in getting students on board. These can be companies located abroad and within Sweden. In countries such as the US, UK, and China. This allows the students to learn more about entrepreneurship and its practices while allowing them to increase their network and competencies.

Educational Grants

The program also has a grant of 20 000sek, or 2000€, that the students can use during their second year, which should be used towards their learning experience. If the students feel like they need to participate in an event or seminar, they can apply for this grant, and if they get it approved, they get the money to be able to participate in said activity.

5 Analysis

This chapter presents a comparative thematic analysis of results found in the study as well as their relation to literature and previous research in EE.

5.1 Introduction

In order to answer how different or similar the programs' practices are, as well as to understand how innovative they are, the authors analysed the data and related it to theory.

First of all, coding and thematic analysis were performed to find themes and identify what the programs share in common. The approach to the thematic analysis was that all practices were divided into 2 groups: related to curriculum design and related to teaching methods. Subsequently, the authors worked with the data in these two separate groups letting the themes emerge within them. There were no predetermined codes used. The flow of thematic analysis was as follows: initial codes were identified, the initial codes were grouped into initial coherent and meaningful patterns, the initial themes were compared and related to one another, core themes were built, core themes were compared to the literature. All coding was done manually by transcribing interviews into text and later highlighting recurrent themes. Repetition across sources was conducted when looking for patterns and building themes.

Secondly, to address the issue of innovativeness of the practices, the authors compared the data to the criterion of innovativeness set by previous researchers and presented in the literature review section. It is important to point out, that the criteria exist within time, and what can be considered innovative at a certain point might not be in the future.

5.2 Practices in Curriculum Design

5.2.1 Similarities

As a result of thematic analysis in the WHAT dimension, 2 core themes were identified: programs *structure* and programs *content.* The programs structure theme focuses on how the programs were designed in terms of their modules, order of courses, and organizational principles. The programs content theme addresses the question what specific subjects and courses are taught in the programs.

5.2.1.1 Themes Related to Programs Structure

Stages-of-venture Based Structure

Most of the programs structured their curriculum to make it represent stages of a real-life venture development. This implied starting from using creativity to identify opportunities and proceeding with content on launching, managing, growing, and exiting a business. CBS

followed the 'life cycle model of the organization' structuring the program from ideation and prototyping, to growing and exit strategies. AMS used 3 modules – Inspire, Build, Grow – each focusing on a particular stage of venture, such as opportunity recognition, prototyping, growth strategies. At RSM, the program courses were aligned with linear process for creating a new business starting from identifying opportunities and ending in raising funds for launching a strat-up. Even though neither ESADE nor Chalmers cases did not have a pronounced venture of stages structure, their programs also started with courses dedicated to opportunity recognition and creative thinking, and proceeded with more advanced courses focusing on managing and growing a venture. Such stages of venture structure is seen as the opposite of standard MBA approach and enables programs to provide interrelated and interconnected content in the context of entrepreneurship (Fayolle, 2007).

Customization Options

All programs provided their students with the opportunity to customize their education and tailor content to their unique needs. AMS had only one elective course in the Inspire module, but also offered their students to pick corporate entrepreneurship or start-up track as well as chose a country for the international trip. RSM offered their students to pick 1 program-specific elective and 1 elective that is outside of their program in each of the 3 elective blocks. CBS provided an opportunity to customize the whole 3rd semester with either taking 4 electives, an internship, or an exchange study. Chalmers had 4 elective courses in the 2nd semester and offers the students to pick a track of their choice in the beginning of the program. The 3rd term at ESADE fully consisted of elective courses as well as there is an opportunity to pick either a corporate project or develop a business plan for a venture in the final project process.

Track-based Structure

Some of the programs had different tracks that were employed so as to provide different target groups with different content. Student could pick their track of choice based on their career preferences. Chalmers approached track division of the program before its start, where the students could choose one of the Corporate Entrepreneurship, Venture Creation in Tech/Bio, or Intellectual Capital Management tracks. At AMS, roughly half of the students went into start-up track where their final project was based on an idea of their own, the other half – into corporate entrepreneurship track which implied working on project with an existing company. There is no vivid track structure in RSM, ESADE, and CBS. However, these programs offer they students to work on different final projects: academic thesis, business plan for your own start-up or innovation project with a company. Moreover, certain sets of electives were offered for students with either start-up or corporate aspirations in the programs. It is important to point out that such tracks' main aim is to provide different groups with different content to satisfy their career aspirations.

Project-centered Structure

As it was offered by Fayolle (2007), several programs intertwined their courses by making their students develop business-plan-like projects. Thus, such projects became a point of content convergence varying from developing an innovation for an existing company to creating a project for their own to-be-launched ventures. At AMS, students worked on their master project throughout the program, and eventually came up with an innovation project for a company or a business plan for their own start-up idea. ESADE students also worked either on a business plan for their own company or on an in-company project in the end on their program. At Chalmers, students of the Venture track worked on a real-life project for 2 semesters in the year 2, developing a business jointly with their fellow students and external patent-holders. However, CBS and RSM were more academic-research-focused in terms of their final project.

Involvement of External Actors

All programs were to some extend integrated into their local E ecosystems. Their content was partly co-created and co-taught by external actors, such as local entrepreneurs, alumni, incubators, companies and agencies, field professionals and others. All AMS, CBS, Chalmers, ESADE, and RSM had multiple guest lectures with people from the entrepreneurship industry as well as local and international company visits. A big portion of the programs' activities involved external actors in the way that the students develop projects jointly with 3-party companies. For example, Chalmers teamed up their students with local idea-providers to work on the final project. AMS students participated in an international design thinking collaboration between local companies and design students from Milan. Similar activity was exploited at ESADE, where the students worked jointly with other students from UPC BarcelonaTech on developing solutions for real-life business challenges provided by a range of local companies. CBS actively involved their students in Copenhagen School of Entrepreneurship activities and so did RSM with Erasmus Centre for Entrepreneurship.

5.2.1.2 Themes Related to Programs Content

Core Entrepreneurship Courses

Even though the programs' content varied dramatically – which can be explained, for example, by their different duration – there were particular subjects that all schools' curriculum shared. Going under different names, most of them related to core entrepreneurship and business areas. By comparing all mandatory courses (presented on the official websites) in all the 5 programs, the authors found that a lot of entrepreneurship-related courses lie within the core of the programs. Among the most popular courses shared by most of the programs there were: entrepreneurial strategy (5/5), innovation management (4/5), opportunity recognition and value creation (4/5), growth strategies (4/5), business planning and modelling (4/5), creative thinking (3/5), entrepreneurial marketing (3/5), entrepreneurial finance (3/5), and social entrepreneurship (3/5).

Courses On Technologies

Either as elective or as mandatory, all the programs embedded technologies-related courses in their curriculum. 3D-printing, big data, AI, block chain were among most popular topics of the category of courses. For example, AMS had the course called Technologies of Tomorrow as a mandatory course in the first module of the program. At ESADE, students could take elective courses such as Introduction to Machine Learning or FinTech Innovations. Among over a hundred elective courses at CBS, there were such offers as Artificial Intelligence in The Marketplace or Data Mining, Machine Learning, and Deep Learning. One of the tracks in Chalmers was fully devoted to high- and bio-technologies with the courses like Technology based Entrepreneurship or Design of Technological Innovations and Markets. In the elective course called Organizing for Technological Transformation, RSM students discover concepts of artificial intelligence, internet of things and block chain.

Personal Development Courses

A focal point of several programs was personal development. Developing self-awareness and core soft skills were among top priorities of such content. The programs approached developing entrepreneurial behaviour in their students from facilitating their self-discovery and self-realization. AMS offers a continuous course called Global Leadership Skills in which students

were to develop their leadership and communication skills as well as raise their self-awareness. A set of 2 Your Future Career courses at RSM was dedicated to personal reflection on interests and motivations of the students. ESADE offered courses and seminars, such as called Emotional Intelligence Resources for a Successful Career and Leading with Impact: Developing Your Leadership Skills dedicated to personal development.

Introductory Content

Most programs offered introductory activities aimed at those without entrepreneurship background. These focused on providing the students with an understanding of what they will be facing with during the program and typically were held before the start of the main part. At AMS students were offered to join a 1-week AMS boot camp where they have different business-related courses and mingle with their fellow students. ESADE provided their students with the Business Integration Path (BIP), a course aimed at new students that lack an undergraduate degree in business and focused on management basics. Within the orientation week at CBS, the participants visited various companies throughout Denmark, joined hackathons and co-working spaces thus getting to know the local environment. RSM organized two kick-off events both general and program-specific whereby students get to know each other and get involved into local E ecosystem through Erasmus Centre for Entrepreneurship.

'Plus-zone' Content

All programs proved to have the 'special flavor' that Fayolle (2007) presented in his model. It was mainly programs' unique geographical and cultural contexts where such deviations emerged from. Such context determined which companies the students visit, and which took place in their education projects. Moreover, local settings played a huge role when it came to working with incubators, as of course all of them were local ones. In other words, the plus-zone content was consistent with external people and companies who co-educated the students, as well as with competencies of the universities in general. That is, AMS, CBS, ESADE, and RSM held a number of visits to local companies, in Antwerp, Copenhagen, Barcelona, and Rotterdam accordingly. Being a university of technology, Chalmers provided their students with the opportunity to work with local technological start-ups. Therefore, it was mainly location and local actors involved in the program that defined the core of the programs' unique content.

5.2.2 Differences

Some major differences in the programs' approach to design their curriculum and content were identified.

First of all, the programs differed in terms of the theory and practice balance. This balance mostly depended on the type of a program as well as on its length. The 1-year programs – AMS, ESADE, RSM – did not include writing 30 ECTS academic thesis as opposed to the 2-year programs at Chalmers and CBS. Moreover, whilst, for example, ESADE used games to test their students' knowledge, other programs were mostly using written assignments, presentations, and digital multiple choice exams. And whilst RSM, for example, had 3 courses about how to perform a research, some programs did not have any research-related disciplines.

Secondly, even though all programs to some extend were employing the stages of venture structure of curriculum, they stopped at different phases. For example, CBS program structure included all stages of venture from opportunity recognition, to exiting a business, whereas at

AMS and ESADE, for instance, the programs stopped at venture growth. On the other hand, RSM focused on venture management while Chalmers set the program around venture creation.

Thirdly, the level of program customization provided in the programs varied from only one elective course at AMS to a whole semester of courses of choice at CBS. Moreover, different schools proved to offer different range of electives, from only business studies (ESADE, RSM, AMS) related ones to those from other fields (CBS, Chalmers).

Fourthly, despite being project-oriented, the final project differed from school to school. On the one hand, there are AMS and ESADE, where students might work on a business plan for their start-up and then presented it in the format of a shark tank pitch. On the other hand, there are RSM and CBS which final projects were more aspired at academic research. Moreover, the results showed that students either were working on the projects throughout programs (e.g. AMS), or in the very end of the programs (e.g. CBS).

Finally, it was only the E program in Chalmers which implied students going into different tracks from the very first day of the program. In other programs, the track structure was mainly set around when the students started workeing on their own project (entrepreneurial track) or on a project for an existing company (intrapreneurial track). However, in Chalmers the 3 tracks were of wider diversity – venture, corporate, and intellectual capital management tracks. Hence, the content taught in the tracks varied more in the case that in any other in the study.

5.2.3 Innovativeness of The Practices in Curriculum Design

In order to answer the question which of the revealed practices could be considered innovative, the authors compared them to the criteria of innovativeness presented by previous researchers. This section relates the revealed curriculum design approaches to the theories and concepts described in the literature review earlier.

All the programs designed their curriculum according to the Fayolle's template (Fayolle, 2007) and thus might be considered innovative according to this criterion. The programs lied beyond the boundaries of universities and integrate real-world external actors into the education process. Moreover, most of the courses taught in the programs were interrelated as they followed the stages of venture structure. As it was shown earlier, there were several core courses that lied in the roots of every program which creates the second level of the Fayolle's template. On the both third and fourth levels, most programs put business project in the core of all courses and made their programs unique via leveraging their unique context. From this perspective, no program adhered to the traditional MBA structure and were forward-looking in terms of curriculum design.

As it was claimed by Morris et al. (2013), most of the HEIs seemed to pursue delivering their E master's programs *for* entrepreneurship. Among the contexts, the programs clearly focused on the following 3: start-up creation, corporate E, academic E. Among the facilitators (specific topics that enable E behaviour) offered by the Morris's curricula guide, most programs provided content on opportunity identification, planning, innovation, business modelling, creativity/ideation, resource leveraging, and organizing capabilities which was also shown a bit earlier in the list of the most popular courses among the programs. The authors drew a conclusion, that the programs' approach to their content also might be considered innovative from the Morris's curricula guide perspective.

Most of the schools proved to use entrepreneurial approach to their programs design. Not only did the curriculum focus on education *about* entrepreneurship, but rather on *for* entrepreneurship. Following the stages of venture structure, the programs focused on both pre-venture creation and managing and developing stages. Such approach would be considered innovative by (Henry et al. 2005).

It was revealed that the programs were aware of their students' different needs and preferences. Moreover, not only did they provide the option for customization to respond to the issue, but also they varied mandatory content by creating different study tracks. According to Manimala and Thomas (2017), providing an eclectic fusion of courses to address different needs of different target audiences is an innovative approach to curriculum design. Thus, the authors consider that the diversity of elective courses in a way does make the programs innovative.

Looking at the revealed practices from the outcome criterion offered by (Rae et al. 2014), the authors found out that the programs shared in common the outcomes they promised their students would achieve. Among the most popular these were developed entrepreneurial skillset, ability to create and grow ventures, working as a corporate entrepreneurship consultant. In relation to the 8 students' desirable result, it seemed that the programs approached them differently. Thus, for example, AMS focused on the 'creating empathy with the entrepreneurial life-world' which can be seen by the amount activities they do together with external entrepreneurs and companies. On the other hand, Chalmers, for example, seemed to be mostly addressing the 'understanding of process of business entry and tasks' by providing their student with the real-life project work. Overall, the authors believe that using the outcome criterion is a complex issue and leave the question of programs innovativeness from this perspective open.

As it was shown earlier that the programs widely used personal development content in their curriculum as well as followed the structure of stages of venture, this practice could be considered innovative, as according to Manimala and Thomas (2017) it combines person- and project-focused approaches. The programs provided knowledge on both entrepreneurial concepts and specific entrepreneurial techniques. The most vivid way of combining the two was presented in the AMS case, where students were taking both personal development course and business functional areas courses simultaneously throughout the whole program.

From the perspective of Hamidi et al. (2008) and Spiteri and Maringe (2014), the students' need to actively participate in practice-based activities to enhance their creative thinking skills are satisfied by the most forward-looking looking programs. Most programs in the study proved to be focusing on giving their students the opportunity to try themselves in the 'driving seat'. Simulation-based activities and hands-on tasks appeared to be among the most popular principles of curriculum design in the conducted study. Hence, all curriculum in the study are novel, with Chalmers providing the most realistic experience of managing a real-life venture.

Lastly, according to Piperopoulos and Dimov (2015), most advanced E programs combine both theory- and practice-based courses, creating a good balance between 'building steam' and 'bursting bubbles' content. It was shown that different programs approached addressing this issue differently. CBS exploited a combination of lecture and studio courses, ESADE and Chalmers made the beginning of their programs more theoretical, and the end more advance and practice-based. AMS students immediately applied KSAs learned from courses on their final projects via innovation and entrepreneurship labs. Overall, it is extremely difficult to judge the practices on this particular criterion as the authors encountered different opinions on how theoretical or practical the programs were depending on students and professors' perspectives. As a rule-of-thumb, students did show the desire for making the programs more practical.

5.3 Practices in Teaching Methods

5.3.1 Similarities

	AMS	RSM	CBS	ESADE	Chalmers
Lectures	x	x	x	x	x
Group work	x	x	x	x	x
Project work	x	x	x	x	x
Company project/internship	x	x	x	x	x
Workshops	x	x	x	x	x
Simulations & role-play	x	x	x	x	x
Gamification	x		x	x	x
Supplementing Digital Technologies		x	x	x	x
Competitions & Challenges		x	x	x	x
Presentations	x	x	x	x	x
Business plan creation	x	x	x	x	x
Case study method	x	x	x	x	x
Guest lectures	x	x	x	x	x
Company visits	x	x	x	x	
Study trips abroad	x	x	x	x	
Incubator		x	x		x
Coaching	x	x	x	x	x
Sustainable venture creation					x

Figure 8. Use of teaching methods across the programs

Ordinary Teaching Methods

Ordinary teaching methods include lectures, group work, project work, presentations, case studies, and workshops. These teaching techniques were all used by the programs.

The main application of lectures is to teach students about concepts and theoretical knowledge regarding entrepreneurship. A common scenario was to lecture students on theory that would later be used in practice-based learning. Some programs had a common class structure where they divided the first half of the class to lectures, and the second half to practice-based application of previously introduced theory, for example, in a workshop format. This is how workshops were mostly applied to transfer the theory to practice.

Group work was frequently used as a teaching practice. This was usually done in projects that consisted of idea generation and business plan creation. Thus, group work and project work were often combined. Presentations were also an element that was used in this context. Students used presentations to show the progress of their work. Additionally, courses such as venture creation, made students pitch their ideas in class.

Cases studies were used in two ways, either by having students analyse them or by creating them, which affects the level of interactive-learning. A technique that was used for analysing cases, was to provide students with case insights and allow them to reflect and come up with innovate ideas. Further, methods for creating case studies involved interviewing entrepreneurs

and industry experts. This can occasionally be viewed as experiential learning (Manimala & Thomas, 2017), which promotes improvement of entrepreneurial decision-making skills (Clark et al., 1984).

Study Trips Abroad & Company Visits

Many of the cases provided study trips abroad as part of their education. The purpose of it was to give students a real-time experience to learn from leading companies, entrepreneurs, and venture capitalists, while also gaining knowledge about different entrepreneurship ecosystems. The most common layout was to have lectures or presentations from experienced individuals. Some visits included workshops, conduction of interviews, and creation of their own case studies, which provided a more interactive experience. These methods are categorized under action-based learning. Such as experiential-learning, cooperative-learning, assignments, and action-learning (Manimala & Thomas, 2017). Literature suggests that the purpose behind study trips is to give students insight that could be used later when they prepare to create their own venture (Mitchell & Savill-Smith 2004). Lastly, the most common destinations for E ecosystem study trips were Tel Aviv, Silicon Valley, London, and Berlin.

Simulations, Role-play, and Gamification

Simulations, role-play, and gamification were used by all the programs. Simulations and role-play can be explained as a facilitated situation where students play the role of a protagonist. The learning in this aspect is done by having the students think, behave, and imagine themselves being the part (Shepherd, 2004). The most frequent use of simulations was dragon-den-presentations and negotiations. Further, gamification can be paralleled with simulations where most programs had students perform case innovation in a competitive format. These approaches promote experiential learning, which in turn creates an opportunity for students to develop expert behaviour (Balasubramanian & Wilson, 2006).

Competitions and Challenges

Competitions and challenges were recurring practices through the cases and consisted of similar attributes. They ranged from business model creation, pitches, and money generation. These approaches were implemented to motivate and engage the students in their learning.

Company Projects and Internships

Company projects and internships addressed the issue of mismatch between the universities' traditional competencies and the ones required for EE (Potter, 2008). The solution was that this approach provided students with first-hand experience by allowing them to work and engage with real entrepreneurs and companies. This supposedly filled the gap of experience that cannot be provided to the student in an exclusive university setting and with the traditional teaching methods.

Supplementing Digital Technologies

A common theme through the cases was the application of digital technologies in class. The technologies were mostly used to conduct live pools and quizzes during lectures. Among them the most popular were Kahoot and Mentimeter. Additionally, some programs incorporated online courses into their curriculum, which relates to e-portfolio pedagogies. However, there was no proof found that technologies were used to create computer-simulated gamification, except for a gamified exam.

Business Plan Creation & Venture Creation

Business plan creation was adopted by all the cases and is considered by the previous researchers to be one of the most important variables in EE (Hills 1988; Hoing and Karlsson 2004; Hoing 2004). This teaching method was often connected to venture creation, which could be viewed as an activity as well as a program structure. The EE programs in this study fill the minimum requirement to be called venture creating programs, according to the Lackéus (2013) EE model. This implied that students got to carry out real-life business plan writing and were expected to organize the value creation in a venture during internships and company projects. Concluding, the programs allowed students the opportunity to create their own start-up through business plan creation. Meaning that they had courses where students could work on their own or others' ideas, from ideation to implementation. However, this was not always in a form of a mandatory practice. Some universities provide this activity as an elective.

Guest Lectures

Guest lectures were included by all the programs. The universities invited industry experts, VCs, and entrepreneurs to talk about their experiences and teach them about their profession. This can be viewed as a reversed study visit, where the individuals instead came into class to provide the students with motivation and insight.

Coaching and Incubators

Three out of five cases had an associated incubator with their university. These incubators were focused on new business development. The facilities provided interested students with coaching, acceleration programs, and courses on the subject of E. Some programs made use of the incubators' physical space and some worked closely with them through the courses. One example of how incubators were leveraged in the programs was that classes were moved to the more creative environment of an incubator, or that incubators collaborated with programs to provide co-founders and mentors for the students. Further, coaches and mentors were used by all the universities. They assisted students in their entrepreneurship endeavours by giving them insights and words of advice.

Concluding Remarks

The programs had many similarities in the context of teaching methods. Most of which were the themes mentioned above. However, some additional similarities were found from the themes. Firstly, all universities leveraged external actors and activities. For example, when they had students collaborating with 3rd parties such as companies, idea-providers, entrepreneurs, and different students from other universities. This type of cooperation frequently regarded internships and innovative company projects. Another common discovery was from three frequently occurring themes. These were venture creation, internships, and company visits. Which all relates to work-related-, active-, experiential-, and action- learning. According to Manimala & Thomas (2017), this could promote autonomous learners, meaning that students seek out knowledge on their own, instead of waiting to receive it.

5.3.2 Differences

Discovered differences both existed within and outside the mentioned themes mentioned above. Firstly, Chalmers was unique in how the program used partnership in their venture track. They made it a requirement for students to team up with idea providers in their venture creation project. The other universities did not follow the practice and seemed to focus less on the actualizing of a real company. Having the main goal of creating a real business was another

nuance of Chalmers. This involved a whole year dedicated to venture creation, which included the division of company shares and partnership with co-founders who had feasible tech ideas. Chalmers was, however, lacking in external activities in comparison to the other cases. The other four programs had study trips and company visits. This allowed students to visit famous E ecosystems and companies as part of their learning, which was much appreciated by the students. However, CBS differed in their approach for their study trips. Instead of having the school organizing the trip, they gave that responsibility to the students. That implied that it was the students who chose the country and contacted the companies and the individuals they wanted to meet. Other differences in how study trips were approached were that some programs limited themselves to lectures, while others included workshops or creation of case studies.

Continuing, another unique teaching aspect can be found at the private university of ESADE. Where most of their program faculty consists of real entrepreneurs, even the academic director himself is a serial entrepreneur. Unfortunately, this is might not be possible at other universities due to them having requirements of hiring a certain number of PhDs. The idea of having experienced entrepreneurs conducting the teaching appeared to be desired by students. They seemed to appreciate them more than pure academics.

Another special external activity provided by ESADE is their Rambla of Innovation, which is a street on campus containing multiple "labs" with different focuses, such as a prototyping lab (3D printers etc.), ideation lab, an experimental lab for innovation, new business lab, finance lab, and a lab for media creation. Some of these facilities are used in combination with electives to aid with teaching. An example of this is the course of rapid prototyping where the students had an opportunity to use of 3D printers and laser cutters. Even though ESADE did not have an incubator like some of the other programs, their labs and close relationship to the entrepreneurship ecosystem in Barcelona provided some of the same benefits of an incubator. Among them there were mentors, network, office space, and insights.

Next, Chalmers differed in how the program used simulations. An example of such simulations is that students played the role of a CEO of a biotech company for eight weeks. During this period, the students frequently faced CEO challenges. Additionally, Chalmers' introduction semester was designed as a simulation of venture creation, based on the foundation of real patents. Here, the groups got old patents that they had to develop into a theoretical business idea, including activities, such as negotiations and dragon-den presentations.

Furthermore, CBS showed a unique way of designing their assignments in a form of real-life project. The program incorporated a YouTube channel creation project for their growth course. Here, students created their own channel and content with the goal to make it grow. Another noticeable assignment or challenge was done by Chalmers and ESADE called the 'money challenge'. This took place at the start of the program and consisted of students getting a small amount of money that they would try to grow from one to eight weeks.

5.3.3 Innovativeness of The Practices in Teaching Methods

The literature states that innovative teaching methods in EE are about changing the format of teaching, to match the required level of creativity for effective learning (Volkmann & Audretsch, 2017). This definition was what the authors used to evaluate the innovativeness of teaching methods. They argue that many of the applied practices are not innovative. The reason being that most of them have been broadly used for decades, according to the literature (Manimala & Thomas, 2017). However, this might not be as bad as it sounds.

The programs adopted teaching practices that are more balanced towards learning-by-doing, which supposedly was the better approach for teaching entrepreneurship. Supposedly, the biggest innovation for EE observe in the study was the transformation from non-action-based learning to action-based learning. Some educational techniques that the authors would label as innovative, would be those that subjectively stretched far from academic theory towards reality. For example, ESADE having a faculty of entrepreneurs and Chalmers using extensive simulations and sustainable venture creation. These approaches could be considered creative ways to reach the educational objective of making students real entrepreneurs, by taking them closer to the entrepreneurship process where it is safe to fail and allow them to actually try. However, this was not the main goal of all programs and they might not implement the same practices.

Further, the result revealed that gamification has not reached the advanced and wide integration that the authors were expecting. The outlook was that digital technologies would be used to create games that created environments that incorporate the practical process of the respective subjects. However, the only findings were a gamified CEO exam and a CEO simulation, which the authors perceived as innovative formats due to their creative way of teaching.

Additionally, ESADE and CBS used online courses in their program, both for extending their offers and extend the reach. CBS used it to expand the range of courses offered in the program, while ESADE did it to make it possible for students to prepare with business knowledge pre-program-start. The authors consider the latter as an innovative practice, as it is a creative and effective way of addressing the issue of students lacking business backgrounds.

6 Discussion and Conclusion

This chapter presents lessons learned from the study, future perspectives of EE, practical proposals for EE actors, and suggestions for future research.

6.1 Discussion

The study examined 5 cases of postgraduate entrepreneurship programs offered by top-ranked European universities and business schools. The authors' main purpose was to reveal innovations and cutting-edge practices the HEIs apply in the context of the WHAT (what to teach) and HOW (how to teach) dimensions. As Volkmann and Audretsch (2017) note 'a one-size-fits-all EE approach does not prove to be fruitful and one's individual context always has to be considered in the establishment of an individual EE approach'. This section provides a view on what might be learned from the investigated cases as well as on where EE is going. The study insights might be of interest not only for those directly involved into EE, but also for broader groups, such as politicians, educators in general, entrepreneurs, and managers.

6.1.1 Lessons Learned

Practice-Oriented Programs Exist Within Theory-Oriented Context

Despite being designed entrepreneurially and adopting creative philosophy in structure and content, the programs still obey the rules of academia. This implies that students have to occasionally take rather formal exams, do non-practical assignments, write academic papers and later are graded and evaluated. Such system, the authors argue, prevents the programs from being fully entrepreneurial in the spirit of the word. It also puts a set of formal requirements on the students, making them focus on passing the exams more than on the learning process. There is certainly a contradiction between the nature of E and burdens of formal education system that the students are obliged to carry. However, this problem seems to be acknowledged by the programs management, resulting in more frequent use of project-based activities.

Different Target Groups Opt for Different Content

The study showed that going under the name of 'Entrepreneurship', programs attract students with extremely different backgrounds and needs. Not only do these different groups learn differently, they seem to pursue different career paths. Trying to address the issue, the programs tend to keep their content flexible and provide their students with an opportunity to tailor their curriculum. Track-based program design and elective courses seem to be the most popular way of addressing the issue. However, effectiveness of such approach is questionable. So far, there has been a clear division in corporate entrepreneurship and start-up entrepreneurship. The authors argue though, if such approach neglect other groups who might already have their own project or are planning to work in a specific industry.

E Programs Attempt Simulating Stages of Venture in Their Curriculum Design

Acknowledging importance of experience-based learning, the programs endeavor to design their curriculum so as to immerse their students into a simulation of real stages of venture. Such

approach is not new, and it seems like this way of project organization is a simple and clear approach to address the issue of effective curriculum design. As the education progresses, students are developing their projects starting from creating an idea and working their way up to launching products and growing the business. As the examples show, E programs found different ways to adapt their courses to such a structure. It is important that in the core of such approach, there is a project developing which student directly apply their knowledge. The study shows that although such simulation does work, it still does not provide the learners with the opportunity to make these projects profitable as most of them are fictional.

Plus-Zone Factor Makes E Programs Unique

Having examined the 5 European cases, the authors are assured that it is their unique geographical, national, cultural, human resources settings that allow programs to stand out. By adding program-specific content, or using unique teaching methods, the programs differentiate from similar offers in the market and provide their students with one-of-a-kind learning opportunity. Among the most common ways to perform such practice is leveraging local E ecosystem, integrate local companies and professionals into the education process. Besides, unique courses as well as extra-curricular activities, such as study trips and company projects help E programs market their education more precisely and find the right target audiences.

Environment Matters

Concerning what students and alumni said about their personal experiences, the authors consider significant to point out the importance of study environment and parties who create it. This became a recurrent theme in the interviews. According to students, the WHERE and WHO dimensions shaped and determined their learning experience. It was fellow students, professors, external actors, communication between them and networking opportunities that students appeared to pay a lot of attention to. Moreover, the settings such as local E ecosystem and business infrastructure were mentioned by the students as crucial elements of their studying experience perception.

Teaching Methods Remain the Most Innovative Dimension of EE

The case study showed that EE programs are innovating by balancing their education more towards action-based learning rather than traditional methods. It has become well known that learning-by-doing is essential for educating entrepreneurship students, thus it is one of the most innovative areas in EE. The authors believe that this is a trend that is most beneficial for E students and that it will have a good impact on entrepreneurs from the academic setting. However, one potential risk of this popularity could be that it will cause programs to develop action-based learning methods that add little or negative value. It is important for programs to understand the learning goal and develop the approaches accordingly.

Action-Based Learning Is the Key to Educating Real Entrepreneurs

It has been argued that action-based learning is the key to educating students to become real entrepreneurs. However, not all methods are equal. Some of the most valuable strategies are work-related and active learning. This is when E programs incorporate action-based learning by providing internships and real company-project to give students real-life experience and knowledge, which prepares them to be entrepreneurs themselves. Another aspect of this is a use of sustainable venture creation and developing a real-life business. The authors believe that a combination of these two methods would be most beneficial. For example, students could spend some time working for an entrepreneur or start-up before they proceed to found their own business. However, some schools are restricted to 1-year programs, and might therefore not

have time to do both. The suggestion would be to adapt the approach according to the goal of the education.

There Is a Need to Innovate In-Class Activities

As in-class activities are still necessary, E programs have started innovating these too, using simulation, challenges, gamification, and guest lectures. The challenges when applying these teaching methods are the costs and complexities to make it fit the education. Further, some of the programs mentioned the importance of environments where it is safe to fail to stimulate entrepreneurial mindsets, which is difficult to achieve in in-class activities but could still be attained with the correct teaching innovations. The authors believe that simulations and gamification will become the biggest trends in EE, due to the positive impact it can have on in-class activities.

Entrepreneurial Programs Actively Employ External Activities

A common theme through the cases was that the programs provided study trips abroad that allowed the students to get first-hand knowledge about the most famous E ecosystems. However, it is crucial that the trips are not only a selling point but that it also contains an educational purpose for the students. Some of the trips contained lectures from expert individuals while some also incorporated workshops or conduction of case studies. The latter two could hold more value for students because it relates to learning-by-doing. Which is supposed to be a more effective method of teaching. Thus, it is important to not forget that the content of a study trip can be improved upon even though it is a large activity in itself.

EE Facilitates Students' Autonomous Learning

Many of the used teaching methods promoted autonomous learning according to the literature. This means that the students seek out knowledge rather than waiting passively to receive it. Some of the teaching methods that are associated with this are venture creation, internships, and company projects. The authors believe this is to become an important aspect to include in an EE program as such methods allows students to reflect the process of being an entrepreneur.

6.1.2 Where EE in Higher Education Is Going

The revealed practices showed that EE in higher education is being innovated. E programs are looking for their best shape and are introducing more and more novel practices. Based on what was found, the authors identified several trends according to which EE in higher education is likely to continue to develop in the nearest future.

Considering overall picture of how HIEs structure and organize their programs, the university are trying to bridge the gap between EE and real entrepreneurship. EE now lies beyond the boundaries of universities and is likely to become more and more integrated into E ecosystem. External actors, such as companies, entrepreneurs, field professional, agencies, incubators and other possess the unique knowledge about what E is here and now. They need to share this knowledge and HEIs understand that, overcoming the ivory-tower mentality. Hands-on practical education is more and more prevailing the old theoretically oriented approach. In its core, more and more courses seem to become based on being aimed at learning-by-doing approach. Moreover, E programs are attracting more and more people with different backgrounds and different goals in their careers. Such heterogeneity puts a complex challenge of how to satisfy everyone to which HIEs answer with flexible and customized content. The

authors believe that the future of EE will set around more distinguished addressing of the needs of different target groups and will become more target-group-specific. And even though most of E programs in higher education exist within the boundaries of formal academic system, they are likely to be shifting away further and further from it. Finally, with the raising number of E programs, the competition in the EE market is raising as well. Recognizing it, E programs are bound to differentiate and create a competitive advantage through delivering truly unique learning experiences.

It seems like there has been major innovation from traditional teaching to action-based-learning in the last two decades. And it now seems like the field of EE is doing incremental improvements in this area. However, the authors believe that the next form of innovation will be of gamification and sustainable venture creation. Programs are focusing to improve their in-class activities with reality-based practices in contrast to lectures. Two of their approaches are to use simulations and gamification, where the latter is the hardest to achieve due to cost and complexity. Thus, there is a need for innovation. It appears that the programs in the study took an interest in this approach because they believed that it held great educational value. Some have even started implementing games in their education as simulations and exams. The authors believe this will become a larger trend once there are some successful examples of how it can be used. Additionally, the digital implication of gamification opens opportunities where schools could outsource educational games. It is even possible that they could sell their own developed games to other universities. This might result in a vast game library that could be included in many different areas of EE. Next, sustainable venture creation was only adopted by one of the programs in the study. As many of the cases were trying to simulate the reality of entrepreneurship, the authors believe that many programs will adopt this approach in the future. This, of course, depends on the objective of their education, where this approach is appropriate for students who desire to become venture creating entrepreneurs. Lastly, a challenge that needs to be overcome in this context, is how to fit the innovative teaching methods in the academic structure. If these are not overcome, EE might not be fit for venture creating entrepreneurs. However, the education for students that desire to work within a company or for entrepreneurs might be better fitted for academia.

6.2 Conclusion

6.2.1 Proposals for EE Actors

The authors offer a set of recommendations for those involved in university EE. From the conducted study it is proposed that E programs should:

1. be aware of their target audiences and make sure no group's needs end up unaddressed (this might be achieved through a special selection process, or through making the content have a narrow focus);
2. leverage external actors' involvement and bridge the gap between EE and E (doing real-life projects for real-life companies or participating in startup boot camps are among possible ways to go);
3. make EE a continuous process and provide their students with support in post-graduation period (students feel unsecure when finishing the programs, supporting them by providing office space, helping legally or financially might be a possible solution);

4. maintain their uniqueness and incorporate distinct features into their education. This way, they will become able to attract more specific target audience (this can be achieved by leveraging local environment or providing specific-industry-related programs);
5. be future-oriented and follow real-world trends, adopting new methods and actualizing their content constantly (asking students for feedback and invite people who are working with recent practices is the key);
6. adopt a learning-by-doing methodology as much as possible to educate real entrepreneurs (the amount of non-hands-on activities should be narrowed down to minimum);
7. address the lack of action-based learning in in-class teaching by adopting simulations, gamification, and competitions (point, badges, leaderboards seem like the way to go);
8. involve students in real-life entrepreneurship by using internships and real company projects (this should happen not only with small local businesses, but with big credible players);
9. use study trips abroad with company visits and guest lectures (VCs & entrepreneurs) to widen students' horizon and understanding of entrepreneurship (a number of students claimed it was the main highlight of their education);
10. incorporate real venture creation and make it become a larger part of the program, if the goal is to create real entrepreneurs (letting students work on their own real-life projects is key).

6.2.2 Future Research

Although the study revealed a number of practices and approaches that are used in delivering entrepreneurship programs, some questions within and outside the WHAT and HOW dimensions remained unanswered. Moreover, the study posed new questions that need to be answered in order to formulate more specific principles for delivering effective EE.

Even though all cases investigated in the study proved to be unique both in terms of content and structure, they all focused on education about, for, and through E from a general perspective. However, one of the programs used specificity of the university (Chalmers University of Technology) as a basis for providing EE in particular market (fintech, biotech etc). Thus, the question arises if there should be different E programs dedicated to specific markets (e.g. entrepreneurship in e-commerce, entrepreneurship in the tech sector, entrepreneurship in agriculture etc).

It appeared that investigated E programs rely dramatically on the target groups. Thus, the question of 'who the study groups might be?' should be given thorough attention to. Topics like 'how E programs select their students' and 'who should study E in the first place' need to be expanded on, in order to improve the quality of EE. The study also revealed that there are two distinct groups of students, whose needs and preferences differ dramatically. The first consists of individuals who want to start their own company, and the second unites those aspired for a career in corporate E. It was found that the current approach of E programs to deal with the issue is to create different tracks of study and vary mandatory content according to the groups' needs. However, it is unclear if such method is efficient and the authors put a further question of should not these two groups study E differently, and thus separately?

Teacher figure remains among the most important issues of education, according to the students. It was instructors who students related to when asked to give examples of what

facilitated their learning experience. Thus, the WHO dimension should be further investigated from the perspective of who should teach E?

There was a lot of appreciation showed by students towards launching a real-world venture and learning through making it profitable during their program as opposed to learning through developing fictional projects. Thus, another question for future research is how such activity could be embedded into EE?

Finally, the authors barely encountered any use of technologies in classrooms. Such educational formats as VR, AR, online simulations, and other e-learning activities seem to have yet been adopted by the programs. However, most programs coordinators related to the tool as something they are planning to introduce. Thus, future research is needed to exemplify how such technologies could be embedded into educational process by E programs.

6.2.3 Concluding Remarks

EE is developing. More and more E programs are providing education for thousands of students worldwide. European HEIs are now focusing on delivering hands-on, practical EE so as to enable their students to start ventures after graduation. All of them are doing it differently, which is determined by unique context their programs exist in. The trends remain the same: experiential and learning-by doing approaches are among the most popular methods of EE. However, having recognized the importance of bridging the gap between EE and real-life entrepreneurship, HEIs seem to be abandoning the ivory-tower mentality. They actively use extra-curricular activities, such as company visits, trips, internships to get their students aware of what it is really like to be entrepreneurs. HEIs are thriving to create a simulation of learning environment as similar to real life as possible. Actively involving external actors in co-creating educational content and co-educating their students, E programs are aiming at become an integral part of E ecosystem.

7 Appendix

The Interview Guide

Purpose

The purpose of the semi-structured interview guide is to uncover how HEIs designed their entrepreneurship programs.

Design

The interview guide was developed to fit the general population of the samples. It means that the same questions were used for all respondents, including students, alumni, professors, and academic directors. However, some questions were spontaneous and are not displayed in the interview guide. They were used to follow up on the answers provided by the interviewees, for going deeper into aspects relevant to the study.

Sections of the interview guide	**Specific topics to be covered on**
Introduction	• Introductory questions • Background of the interviewees
What (Curriculum design approaches)	• Customization (electives-mandatory) • Theory-practice balance • Disciplines fusion • Module structure
How (Teaching methods)	*In-class activities* • Gamification, competition • E-learning • In-class formats (experiential learning, real-life simulations, workshops) • Use of technologies (VR, AR, 3D printing, blockchain, crafts, AI, ML) *Out of class activities* • Homework • Project work • Extra activities (fairs, sprints, exhibitions, bootcamps, hackathons, company visits) • Internships
Other activities	• Formats of testing • Incubators • Financial Aid Programs • Community assistance
Outro	• Personal experiences and attitudes

Part 1. Intro (background)

Task: make the interviewees feel comfortable and have them describe their backstory. Start by introducing the purpose of the study.

- What have you studied previously?
- Was that in a different country?
- How did you get into entrepreneurship? What was your motivation?
- What drew your attention in particular in this program?
- What do you think constitutes a good entrepreneurship program? What of this does your program have and what does it lack?

Part 2. What (curriculum design and content)

Task: get the respondents to speak about the curriculum structure of their program.

- Could you explain how your program is structured?
- Name three main things your program is supposed to teach you (content).
- Do you think your program is based on traditional courses or are they in any way different? Compared to your previous experience?
- Do you think the courses combine different fields and expertise?
- Describe practice-theory balance in your program? Do you wish it'd be more practical?
- Do you think there are any other unusualities in your program's curriculum that you'd mention?

Part 3. How (teaching methods and pedagogies)

Task: get them to speak about the pedagogies and activities they have in the program

In-class activities

- How is the knowledge delivered?
- How do you use technologies in your classes?
- How do you learn from experience?
- How do you gamify your education?
- How do you use e-learning?
- What in-class formats do you use apart from lectures and seminars?

Out of class activities

- What extra activities do you have?
- What types of project work do you have during your program?
- How is your homework set?
- How do you apply your knowledge in practice whilst studying?

Part 4. Other activities

Task: get them to provide details on other activities outside the WHAT and HOW dimensions

- What sorts of exams do you have?
- How does your work get evaluated?
- How does your university help you create and run your business after your graduation?

- How do university incubators/accelerators/boot camps work?
- Is there any other noticeable activity that you can take part in that we haven't mentioned?

Part 5. Outro

Task: get respondents to express how they feel about their program, including what they think is great and what could be improved.

- Can you name three things you learned from the program?
- What are you most happy about when it comes to your program?
- Is there anything that you are unsatisfied with regarding your program?
- What would you change about the program?

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