# University of Glasgow

## College of Social Sciences

An Investigation of Entrepreneurship Education in Higher Education in Scotland: what is offered and how does it match the experiences and expectations of lecturers and students.

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*Abstract*

Entrepreneurship is a concept with ancient origins that developed through Economics and Business in the modern world. Entrepreneurship Education was conceived within the last century and over the last decades has transformed Entrepreneurship from a process into a journey and a mindset with wide applications.

Starting with the intention to find out how Entrepreneurship Education helps students on the practical levels of how to survive into a new venture and start a business, the literature took me into a journey through definitions, models and existing research, showing that my research had to focus on a level of programmes' structure and university aims and purposes, seen through students' experiences and intentions.

By creating a map of all the Entrepreneurship courses and modules within the Scottish higher education institutions, along with their aims and intentions, I used interviews as qualitative data to examine their common grounds with students and identify potential aspects that are defined differently by each side, as well as the repertory grid to gather additional data from the students.

The discussion covered multiple aspects from the view of the universities, the lecturers, and the students. It seems that the aim of the universities is mostly to develop Entrepreneurship as a mindset, not necessarily to create new Entrepreneurs. The lecturers do not always need to be informed about the university aims and that the wider the recruitment conditions are, the more simplified the programmes tend to be. Entrepreneurship though becomes gradually a field of knowledge and a mindset that can adapt within other fields.

The circumstances of each student seem to determine their future plans, but it also seems that there are ideas that were inspired during their studies and plans of action to support their development in new ventures. When choosing modules though sometimes the content is not what they would expect based on the title and a level of overlapping was identified. The students were expecting a higher level of advanced knowledge within their programmes and would want them to be more focused and more specific. The attempt to participate in new ventures fast seems more complicated than initially thought and market experience through employment seems like a preferable first step for most. It is common that the students

perceived mostly skills improvement overall with only a few cases that demonstrated negative impact on skills related to the appreciation of entrepreneurship qualities and readiness.

This research brings together what the Scottish HEIs offer in regard to Entrepreneurship and identifies their stance across the provisions on Entrepreneurship Education. Contrasting with the views of the students it shows ways for potential improvements to match the needs of the market of Entrepreneurship Education in higher education, showing also potential weak points and aspects that they could focus on.

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**Author's declaration**

I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

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# 1 Introduction & Rationale

## 1.1 Background to topic choice

As an entrepreneur who has set up and is successfully developing my own business, I have developed an interest in how individuals choose to set up in business and take entrepreneurial actions to do so. This led to my decision to carry out an in-depth study of entrepreneurship in higher education which has in turn been influenced by several aspects of my personal background and of my life so far. Two major influences have been my family background and my higher education which has included academic study of entrepreneurship at master's level. Both of these influences have contributed to my aspirations to set up my own business. In this regard, I would consider myself to possess some degree of "*entrepreneurial capital*" as outlined by Firkin (2003) and which will be examined in Chapter 2 below.

### 1.1.1 Family and personal background

I grew up in a family in which business was the way to make a living. My father is an entrepreneur having worked most of his life in a specific industry that he has set up, always trying to find what could differentiate him from the competition and how he could attract interest. He was also trying to find new ideas and ways to start new ventures in other industries. Every time that he was recognising an opportunity, he was searching for more information to check if it could be viable. Being different was his passion, but as I perceived it, he could only have limited results within narrow constraints of his own specialized education. His younger brother followed the same direction; in the industry of office supplies and equipment too, with interesting results in the stock market and real estate too. Thus, many attributes and practical aspects of entrepreneurship were visible to me from an early age.

Growing up in an entrepreneurial environment like that made me continually ask "why". I was always asking them about everything, as I really had the need to know why they were following their way into things. Why people were reacting in specific ways under a range of different options, why they talk differently in various situations, and every possible aspect of their behaviour in the social environment. I was full of curiosity and pressing inquisitiveness. When

I grew enough to be able to recognise what is right and wrong and developed a perception on analysing information, I was asked to have opinions on aspects of the family businesses. Both my father and my uncle were telling me about possible choices, different options that they had, and things that could affect the results in every case. I am not sure if my opinion really mattered, but I realise now that it was not only about my training but also probably a good way for them too to reflect and think through all the aspects of something again and again.

A few years later, as part of my studies in Economics, I had to attend an Entrepreneurship class. It sounded really interesting and I was eager to discover what this class could offer. By the end of that semester I had found myself with loads of information about new ventures, big start-ups and case studies about companies and situations that they were managing to go through. I also had new connections with big local companies and information from their directors on how they had started and their processes along the way; and of course, if and why they should be considered, or could consider themselves, as Entrepreneurs. As this was just a module in a curriculum of 53 modules, the students were not there only for this one module. They had chosen to study Economics after all, anything Entrepreneurial was interesting only for some of them and their interest was closely influenced by the way in which the lecturer taught the class. Instead of acquiring skills or relevant information on how they could act in an Entrepreneurial way, the lecturer was presenting entrepreneurship as a subject for study and research. Not all the students were there to become researchers in the future, and even the ones that had a serious interest to start new ventures after or along with their studies, found no support in it. In addition to that we were hearing about terms such as "a good business plan" but no one ever taught us anything that specific to benefit from the module on entrepreneurship.

On my master's degree I have come across similar situations again. Courses with titles such as *New Venture Creation*, *Business Planning and Development*, *Business Abroad*, *Business Management* were supposed to transfer knowledge and skills to a class of 43 students. Many of them were good and interesting courses but through my point of view they were still presented through a theoretical perspective. I understand today that it was a purely academic view of the world of business and entrepreneurship.

## 1.1.2 Starting a new venture

In February 2012 I started a business plan with the intention of starting my own company. I did everything according to what I had learned in my university studies. I created the business plan according to the way that I had been taught in courses and programmes from my master's studies. I met with experts in government organizations set up to guide entrepreneurs with business start-ups. I started my journey of going from theory to practice. I had an advisor from a governmental business support organisation who helped me on completing the business plan and I made extensive use of the meetings with them and their advice. My business partner and I were embarking on a start-up that initially had to do entirely and solely with a business plan and its related aspects, without thoughts about the practical aspects that we would come across and had to deal with.

After an 80 pages business plan, five loan applications and four revised versions, I finally ended up with presenting a business plan that we learned along the way should not be more than 20 pages. I only needed as much information as a busy decision maker could read. The business was officially registered in October 2012, the eShop went online in March 2013 and it was in May 2013 that we did our first sale. That was when we started realizing what all this was about. We had lost ourselves into the structure of the business plan, financial forecasts, spreadsheets and chattering to financial institutions to acquire vital loans, but we had done nothing yet to find a single customer. We did not have any actual experience to depend on and we were so excited for this venture that we had spent most of our time writing, presenting and organizing things, doing things in the academic way that we were used to and had learned about.

A few months later, and after lots of effort and a considerable amount of wasted funds, we realized that if we had known a few more things on a practical level and had some experience in the local market, we could have started the same business in a shorter period of time, with considerably less expenditure of funds. That was when I really questioned myself on what all these university classes had been about, and if it was my fault if I was not paying enough attention. What had I learned that could really have helped me on my decisions and my start-up; which parts of it had paid off for me, so that I could have had an easier transition to the real world. There were case studies that were based on experience of multinational level managers, statistics about SMEs, cases between big companies, and management tools to analyse the internal and external environment of a company. I realized a long way into the start-up process that I was alone, with no actual practical experience, I was not ready to start

a business of this level and if I needed help, I should find it from other sources. The university did not help me on the skills I mostly needed. But I did learn how to do research, to cooperate, to react and how to find my way through scarcity of time and resources. Things that were not directly relevant in the beginning but were still very important to go through and survive.

### 1.1.3 Return to research

This whole procedure brought me to considering the 'thinking' aspects of the entrepreneurship process as well as the need for 'practical' aspects. When I started getting some practical experience and used some of my time to reflect, about two years after starting with the creation of my first real business plan, it seemed interesting for me if I could have the opportunity to find out how entrepreneurial programmes in universities are organized. How do they choose their curriculum and what qualities do they intend to transfer to students. I was not sure if my classmates had felt the same. However, only a few of them today have followed the same path as I have done and actually set up a functioning business.

I was wondering if there is a specific skill set that the universities want their students to acquire, or if they just want their students to get fundamental knowledge, and just to show them that there is a potential whole new world for them, but they have to go alone because that is the only way. I had the inner feeling that after all these years in economics and management education, with entrepreneurship and other related courses I should have had better support and better knowledge on what I would come across when going into a start-up. I was feeling so alone in this new world for me that all the secondary experience from my family and all the information I could get were not enough. So, I started thinking on how this could possibly change for students and potentially improve. I felt that I had to investigate the intentions of universities offering entrepreneurship programmes and courses and attempt to compare them with the actual needs of the students who attend them.

I therefore wanted to investigate how effectively these programmes and courses provided support for students that were considering or had started new ventures, if the students in general intend to do so when attending an Entrepreneurship course, and if it was just a personal issue that I was considering myself unlucky on this process, or if I just did not follow a process that was there for me if I could have found it and that I should have followed.

Three years after finishing my masters and while having my business I started seeking to continue to a PhD. I understood through my contacts in the university and through online sources that the master's programme that I had studied was already going through changes in structure, in the recruitment process and in the opportunities and support provided for the newer groups of students. This made me realise that all of the programmes and the universities are constantly evolving and developing further. That made my intentions to continue to a PhD stronger, my intended topic even more interesting for me, and created a stronger personal need for answers to my questions. Being able to continue into research would mean that I could do something that would potentially help other people. Up to a certain point it would be to my own benefit, as a parallel research with my work, to understand why things happened for me in the way that they did. It wouldn't likely be useful in my personal practical Entrepreneurial development, having moved beyond the start-up stage but would develop myself as an academic. I felt though that this research could be likely to achieve a degree of impact and be useful for others that intended to follow a similar path. Overall, I was interested to speak to lecturers and students participating in a programme to find out if they were experiencing the same kind of dealings with the programmes that I was. To identify possible same or similar responses through their experience and to discover if the lecturers' intentions, aims and purposes are similar. If universities' commitment to Entrepreneurship education had shifted, if the lecturers had been able to update their outlook, if students feel the same levels of support, if there have been any changes to the level of support that the students have been experiencing, or if there are other issues that students might identify. Relating this to literature and research in this area of study I found literature which will be referred to in the literature chapter, which indicates that research has been done on the transferability of skills in Entrepreneurship Education and which informed my decisions about conducting my own research. This contributed to my interest and to the development of the focus of my research.

My research questions therefore turned out to be around firstly what was on offer in Scottish Universities and the design motivations and intentions of programme organisers, secondly if the lecturers are up to date, if they act in line with existing universities' guidelines, and the level of independence they have, and thirdly an investigation of the intentions and expectations of students embarking on courses. I hoped that these three research approaches would leave me in a position to compare the intentions of the providers with the experiences of the participants to investigate any areas of agreement or mismatches in requirements.

### 1.1.4 The structure of the thesis

On completion, the thesis comprises six chapters within a structure that was devised as the research developed. This Chapter One sets out my ideas at the start of the thesis journey, my background experiences and study experiences that combined to decide on the topic for my research. Chapter Two contains my examination of literature that informed my thinking and supported my ideas about a research topic. I needed to inform myself of background writing about entrepreneurship, its development and its relationship to academic study. I also wished to discover what kind of research had already been done on entrepreneurship and higher education and what kind of topics had already been explored. This helped me to refine my research questions. Having decided on the questions to be examined in my research I went on in Chapter 3 to decide on research strategies that could be my methodology. I had to consider the kind of researcher I felt myself to be and the practicalities of different strategies for my situation. After conducting my research and collecting data, I set it out in Chapter 4 as my findings and began to consider how I might organise and analyse the data to prepare for answering my research questions. I was therefore ready by Chapter 5 to discuss the data in its organised form and examine the themes that emerged from both parts of my data gathering. I could then discuss in this Chapter the important issues that could be used to answer my research questions. My conclusions are presented in Chapter 6. As the final chapter of my thesis, it contains reflections on the processes and outcomes to the research that I had undertaken with regards to my topic and research questions. It was also an opportunity to consider the impact on me, both personally and professionally, of my involvement with doctoral level research.

# 2  Literature Review

*There is an ongoing debate in the entrepreneurship academy about whether we can actually teach students to be entrepreneurs* (Fiet, 2001b; pp. 1).

This debate and the evaluation of this case are already old in literature (e.g., (Gibb, 1987). Miller (1987) separated the teachable aspects of entrepreneurship, believing that educators can provide the analytical techniques required to set-up a new business and their limitations.

For Schumpeter (1912) entrepreneurs adapt to the changing demands and offer a constant process of innovation to the society. They function as an evolutionary force by adapting their businesses to meet societal changes (Giunipero et al., 2005). Academically educated entrepreneurs are more often innovative and more important in developing regional economies (Pajarinen et al., 2006), as they use high-level skills in starting and growing new ventures (Minniti and Lévesque, 2008).

## 2.1  Entrepreneurs and Entrepreneurship

Before examining Entrepreneurship within education, we must know what Entrepreneurship is and what it means to be an Entrepreneur and act Entrepreneurially. The aim is to investigate the extent of the meaning of these concepts in order to understand their position and their effects within Education.

### 2.1.1  The attributes of an Entrepreneur

There is a wide perspective and understanding of what it means to be an Entrepreneur and what are the features that an Entrepreneur should possess. These features reflect positions about Entrepreneurship in general. The attributes of a successful entrepreneur can be applied even in ventures outside their specific areas of knowledge (Suomala et al., 2006). According to Wickham (2006) entrepreneurs should be innovative, creative and risk-taking individuals, seeking change. They are growth-oriented in a process of creative destruction (Barringer and Bluedorn, 1999). Opportunity identification (Gaglio and Katz, 2001), self-trust -even

overestimated- (Simon et al., 2000), persuasiveness and ability to inspire (Peters and Matlay, 2005), handling uncertainty (Zimmerer and Scarborough, 2005), willingness to take calculated risks, making decisions with limited information (Denslow and Giunipero, 2003) and need for achievement and innovativeness, are traits that are considerably stronger in entrepreneurs (Dinis et al., 2013). Lazear (2005) has shown that individuals with balanced and wide skillsets are more likely to become entrepreneurs. General education also relates to several entrepreneurial success measures (Dickson et al., 2008).

It is questionable if psychologically oriented skills could be acquired through education. There are views for skills that cannot be learnt (Lambing and Kuehl, 2000) as they are related to advantages people are born with (e.g., testosterone levels - biological factor) (White et al., 2006). However, there is sufficient evidence that entrepreneurial skills can be taught (Henry et al., 2003, Henry et al., 2005a, Henry et al., 2005b, Collins et al., 2006). The interest on this research is on the entrepreneurial skills that can be taught, while understanding which of these cannot, or need another way of teaching and cannot be transferred with the current teaching methods. An Entrepreneur can have all the above attributes, or even considered an Entrepreneur when possessing only a few of them. This is still within the research frame, as Entrepreneurship applies to different situations and thus, Entrepreneurs are multidimensional individuals. This is also the focus of my research.

### 2.1.2 The evolution of definitions of Entrepreneur and Entrepreneurship

There are several different definitions of Entrepreneurship, a word with a meaning that evolved over time. The various points of view deal with the nature, the behaviour, the value and the position of the Entrepreneur within society and the economic environment. The fact that there are so many definitions is challenging and interesting and shows how diverged can be the viewpoints for a single term. This leads to a wider academic understanding of how higher education can help people to become Entrepreneurs.

In order to investigate Entrepreneurship education, the term Entrepreneur and Entrepreneurship should be examined. The term entrepreneur emanates from the French word "entreprendre", which means "to undertake". When it is being used in a business context, it means to start a business venture. According to the Merriam-Webster dictionary entrepreneur is the one who organises, assumes and manages the risks of a business or enterprise, willing to take risks to achieve financial returns. The Business Dictionary defines entrepreneurship as the

capacity and willingness to develop, organize and manage a business venture along with any of its risks in order to achieve profit. The most obvious example of entrepreneurship is the starting of new businesses. In economics, entrepreneurship combined with land, labour, natural resources and capital can produce profit. Entrepreneurial spirit is characterized by innovation and risk-taking and is an essential part of a nation's ability to succeed in an ever changing and increasingly competitive global marketplace. The term was first coined in French by Cantillon (1755), meaning the person who undertakes to do a job, insuring workers by buying their labour services for resale before any indication of the value of demand, therefore specialising in taking on risk. Van Praag (1999) supported that Richard Cantillon first acknowledged the entrepreneur as a key economic factor (*Essai sur la mature du commerce en general*, 1755) (Iversen et al., 2007).

The term entrepreneur has evolved over time, in terms of its meaning, role in society, as well as the qualities that an Entrepreneur should possess. Some definitions are presented below in relation to changing frameworks of Economic thought.

It is only in the last century that there has been a systematic treatment of Entrepreneurship. Prior to that Entrepreneurial ideas emerged in Literature. For example, Karayiannis (1992) explains that authors on social matters in ancient Greek literature recognised elements, which distinguished the role of the entrepreneur from that of the ordinary labourer. In a market process which is different than the modern one, entrepreneurship was not motivated by the modern capitalistic spirit. Entrepreneurial activity was limited not only by the state interference in economic life but also by the philosophical and ethical limits imposed on it. The acquisition of wealth according to the Greek philosophers was regarded as the least desirable objective of free citizens, despite its importance in everyday life. The insatiable desire for wealth was condemned as a cause of unfairness, injustice and unequal distribution of wealth; situations that contained the potential of a class struggle in the city. Entrepreneurs should not aim at maximum but only at moderate profits, as the actions of individuals should not concentrate only on economic matters. Profit-seeking activities of individuals were judged in terms of their social acceptability and fairness. On the other hand, the ideas held by the Greek philosophers (particularly Xenophon and the orators) on the subject of entrepreneurship are still valid today; so are those related to management, the assumption of risk and the search for the most profitable investment of assets (Karayiannis, 1992). Later, in the middle ages, the entrepreneur is still seen as a knowledgeable individual, instrumental in the development of a city-state, through the creation of enterprises (Spengler, 1964).

The entrepreneur was determined responsible by the pre-Classicals for all the circulation in the economy and the individual - an arbitrageur - that brings into balance supply and demand in the economy, bearing risk (Cantillon, 1755). In opposition with the wageworkers and landowners who receive a certain income, the entrepreneur exploits the difference between a certain cost price and an unknown selling price (Hébert and Link, 1988). The balance between demand and supply was also used by Adam Smith (1776), who defined the entrepreneur as the person who consists an agent in transforming demand into supply, creating the foundation of the classical point of view. The entrepreneur of Say (1803) was the main agent of production in the economy who allocates resources to areas of higher productivity, providing a different interpretation of the entrepreneurial function, with the Entrepreneur in the role of the manager of a firm, putting good judgement first and leaving aside the risk-bearing role (Hébert and Link, 1988). The profits, according to Say, were not because of the risk-bearing, but a result of a scarce type of labour. Later on, the Entrepreneur became the fourth factor of production, after land, labour and capital, as the person that is chiefly responsible in the private enterprise (Mill, 1848). In the neoclassical school, Menger (1871), supported that the entrepreneur is the factor who transforms resources into products and services, giving added value to the output. Alfred Marshall, an early neo-classical economist, in a similar way described the entrepreneur that seeks opportunities to minimise costs (Marshall, 1890), thus moving the production possibility frontier through innovation and evolutionary entrepreneurship development. In Marshall's theory the entrepreneur is something more than an input factor or an optimizing agent as in the earliest theories.

This period brought also the Chicago School of Economics, by recognising the distinction between risk and uncertainty (Knight, 1921). Knight supported that the main operation of the entrepreneur is to exercise judgement over unique situations and assume the related uncertainty, shielding the other stakeholders as an insurance agent, bearing responsible control and thus claiming profit as compensation. In the 20th century, Joseph Aloysius Schumpeter (1934), described the entrepreneur as the epicentre and the vital force of the economy, carrying out change and economic development through innovations and "creative destruction", moving the economy away from equilibrium. Building on Schumpeter's work Knight further developed his theory in 1942, adapting innovation into his theory too, and arguing that entrepreneurs receive profits as owners and residual claimants. The entrepreneur initiates useful changes or innovations, adapts to changes in the economic environment and either uncertainty arises by the very innovations or as an exogenous factor, the entrepreneur assumes

the consequences of uncertainty related to the company (Knight, 1942). While Knight moves beyond what is typically part of a neo-classical theory of business owners by emphasizing that the entrepreneur is more than a passive optimizing agent, the Schumpeterian theory is much more difficult to reconcile with the neo-classical paradigm. In the Schumpeterian theory, the entrepreneur moves the economy out of the static equilibrium, changing the production function, that increases output using the same amounts of input. Schumpeter in 1942 analysed his position in more depth, stating that the entrepreneur does not necessarily invents or generally creates the field of action of the enterprise, as the routine of the entrepreneur mostly includes non-entrepreneurial functions. The purpose of the entrepreneurial function is to get things done (Schumpeter, 1976). In 1949 Schumpeter opposed the view of the entrepreneur as a manager and a risk bearer and argued that the innovator-entrepreneur carries out the creation of new goods and qualities, the creation of new production methods, opens new markets, captures new sources of supply, or creates a whole new organisation or industry. The entrepreneur identifies new combinations, not necessarily by inventing them, and reacts on how they can be applied in production. This deducts that a business owner could also not be an entrepreneur (Schumpeter, 1949). Schumpeter (1965) defined entrepreneurs as individuals who exploit market opportunity through technical and/or organizational innovation.

### 2.1.3 Modern definitions of being an Entrepreneur

In the period after World War II, the point of view for the entrepreneur does not necessarily follow Economics. McClelland (1951), an American psychologist, presented the entrepreneur as a person with high need for achievement, which is the base and the driving force of entrepreneurship.

While mainstream economics focus increasingly on equilibrium analysis on this period, often in neo-classical frameworks inspired by Walras' static general equilibrium model, it is difficult to reconcile this model with most of the early theories of entrepreneurship and leaves only little room for Schumpeterian entrepreneurs (e.g., Baumol, 1968). Thus, the main contributions to entrepreneurship theory continue to be developed outside a standard neo-classical framework. Some of the most distinguished are Kirzner and Schultz who argue that entrepreneurs deal with situations where the economy is constantly in disequilibrium, and constantly converges to equilibrium. So, the Entrepreneur is an equilibrating agent. The Entrepreneur of Kirzner (1973) is an arbitrageur who discovers new market opportunities and his key characteristic is alertness. Kirzner criticizes neo-classical economics arguing that the economy is in a constant state of

disequilibrium due to the shocks constantly hitting the economy. As the economic agents do not have knowledge of all the additional information available, the economy cannot be in equilibrium. On this theory, the alert entrepreneur discovers and exploits new business opportunities, partially eliminating utter ignorance and moving the economy towards equilibrium, but not in equilibrium, as this is the theoretical state where no more information can be discovered.

Schultz (1975), who engages the Chicago school approach in economics, also argues that entrepreneurship is the ability to deal with situations of disequilibria, where agents are not acting optimally, reallocating their resources efficiently to achieve a higher level of satisfaction. Contrary to Kirzner, Schultz argues that, in disequilibrium, the reallocating process requires time and better allocation can be achieved either by experimenting (trial and error) or by investing in human capital. Schultz argues that entrepreneurship exists in all aspects of life, and even housewives and students are entrepreneurs when reallocating their time for housework or student activities (Schultz, 1975).

Until this point in time entrepreneurship was a part of economics, as business was a part of economics too and there were no lines to divide these terms. From the late '70s, these lines become clearer and business starts to differentiate from economics and carries away entrepreneurship along with other fields of knowledge.

## 2.1.4 Entrepreneurship in Business

The latest approaches to a definition on Entrepreneurship and the Entrepreneur come from researchers that specialise in Entrepreneurship. Entrepreneurship is lately within the field of Business, not in Economics, with all the Entrepreneurship courses and most of the Entrepreneurship classes appearing in Business schools. Entrepreneurship seems to have achieved lately a differentiation from Business too, becoming gradually a whole separate subject.

Over the last decades, opportunity becomes a usual element on the definitions of Entrepreneurship. Stevenson (1983), supported that:

> *Entrepreneurship is the process by which individuals pursue opportunities without regard to the resources they currently control. (Stevenson, 1983; pp.3)*

Timmons et al. (1994), focused on creation and the search for opportunities combined with a willingness to follow up even in the face of limited resources. A bit later, in 1997 entrepreneurship was seen as evolving new and innovative activities focused on creating value and growth, and in response to perceived business opportunities (Oviatt and McDougall, 1997). Shane and Venkataraman (2000) state that entrepreneurship involves the association of two phenomena: the presence of lucrative opportunities and the presence of enterprising individuals. This is a theory inspired by the Kirznerian entrepreneurial discovery process, emphasizing that the new information in the discovery of business opportunities need also prior information to be combined and complement with. This is close to Schultz's theory, who argues that human capital is an important determining factor of entrepreneurial ability. More general theories also appeared supporting that entrepreneurship is simply defined in general as the creation of new firms (Lee and Peterson, 2000).

Casson (1982) attempts to contain the definitions of Schumpeter and Knight, arguing that entrepreneurs are individuals who specialize in decision making. While it is true that both the Knightian and the Schumpeterian entrepreneurs are decision makers, according to their theories many decision makers are not entrepreneurs.

Shane (2003; pp. 4) showed the most complicated nature of Entrepreneurship, saying that:

> *Entrepreneurship is an activity that involves the discovery, evaluation, and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, processes, and new materials through organizing efforts that previously had not existed.* Shane (2003; pp. 4)

Cunningham and Lischeron (1991) categorized Entrepreneurship research activity within six schools of thought, each of which can be categorized as different base interests. The Great Person School of Entrepreneurship, and the Psychological Characteristics School of Entrepreneurship are assessing personal qualities. The Classical School of Entrepreneurship is about recognizing opportunities. The Management School of Entrepreneurship and the Leadership School of Entrepreneurship are referring to acting and managing a business. Finally, the Intrapreneurship School of Entrepreneurship is about reassessing the position of a business and adapting in new situations. Different entrepreneurial situations of start-up, growth, and maturity of a venture may require different behaviours or skills, based on the different schools of thought (Table 1).

*Table 1 - Summary of approaches for describing Entrepreneurship (Cunningham and Lischeron, 1991)*

| Entrepreneurial Model | Central Focus or Purpose | Assumption | Behaviors and Skills | Situation |
|---|---|---|---|---|
| "Great Person" School | The entrepreneur has an intuitive ability - a sixth sense - and traits and instincts he/she is born with | Without this "inborn" intuition, the individual would be like the rest of us mortals who "lack what it takes". | Intuition, vigour, energy, persistence, and self-esteem. | Start-up |
| Psychological Characteristics School | Entrepreneurs have unique values, attitudes and needs which drive them | People behave in accordance with their values; behaviour results from attempts to satisfy needs. | Personal values, risk-taking, need for achievement, and others. | Start-up |
| Classical School | The central characteristic of entrepreneurial behaviour is innovation | The critical aspect of entrepreneurship is in the process of doing rather than owning. | Innovation, creativity, and discovery | Start-up and early growth |
| Management School | Entrepreneurs are organisers of an economic venture; they are people who organise, own, manage, and assume the risk. | Entrepreneurs can be developed or trained in the technical functions of management. | Production planning, people organising, capitalisation, and budgeting | Early growth and maturity |
| Leadership School | Entrepreneurs are leaders of people; they have the ability to adapt their style to the needs of people. | An entrepreneur cannot accomplish his/her goals alone but depends on others. | Motivating, directing, and leading. | Early growth and maturity |
| Intrapreneurship School | Entrepreneurial skills can be useful in complex organisations; intrapreneurship is the development of independent units to create, market, and expand services. | Organisations need to adapt to survive; entrepreneurial activity leads to organisational building and entrepreneurs becoming managers. | Alertness to opportunities, maximising decisions. | Maturity and change |

Selection of the appropriate basis for defining and understanding the entrepreneurial person creates a challenging problem for academic researchers and writers though. The field of research has been described as young, at a formative stage, and still in its infancy (Paulin et al., 1982, Perryman, 1982, Peterson and Horvath, 1982, Kent et al., 1982). There is generally no accepted definition or model of what the entrepreneur is or does (Churchill and Lewis, 1986). In the past decade, a number of trends have emerged which distinguish between individual entrepreneurship and corporate entrepreneurship (Wortman Jr, 1987). and entrepreneurs and small business owners (Carland et al., 1984).

The literature abounds with criteria ranging from creativity and innovation to personal traits such as appearance and style, with each author describing a different model of the entrepreneurial leader. The term Entrepreneur has often been applied to the founder of a new business, or a person who started a new business where there was none before (Gartner, 1985). In this view, anyone who inherits or buys an existing enterprise, or manages a turnaround as an employee, is not an entrepreneur. With the definition that the term applies only to the creative activity of the innovator (Schumpeter, 1934), the majority of those pursuing entrepreneurial and business activities would be excluded. Others though refer to the identification and exploitation of an opportunity as entrepreneurial (Ang et al., 1985). Those who develop a niche in the market or develop a strategy to satisfy some need are also called entrepreneurs (Garfield, 1986).

There are several schools of thought, which view the notion of entrepreneurship from fundamentally different perspectives. The term has been used to define a wide range of activities such as creation, founding, adapting, and managing a venture. No single discipline provides the tools for managing an entrepreneurial venture (Stevenson and Sahlman, 1988). With such a variation in viewpoints, it is not surprising that a consensus has not been reached about what entrepreneurship is.

This research aims to investigate Entrepreneurship education in terms of relevancy with the actual results on students. On this framework it must assume that students are potentially being influenced on different levels, on their personal qualities, opportunities recognition, management capability or adapting into existing concepts. Therefore, all the different schools of thought on Entrepreneurship of Cunnigham and Lischeron will have to be considered in the following.

However, investigating how Entrepreneurial education affects students will have to take into consideration both Entrepreneurship as a new venture creation as well as the improvement of Entrepreneurial thinking and acting in other concepts. It will not argue on the nature and position of the Entrepreneur within the economy. Entrepreneurial capability will be observed from multiple perspectives, as according to the theory for Entrepreneurship there are multiple attributes and a wide skillset that an aspirant Entrepreneur should present and improve. Business optimization – seeking opportunities to minimise costs (Marshall), ability in assuming uncertainty, when also distinguishing between uncertainty and risk and adapting to changes (Knight), carrying out innovative changes in procedures, identifying and exploiting market opportunities (Schumpeter) being alert (Kirzner), need for achievement (McLelland), improvement in decision making (Casson) and willingness even when managing limited resources (Timmons). Of course, this research should also access Entrepreneurial ability through the creation of new business ventures (Lee and Paterson) as well as the overall financial achievements, value and growth created (McDougall and Oviatt).

## 2.2 Entrepreneurship Education

Following the theories along time there are questions arising regarding the nature of the entrepreneurial characteristics. The description of the attributes of the entrepreneur and the evolution of the perception of what consists an entrepreneurial individual follows the question if entrepreneurial skills and ability are transferable through teaching, or if they are a result of various factors. The constant research interest in Entrepreneurship Education over the years is if entrepreneurship can be taught through a curriculum. The analysis of this topic is as complex as the presentation of the different definitions for Entrepreneurship, and it is developed through various aspects.

Entrepreneurship education changes from a start-up view to an attitude-changing perspective (Mwasalwiba, 2010). Entrepreneurial education methods have evolved over time. From the division of education "about", "for" and "in" enterprise of Jamieson (1984), to Herrmann et al. (2008) who suggested a switch of teaching techniques from "about" to experiential learning - learning "for" enterprise, and Henry et al. (2003) who defined education "in" enterprise as "*management training for established entrepreneurs*" (Henry et al., 2003; pp.92-93). The most interesting point of view was to look first at the intentions of students, regarding the use of

entrepreneurial competencies "for" or "in" enterprise, to provide a learning environment that will support them accordingly, within real-life cases (Taatila, 2010).

To achieve this switch, there are difficulties in the evaluation of entrepreneurship programmes (McMullan et al., 2001) and the selection of the most appropriate method and evaluation criteria on measuring their effectiveness (Henry et al., 2003, Henry et al., 2005b). Research on Entrepreneurship Education still attempts to taxonomize the different approaches, developing models and suggesting integrations within different types of programmes (Hoppe et al., 2017).

The first entrepreneurship courses began in the first half of the 20th century in the United States of America, with titles like "*Family Business*" and "*New Enterprises*".  This quadrupled during the last quarter of the 20th century, becoming one of the fastest growing areas of study, triggering start-ups and placing business incubators within universities.

### 2.2.1 Entrepreneurship Education & Higher Education

First, University of Michigan offered its first entrepreneurship course in 1927. In 1938 Kobe University in Japan followed (Falkäng and Alberti, 2000), and Harvard Business School followed twenty years later than the University of Michigan, in 1947, offering "*New Enterprises*" course to returning veterans of World War II. University of Texas at Austin in 1964 is the third university starting its entrepreneurship education program and created the IC2 Institute, dedicated to "*innovation, creativity and capital*" in 1977. Babson College after its first entrepreneurship class in 1967, also establishes its first centre dedicated to entrepreneurial studies in 1978. However, the first centre for entrepreneurial studies is Lloyd Greif Center, which is established in 1971 by the University of Southern California (USC).

Most of the main contributors in the evolution of the definition of Entrepreneur and Entrepreneurship were based in American higher education institutions during this period. The inclusion of Entrepreneurship education continued within technical fields in the last decades of the 20th century, with the development of entrepreneurial engineering classes, resulting on reports on the effect that such initiatives had (Gross, 2000). This practice continued in more fields of knowledge, using learning tools to teach entrepreneurship that were not commonly used in the specific areas of knowledge (e.g., information technology), and periodically assessing the results (Pardede, 2015, Soundarajan et al., 2016), as well as assessing the provision of new entrepreneurship related skills (Karimi et al., 2016). Nowadays,

entrepreneurship is considered a key component in most business schools and has recently been added extensively in more, non-business, programmes. Entrepreneurship education has an important role to play in science-based professions (Henry and Treanor, 2010), on fields that have a main role in economic growth (Group, 2010, Treasury, 2014, Henry and McGowan, 2016). The European Commission recommends entrepreneurship to be an integral part of university education (Commission, 2008).

Entrepreneurship is an important part of business and management schools and recently has been added within more professional disciplines, other than business. There are multiple views on Entrepreneurship Education; it is about developing skills that could be used in the private sector and will improve employability, or Entrepreneurship Education can aim in starting a new business, being "*The structured formal conveyance of entrepreneurial competencies*" (Alberti et al., 2004; pp. 5). Jones and English (2004) define it as:

> *the process of providing individuals with the ability to recognise commercial opportunities and the insight, self-esteem, knowledge and skills to act on them (Jones and English, 2004; pp.416).*

Rae (2005) puts first learning to identify opportunities and to respond to them by creating networks, for the creation and management of new ventures. Engle et al. (2010) describes Entrepreneurship Education as the knowledge of the skills needed and the support in acquiring the level of confidence needed to start a business. In 2012, there was a framework definition agreed by an international group on entrepreneurial learning, with representatives from ETF, GIZ, ILO, UNESCO, and UNEVOC, mentioning that it is about:

> *learners developing the skills and mind-set to be able to turn creative ideas into entrepreneurial action. (Bourgeois et al., 2016)*

Looking deeper into new venture creation, various academics have touched the topic of start-up businesses through Entrepreneurship education. According to Henry and Lewis (2018), Entrepreneurship education differentiates by the program design that the educators choose, based on the Jamieson's (1984) framework "about", "for", and "in" enterprise. Focusing on education "about" enterprise aims on raising awareness, focusing on understanding the importance of the relevant skills and abilities. These programmes mainly focus on the student and the enhancement of their employability. Entrepreneurship education "for" enterprise typically aims to and attracts prospective entrepreneurs, as it aims on the preparation for the creation of new ventures and self-employment. Education "in" enterprise focuses on the

development of the skills that will help on the improvement of the management of an existing business. Hartshorn and Hannon (2005) suggest that in order to improve the effect of Entrepreneurship Education to graduates, making them more entrepreneurially active, innovative and confident, the structure of Entrepreneurship Education programmes has to include taught parts, business finance (i.e., business plans), contact with practical application and active support from the university on it.

Entrepreneurship Education can only improve continuously though, if the educators interact with feedback on the teaching methods and on the different pedagogical practices that are being applied and their effects (Lorz et al., 2013). It's a key need to begin to assess and understand more carefully what has worked and why and to begin to move from an operational implementation to a strategic one (Pittaway and Cope, 2007). Lorz et al. (2013) suggest that the purpose of the design of most Entrepreneurship Education programs is that attending Entrepreneurship courses can provide the skills a prospective entrepreneur needs and can increase the intention of individuals to follow this path. The hypothesis of the positive impact of Entrepreneurship Education on entrepreneurial behaviours and intentions is supported by most of the impact studies (Hansemark, 1998, Liao and Gartner, 2007, Wilson et al., 2007). Students that have participated in modules relevant with entrepreneurship decide more frequently to start new ventures than others and it is suggested that entrepreneurship education should take place within all the levels of education, to support further eventually higher education (Kott et al., 2015).

Entrepreneurship Education Programs can have many different objectives, involving a diversity of audiences, with a variety of content and pedagogy. They can be assessed in various ways, with several kinds of outcomes, in a number of contexts. This is illustrated in Figure 1, which is the result of an extensive literature review of the literature on Entrepreneurship Education Programs, using an expanded version of the Alberti et al. (2004) framework (Maritz and Brown, 2013). This framework will be proven useful on the research on the Entrepreneurship Education Programs effectiveness, as it specifies all the different aspects of the programs, the functions of the involved parties, and the interactions between them. It is all about using the diversity of all the parts involved in Entrepreneurship Education (i.e., Educators, Students, Institutions, Community, Educational processes) to achieve higher legitimacy within it (Jones and Matlay, 2011). This research explores the outcomes of skills and knowledge that students acquire through the chosen pedagogy of the Entrepreneurship education programs.

*Figure 1 – Conceptualised components of an EEP identified in the literature (Maritz and Brown, 2013)*

**Context**

• International
• Diversity
• Institutional
• Publics
• Stakeholders
• Multiple teaching models
• Education level
• Career
• Setting
• Enterprise culture

**Objectives**

•Pedagogical; social; economic; context; attributes
• Awareness education, education for start-up; continuing education for entrepreneurs; education for entrepreneurial dynamism
• Become an entrepreneur; become entrepreneurial
• Knowledge about entrepreneurs and entrepreneurship; stimulate an entrepreneurial drive; cope with risk; skills and techniques to analyse business situations; encourage new start-ups
• Technical skills
• Business management skills
• Personal entrepreneurial skills
• Economics (innovation; uncertainty and risk; discovery; alertness; knowledge)
• Attributes/traits (need for achievement; autonomy; confidence; judgement; determination; locus of control; self-efficacy)

**Audiences**

• Sociodemographics (Age, gender, marital status, income, etc.)
• Stage of venture
• Type of degree / qualification
• Major (business students, engineering, wider)
• Diversity and multicultural
• Stakeholder heterogeneity
• Institutional
• Student diversity
• Internationalisation

**Outcomes**

• Content and Attributes
• Skills
• Knowledge
• Attitudes
• Graduate Careers
• Self-efficacy
• Intentionality
• Competitiveness
• Practical Learning
• Pragmatic

**Assessment**

• Context and attributes
• Attitudes and behaviour
• Business plans
• Cost per participant
• Financing sought/achieved
• Future funding of program
• Growth of venture
• Entrepreneurial intentions
• Jobs created, quality or quantity
• Knowledge gained
• New ventures created
• Number of participants
• Perceptions
• Political
• Profitability
• Return on investment
• Revenue
• Satisfaction
• Self-efficacy
• Skills

**Content**

• Entrepreneurial outcomes
• Theory-based
• Practice-based
• Business plans
• Know-why, know-who, know- how, know-when, know-what
• Outcomes-based

**Pedagogy**

• Context and attributes
• Traditional and non-traditional
• Assigned readings
• Lectures
• Case studies
• Exams
• Individual or group work
• Handouts
• Videos
• Workshops and seminars
• Interviews with entrepreneurs
• Role playing
• Mentors
• Competitions
• Guest speakers
• E-learning
• Simulation games
• Blended learning
• Engagement

## Entrepreneur or Entrepreneurial

Nonetheless, a student that goes through a programme, and acquires a level of the expected skills and who as a result act entrepreneurially, is not necessarily an entrepreneur too. An Entrepreneurial mindset could act so in different situations. An Entrepreneurial individual could not only start new ventures, or in general identify, pursue and exploit opportunities that would have a positive financial outcome. Innovation and entrepreneurial behaviour can also be

observed in non-business environments or on individuals within existing businesses. An Entrepreneurial individual can develop and improve procedures within organisations (intrapreneurship), can envisage new ways of handling situations and everyday tasks, and innovate in problem solving and strategies by thinking "outside the box". An Entrepreneurial mindset is defined by the individual's personal qualities and psychological characteristics, who reassesses and adapts in different situations in everyday life. Individuals with balanced and wide skillsets and general education that act entrepreneurially are more likely to become entrepreneurs (Lazear, 2005).

**Educational Effectiveness**

There is a tendency of investing on increasing rates of entrepreneurship and entrepreneurial success through education by private and governmental organizations, while the evidence supporting the links between education and entrepreneurial outcomes is promising, but not yet definitive (Dickson et al., 2008). However, there is no overarching model of effective teaching and learning for entrepreneurship (Braukmann et al., 2008), or a unique model, that could turn each trainee into a successful entrepreneur (Fayolle and Matlay, 2010).

Various disciplines deal with entrepreneurship, but even if there is a multi-science approach,

> *the process of becoming an Entrepreneur is being treated as a black box. With no immediately apparent characteristics, and factors hidden from immediate observation (Weber et al., 2014; pp.1)*

People in business are dealing with entrepreneurship education without looking into the processes of teaching and learning, mainly by focusing on whether the participation in an entrepreneurship course is linked to new ventures. In most, they do not investigate the inner process, and do not see the procedure with all the risks, difficulties, possibility of failure and the dark sides of it.

There is a high mortality rate of start-ups within their first years. There is a need for exhaustive evaluations on Entrepreneurship programs and initiatives that will be able to be defended, as the current ones do not have well set learning goals and clearly defined teaching methods. Weber et al. (2014) identify that the

*literature reviews and meta-analyses dealing with the impact of such entrepreneurial endeavours demonstrate various conceptual and methodological shortcomings. (Weber et al., 2014; pp.3)*

when the

*conceptualizations of observable evidence, regarding key entrepreneurial behaviour as output, are often diffuse so that solid inferences and predictions are rare; the performed evaluation designs and methods are rather weak. (Weber et al., 2014; pp.3)*

Through the claim of Unger et al. (2011), of taking a dynamic view of human capital in entrepreneurship, all the aspects should be investigated. Inputs, processes, outcomes and contexts of entrepreneurial teaching, learning, and development, combined with the transfer to authentic entrepreneurial tasks (Weber et al., 2014).

Matlay and Solomon (2008) found that entrepreneurial skills, knowledge and attitudes do not match the graduates' needs for entrepreneurial education. Botham and Mason (2007) suggest that entrepreneurship education should have a wider purpose that business formation. Politis (2008) states that education should focus on developing creativity, critical thinking and reflection among individuals that could enhance their ability to develop entrepreneurial knowledge throughout their professional lives. Similarly, for Crayford et al. (2012) entrepreneurial education is the development of an entrepreneurial mind-set that enhances personal development, employability skills and attributes on graduates. All the above restate that entrepreneurial education has to be investigated for its structure and its effectiveness, in order to have the best possible results on graduates and avoid elements in the education programmes that could act adversely on their entrepreneurial mindset (Piperopoulos and Matlay, 2012). In line with the learning environment within real-life cases that Taatila (2010) suggested, Mason and Arshed (2013), by supporting specific experiential approaches of education, show that experiential learning acts effectively and positively on students' entrepreneurial knowledge and intentions. Mixing experiential and taught approaches, when also working with real-life projects increase student engagement and demonstrate a positive effect to the learning process (Ramsgaard and Christensen, 2018). Entrepreneurial learning, according to Mueller and Anderson (2014), is an active process of constructing knowledge, assisted by an individual's development of personal qualities and the interaction between them.

Experiential learning though, according to Warhuus et al. (2018) experiences legitimacy issues. When learning follows a practical route, it is important to be known not only what students

learn but also how. There is a need for feedback mechanisms, on an experimental level at this point of time, to describe and evaluate the outcomes and purposes of the courses. Deacon and Harris (2011) also found out that there is a wider range of skills associated with entrepreneurship that are transferred to the students, aspiring them, when the programmes follow a reflective approach to Entrepreneurship Education.

Another aspect that has been challenged by researchers is the inclusion of how to write a business plan, which is in the main content of many entrepreneurship programmes (Hills, 1988), and many wonder if there is any real effect on the skills or the success of an entrepreneur (Gibb, 1997, Henry et al., 2003, Honig, 2004). A new venture, in order to be successful, needs entrepreneurial attitude and mind.  Still, many entrepreneurial courses and programmes tend to focus only on the financial aspects of business. Entrepreneurship education should focus on areas related to industry and economic growth, adapting to the changing economic environment and student needs, including also students from other disciplines. Professional instructors should be recruited in order to develop the various subjects of Entrepreneurship Education and to work together with the educators to improve the quality of programs, focusing on the learning outcomes with more effective evaluation (Byun et al., 2018).

In non-business programmes (e.g., engineering), courses that teach different aspects of entrepreneurship knowledge are usually taught by either adjunct or non-tenured stream faculty, which shows that Entrepreneurship's presence in the programmes is not yet valued or practiced routinely, even if it is increased steadily over the past two decades. As it is a new area and is not mainstream yet, pedagogies for both content and attitude may still get a while to be fully established. It is still difficult to measure the impact of teaching entrepreneurship, until the learning opportunities are fully realized (Clark et al., 2016; pp. 24):

> *In general, there is a lack of consistency in learning objectives, program models, delivery models, number and length of courses taken, and types of educational experiences that are offered.* (Clark et al., 2016; pp. 24)

The Global University Entrepreneurial Spirit Students' Survey (GUESS) Report for Great Britain 2016 argues that a factor that may have also impact in the entrepreneurial intentions of the students is the entrepreneurial climate of the universities. In a seven-point scale (1=not at all, 7=very much), the participants with a mean of 4.25 show that the British universities stimulate entrepreneurial career and activities, inspiring to develop ideas for new businesses (4.13), encouraging students to engage in entrepreneurial activities (4.40), forming a favourable

climate for students to become entrepreneurs (4.21). On the same scale, with 4.15 overall, students present the extent to which they agree to the statements about their entrepreneurial learning progress during their university studies. Students agree that the learning process during studies increased their understanding of the attitudes, values and motivations of entrepreneurs (3.98), enhanced their ability to develop networks (4.49) and their ability to identify an opportunity (4.64), but there are lower scores closer to neutral on the students' understanding of the actions someone has to take to start a business (3.76), or on enhancing their practical management skills in order to start a business (3.85).

## 2.2.2  Existing Research Literature on Entrepreneurship Education

In order to understand Entrepreneurship, one has to verge with and combine a variety of definitions and ways of thinking. When it comes to Entrepreneurship education this very variety of approaches could mean the need to access aspects of pedagogy, training, evaluation, and other factors of the entrepreneurial experience (Henry and Lewis, 2018).

The research and the arguments about entrepreneurship start early, with Porter (1994) identifying that the teaching methods for entrepreneurship have varied extensively, and the argument whether entrepreneurship can be taught (Ivancevich, 1991, Ronstadt, 1987), comparing theory and practice (Fiet, 2001b, Fiet, 2001a), brings the role of the business schools (Miller, 1987) and the role and place of Entrepreneurship Education within the university under investigation (Mcmullan and Long, 1987). Back in the 90s, Robinson and Haynes (1991) identified that there was no theoretical base to build pedagogical models and methods for entrepreneurship courses. In the last two decades of the 20th century entrepreneurship education (EE) experienced an enormous growth within different education levels, but it was noticeable that there was not enough research and the institutions were following a variety of approaches and content. In order to measure EE effectiveness, more research was suggested and required, outside of the basic topics that had been addressed so far (e.g., content, techniques, participants attributes, objectives, intended results). EE was in need of a conceptual framework for assessing entrepreneurship education (Falkäng and Alberti, 2000).

The first literature reviews on Entrepreneurship Education and training were conducted by Dainow (1986) and Gorman et al. (1997). Dainow (1986) was the first that examined Entrepreneurship Education on this way and described the most recent and contemporary stage of the development of the ideas around it, concluding that there was a need to systemise the

research, using various methodological tools. Gorman et al. (1997), on the same path, analysed articles published over the next decade and confirmed that the suggestions of Dainow (1986) had been followed by researchers. They concluded that educational programs can influence entrepreneurial attributes positively, pointing out that research was still in exploratory stage and that basic standards in impact were not used adequately.

When Gorman et al. (1997) analysed 63 articles (between 1986 and 1997), 13 years later Mwasalwiba (2010) used 108 papers, concluding that even with a variety of theoretical basis and approaches, Entrepreneurship Education has positive impact on students.

Peterman and Kennedy (2003) pointed out that there is not much research on the benefits of Entrepreneurship Education. According to Lorz et al. (2013), less rigorous studies tend to overestimate the impact of Entrepreneurship education programs. Rae et al. (2012) came up with the first analysis of outcomes on Entrepreneurship Education, indicating significant impact in entrepreneurship skills and intentions. Their results strengthened the position that Entrepreneurship Education literature has a steadily low level of rigor in many cases, as many studies could not be used in their research because of methodological and reporting issues. Nabi et al. (2018), in a form of a review on 159 articles, examined the impact research of Entrepreneurship Education in higher education on pedagogical methods and outcomes, showing that the focus is on the short-term and the subjective outcomes, without describing enough the tested pedagogies.

Three recent reviews on Entrepreneurship education research from 2007 to 2018 analyse the contribution of academic papers, compare their views on the field, and review the methods in impact studies (Pittaway and Cope, 2007, Lorz et al., 2013, Henry and Lewis, 2018). The reviews cover in total a period from 1970 until 2018, with about 285 articles under investigation in total.

The below categories derive from the research questions of the papers investigated in the "*Review of Entrepreneurship Education Research*" by Henry and Lewis (2018) and are the most common categories of research between the various constructs of thought. They cover four primary areas of focus. The first category includes the papers focusing on the Offerings and Assessment. These papers were focusing on the observation of different models and approaches on Entrepreneurship Education (Watts and Wray, 2012, Tunstall and Lynch, 2010). In the second category are the papers that focus on the skills and competencies and Entrepreneurship

Education's effectiveness in readiness and employability. The papers that use measurable results of the effects of Entrepreneurship education on participants are the third category of papers that deal with the outcomes of Entrepreneurship Education. (e.g., idea generation, business plan development and/or start-ups). The last category (fourth) is the papers that investigate the attitudes and motivational dimensions of Entrepreneurship Education and their relationship.

This research will deal with the aspects of skills and competencies. Of course, there are more categories other than these four primary areas, which include the research on the adaptation of Entrepreneurship education within other fields (Jones and Iredale, 2014, Henry and Treanor, 2010); evaluation and impact (Packham et al., 2010, Hytti et al., 2010); and mapping papers reporting the entrepreneurship landscape in various contexts.

While some papers reviewed by Henry and Lewis (2018) were content to map the landscape and comment on the presence or absence of a variety of EE signifiers, others moved to provoke consideration of deeper questions of ideology and epistemology. While these papers were only sporadic, their contrast was rigid to the much more pragmatic study trends that might characterise recent research in this area. What appears missing is consideration of the meaning of that value. Papers tended to adopt a practical rather than a theoretical approach, offering findings of greater value to EE practitioners and those designing entrepreneurship programmes. This is not surprising given that most of the samples reported in the papers were drawn from university institutions where most EE activity takes place. This is important for this research because Entrepreneurship Education has to be viewed from every possible side and angle, including the practical approach, which seems under-investigated.

Pittaway and Cope (2007) showed that a lot of aspects of Entrepreneurship Education start from the general policy climate for Entrepreneurship Education (Figure 2). The programme context, the used pedagogies, the philosophy of the departments, the activities, and the student orientation, are affected by governmental policies, their application mechanisms, and their feedback methods. The university enterprise context acts as a catalyst through the infrastructure in supporting the graduates' careers (e.g., new ventures or graduate employment). All these conclude in a level of graduate enterprise and graduate recruitment that define the general enterprise infrastructure of the university, on an Entrepreneurship Education framework. These are the two outputs that Entrepreneurship Education is trying to achieve; to enhance graduate employability and to encourage graduate enterprise.

*Figure 2 – A Thematic Framework for Entrepreneurship Education (Pittaway and Cope, 2007)*
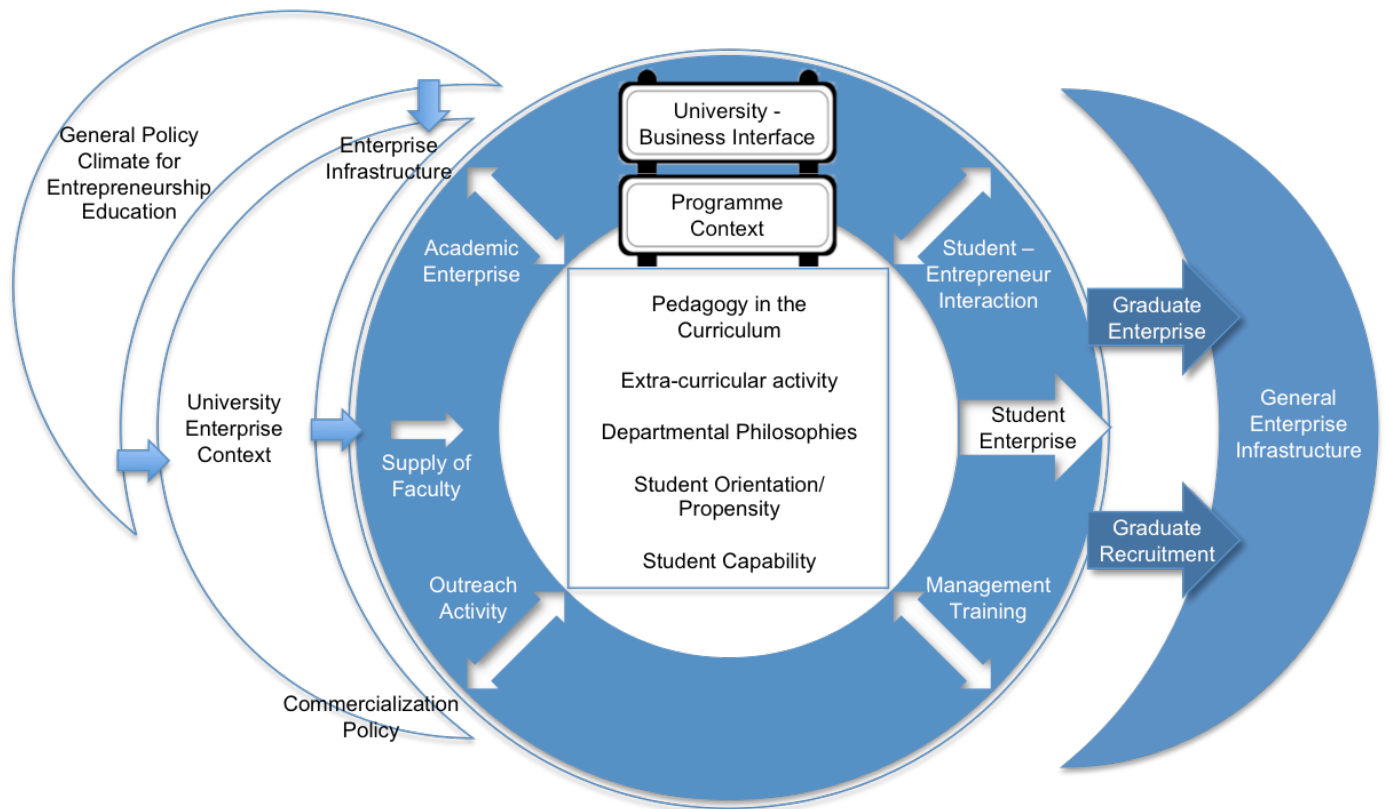


A factor that has a significant impact on entrepreneurship education is all the interactions that students can have with businesses and entrepreneurs. Consulting projects in SMEs, placements, internships and mentoring provide many types of benefits. The students raise awareness for Entrepreneurship (Fukugawa, 2005, Ridder and van der Sijde, 2003), but there are also benefits for both students and the businesses. Students help in growth and business performance, providing resources (Hollingsworth et al., 1974, Sonfield, 1981, Long and Ohtani, 1988), both sides benefit by experiential learning (Carson, 1985, Chan and Anderson, 1994, Wani et al., 2004), and the perceptions both for a career in small firms and for employing graduates is impacted positively (Brindley and Ritchie, 2000, Ucbasaran et al., 2001). Employability has two sides of view. The graduates side, who have different perceptions with working in SMEs (Arnold et al., 2002, Belfield, 1999, Brindley and Ritchie, 2000, McLarty, 2003), and SMEs owners and managers that could potentially consider to hire graduates (Brindley and Ritchie, 2000, Pittaway and Thedham, 2005, Stewart and Knowles, 2000).

The above, even if they impact Entrepreneurship Education, there is no evidence that they are affecting the possibility to follow an entrepreneurial career. There are programmes that

systematically support graduate Entrepreneurship (Blizzard, 1996, Fleming, 1994), promoting graduate entrepreneurship (Fletcher, 1999). Spin offs from the university programmes can be influenced by different factors but it seems they follow specific model processes (Klofsten, 2000, Robertson and Collins, 2003), and mentors and teamwork are important (Macfarlane and Tomlinson, 1993). The performance of graduate-led enterprises was tracked and measured in a few cases (McLarty, 2003, McMullan and Gillin, 1998, Rosa, 2003), as well as the impact of entrepreneurship and entrepreneurial behaviour in business graduates after attending entrepreneurship courses (Kolvereid and Moen, 1997, Galloway et al., 2015, Støren, 2014). Støren (2014) found that the graduates do not show immediate results in the creation of new ventures but the generic entrepreneurial skills seem to benefit them and incite a positive attitude for starting a new venture in the future. Galloway et al. (2015) commented that the outcomes of the courses should not be considered as two dimensional, as when a student becomes an entrepreneur or not. There is a complex journey that students follow after their graduation and entrepreneurship education contributes in several ways, making the "entrepreneur or not" argument irrelevant and oversimplified as a position. Entrepreneurship education research should adjust to that through the development of methodological aspects.

Henry and Lewis (2018) suggest that the adoption of a multi-disciplinary approach would add value in the teaching of Entrepreneurship (Penaluna et al., 2010). The role and importance of business planning has to be reassessed (Bridge and Hegarty, 2013), along with the potential employability (Chang, 2014), the work placements that could add potential benefits (Mills, 2012), and the need for Entrepreneurship education to be both relevant and contextualised (Henry and Treanor, 2010, Carey and Matlay, 2010). They call for a greater methodological diversity in future studies, large samples beyond the students and exploring the Entrepreneurship Education at the macro level. They also suggest that the Entrepreneurship Education definition is fundamental and should be re-addressed. Toding and Venesaar (2018) found that lecturers can also proceed to changes in the teaching components and approaches based on their mindsets to influence learning outcomes. That is an important aspect for the universities to choose the course design, and along with the course structure to help the lecturers develop too.

Lorz et al. (2013) observed that the participation in Entrepreneurship programmes has a variety of meanings and consists of various elements. The Entrepreneurship programmes vary in scope, duration, pedagogies (e.g., classroom teaching) and objectives, and range from a singular course (DeTienne and Chandler, 2004, Galloway et al., 2005, Galloway and Brown, 2002) to

multi-activity programmes that consist of both classes and practical applications (e.g., starting a business over the duration of the course (Hansemark, 1998, Kourilsky and Esfandiari, 1997, Lee et al., 2005), with duration from one day to 12 months (Fayolle et al., 2006, Oosterbeek et al., 2010). The objectives of the Entrepreneurship programmes vary. They do not only intent to encourage actual start-ups (Kolvereid and Moen, 1997) and business initiation activities such as writing a business plan and the search for funding (Souitaris et al., 2007). The Entrepreneurship programmes intent to generally develop Entrepreneurship skills and knowledge (DeTienne and Chandler, 2004), to change attitudes of students such as risk taking, independence and intentions toward entrepreneurship (Bakotic and Kruzic, 2010), and to help students that already own or manage a business to boost their profit and growth. The process that links Entrepreneurship Education with business start-ups though is not well supported by literature and the impact and their measuring indicators are being explored (Smith, 2015).

It seems though that Entrepreneurship Education does not only have positive effects on Entrepreneurial Intentions. In their review, Lorz et al. (2013) report that in two studies, certain variables were negative while others changes were insignificant or unclear. Oosterbeek et al. (2010) showed negative impact in skills and knowledge, and no effect on other variables such as self-efficacy and need for achievement. Souitaris et al. (2007) showed no significant impact on attitudes, behaviours and business design initiation. With their research design (ex-ante/ex-post) as a common point, both reported a negative effect on Entrepreneurial Intentions. Similarly, Nabi et al. (2018) showed that, when examining learning and inspiration on early stages of higher education, it is possible for Entrepreneurship Education in the early stages of higher education to act negatively on Entrepreneurial intentions.

Positive effects are more common though. In Lorz et al. (2013) review of Entrepreneurship Education articles, attitudes and perceptions (need for achievement, attitudes, subjective norms, perceived behavioural control, self-efficacy, locus of control, perceived desirability, feasibility, and risk-taking propensity) and nascency and performance are some of the most common dependent variables, with the most of the positive effects that others (e.g., skills and knowledge, Entrepreneurial Intentions) and no negative results. Through their research, Lorz et al. (2013) suggest that the impact of Entrepreneurship education should be measured and analysed through the whole duration of the programmes, by quantitative data that should be easily accessible to researchers. The under-researched impact of the programmes and their pedagogies on subsequent entrepreneurial actions should also receive attention, and a variety of start-up activities could be considered as potential outcomes. Such research helps to

understand the outcome of new practices for teaching and the results on the skills that educators want to provide through the courses (Karimi et al., 2016).

According to Roxas (2014), a person's Entrepreneurial intentions are affected by direct and indirect knowledge gained from Entrepreneurship education programmes. This knowledge, which is proved to be significantly higher upon completion of an Entrepreneurship course, breaks down the cognitive barriers associated with new venture creation and is directly proportional to the perceived self-efficacy in business ownership. Both the perception of desirability in Entrepreneurship and the perceived self-efficacy to engage in it are proven to be positively associated with the individual's Entrepreneurial intentions, but they are not the only mediums by which Entrepreneurship knowledge has an effect on Entrepreneurial Intentions. However, the Theory of Planned Behaviour that is used (Ajzen, 1991), has limitations in explaining other significant determinants of Entrepreneurship Intentions, such as the effects of emotions and personality characteristics.

There is a propensity among students in Entrepreneurship studies to take into account personality traits, as well as social and environmental influences (Pittaway and Cope, 2007). The perceived barriers or support around a specific activity form the Entrepreneurial intent (Lüthje and Franke, 2003) and the intentions to form a venture are linked indirectly, through attitudes, to personality traits (Hatten and Ruhland, 1995, Koh, 1996, Lüthje and Franke, 2003). There are factors like gender, age, educational level and family experience of entrepreneurship that impact intentionality directly (Hatten and Ruhland, 1995, Wang and Wong, 2004), as well as wider cultural, political and macro-economic factors, including business support infrastructures (Carayannis et al., 2003, Klapper, 2004). There is a need for entrepreneurship education in across different faculties as students with inadequate business knowledge and risks perception is less likely to act entrepreneurially (Oakey et al., 2002, Wang and Wong, 2004). Entrepreneurship Education programmes can change students' intentions and perceptions and can make the process of starting a new venture desirable and feasible (Hansemark, 1998, Peterman and Kennedy, 2003). There is further evidence that there is a positive impact of Entrepreneurship education on students' intentions (Hatten and Ruhland, 1995, Koh, 1996, Lüthje and Franke, 2003). Such outcomes, however, should measure entrepreneurial intentions along with entrepreneurial actions, taking into account the wider socioeconomic environment and measuring actual outputs. The extent of entrepreneurial behaviour that derives from the propensity or intentionality has to be investigated in its general effect and when focused narrowly on venture creation. Until this time, policy was not clear on

the outputs that Entrepreneurship Education should create, thus further research on this examination should be financed, to understand the aims, the effects of the possible changes, and the possible options on different contexts (Pittaway and Cope, 2007).

Matlay and Solomon (2008) discuss the entrepreneurial outcomes deriving from the impact of Entrepreneurship Education, finding that even with a general overall satisfaction of the graduates, the skills, knowledge and attitudes of students do not match the outcomes of the programmes. Entrepreneurship Education may have nothing to do with improving entrepreneurship skills and motivation (O'Connor et al., 2012). The different outcomes that are identified in Entrepreneurship Education literature of this time are the skills, knowledge and attitudes (Matlay and Solomon, 2008), the competitiveness (Jones, 2010), self-efficacy, intentionality (Cheng et al., 2009), practical learning (Rae, 2004) and graduate careers (Nabi and Liñán, 2011, Taatila, 2010). Farhangmehr et al. (2016) suggest that the acquired knowledge does not affect the entrepreneurial motivation of students. Increasing the entrepreneurial motivation would mean to aim on the development of aspects of students' entrepreneurial competencies; their emotional management and critical thinking, which account for psychological and social skills.

Entrepreneurship Education programmes have to include a combination of theory and practice. Many researchers refer to different variations of them (Maritz et al., 2010, Brand et al., 2007, Henry et al., 2003, Sexton and Bowman, 1984). Theory and practice though would not work as mutually exclusive (Bygrave, 1993, Fiet, 2001b). Fiet (2001a) supports theoretical teaching, describing it as a powerful mean to improve entrepreneurial thinking and transfer knowledge on decision-making, giving to entrepreneurs a better capacity on predicting outcomes. He argues, on the same line of thinking with Kuhn (1970), that theory is the most important part of the content and will help students on their practical issues effectively.

The researchers that support the practical side of Entrepreneurship Education though, question the possibility of teaching entrepreneurship, which is mostly practice oriented, through theory and concepts (Jack and Anderson, 1999). As academics lack of practical experience, and the content should be mainly practical, they support that the best way would be for students to practice with active entrepreneurs, as also mentioned in Pittaway and Cope (2007) thematic framework above. An older example on this argument is from Gibb (1987), who argued that the university classroom focuses on the past, when an entrepreneur has to be focused on the

present and the future. Fiet (2001a) argues though that this could demoralize aspiring student entrepreneurs, as they will possibly come across in a different and unique set of circumstances.

Articles that examine Entrepreneurship Education in different parts of the world tend to recommend that the students should be encouraged and motivated to act beyond the Entrepreneurship class, on a practical level, in projects on the real world (Afolabi et al., 2017). The general observation is that training should be more practical than theoretical entrepreneurs (Mukesh et al., 2018), and the:

> *Entrepreneurship education model should assess the entrepreneurial capacity and discover the inner skills of the prospective entrepreneurs (Čapienė and Ragauskaitė, 2017; pp. 289).*

Čapienė and Ragauskaitė (2017) go in further detail, suggesting that in order to improve their suggested Entrepreneurship education model, future research should examine further the teaching methods on how students could set up a business, and on the way to actually transfer entrepreneurial knowledge and share experience from successful entrepreneurs to students, and improve the effectiveness and the impact of Entrepreneurship education programs. Bergmann et al. (2018) investigate the important parameters to create an inspiring and favourable entrepreneurship climate through universities' characteristics, to provide positive effects on students and create entrepreneurs through higher education. Donnellon et al. (2014) argue that through new venture creation programmes the students should develop entrepreneurial identity, which is equally important with the development of entrepreneurial skills overall.

Sometimes though researchers have to be mindful on the approach that they follow, to give weight in cognitive and behavioural, rather than affective outcomes. There are many more outcomes of entrepreneurship than the fact of starting a new venture. Entrepreneurial skills and knowledge are related with multiple fields (e.g., engineering), which should be examined too, as they go beyond business creation (Huang-Saad et al., 2018). There are more studies in smaller scale, which sometimes even take place within one university, and examine the effect of entrepreneurship education and their graduates' choices, in order to improve and develop further (Mohamad et al., 2015, Soundarajan et al., 2016, Matsheke and Dhurup, 2017).

Entrepreneurship skills seems that can also be transferred by studying cases. Ktoridou and Eteokleous (2012) suggest that Entrepreneurship education and Entrepreneurial skills are for

every student and support that the case-based learning method can be beneficial for all specializations, as students can participate in activities and team projects based on real life authentic scenarios. Through case base learning, both the students and the outcomes of the programmes can improve. The students develop entrepreneurial skills working on the concepts of cases based on the work of technical professionals and experience a deeper understanding of their practices.

Birch et al. (2017) point out that today students have the intention and the willingness to become entrepreneurs. However, for too long, the educational system teaches students how to become employees and the content of the courses does not correspond with the ambition of developing entrepreneurial skills. The challenge for the programme directors would be to include the creation of a business concept and how to make it happen, both practically and theoretically. According to Barba-Sánchez and Atienza-Sahuquillo (2018), when there is a crisis and high unemployment rates, the market tends to require additional skills to professions (i.e., engineers). There is a need for independence that forms the intentions of future engineers, abetting them to seek additional skills through entrepreneurial education, which demonstrates a positive contribution on their entrepreneurial intentions. They identified the role of entrepreneurship education in the development of entrepreneurial characteristics in engineers by analysing the impact of entrepreneurial motivations on entrepreneurial intentions.

According to Kuckertz and Prochotta (2018), Entrepreneurship Education is on the list with the most promising topical areas in Entrepreneurship research, being among the first topical areas for its practical potential, worldwide. This is reflected on the first part of the research on Entrepreneurial trends too, in 2013 (Kuckertz, 2013). Entrepreneurship Education is steadily considered to have greatest potential on Entrepreneurship practice among academics over the last decade, and less on an academic level, that other topics of Entrepreneurship Education prevail. This possibly demonstrates a need for improvement and shows a common understanding among academics that there are many practical areas on Entrepreneurship Education that could be improved. Accordingly, we would expect to discover many areas on Entrepreneurship education that have space for development and could be improved on a practical level.

## 2.2.3 Relationship between Higher Education & Entrepreneurship

There are different approaches of Entrepreneurial education in different situations. Entrepreneurship could cover a whole Master course in a Business School, or it could be included as a class into the curriculum of other fields. There is a possibility that entrepreneurial spirit could be inherent but starting a business in specialist areas needs specialist skills (Brignall, 2002). This reveals a market need for students in all sciences to acquire more entrepreneurial characteristics.

The Entrepreneurship programmes often offer assignments examining real businesses with solutions to real problems (Brignall, 2002). In specialist areas they focus on business management, relevant ethics (e.g., bioethics), case studies and everything relevant on setting up a new venture.

However, higher education institutions (HEIs), according to employers, do not prepare graduates to relate the acquired knowledge to the real world. Enterprise skills though are eventually being refined and enhanced by the employers (Refai and Thompson, 2015), agreeing with Whiteley (1995) that EE creates a bridge between studying and work, where should be strong connections (Rae, 2007). In disciplines other that business, entrepreneurship education (EE) should be applied in a holistic manner, for the students to receive more teaching and be able to demonstrate enterprise skills too. It is difficult though for HEIs to provide a level of enterprise skills that will be totally in line with the employers' expectations to be satisfied (Refai and Thompson, 2015). Entrepreneurial thinking and action though are considered important and is applied in more disciplines through new trial courses (Parris and McInnis-Bowers, 2017).

Rae et al. (2012) on their survey in English higher education, cover the enterprise sustainability and entrepreneurship provisions in higher education. They report an annually increasing student enterprise engagement between 2006 and 2010, but lower than the European average, with a voluntaristic approach. There are existing entrepreneurship provisions, but they mention that the participation levels are low or not relevant to the actual needs of the students. It could be possible for Entrepreneurial learning to be following another approach rather than course based. This contradicts the fact that 93 per cent of the responding higher education institutions (HEIs) support student enterprise and graduate entrepreneurship, with many of them offering awards and further enterprise and entrepreneurship-based qualifications, that come along with extra-

curricular activities. Rae et al. (2012) tracked idea generation, business planning, enterprise skills development, new venture creation, and relevant events, as well as the increase of the formation of student enterprise clubs and societies. They argue that graduates should be flexible and entrepreneurial on their careers launch and development and independent from job seeking procedures. HEIs should be able to track and demonstrate the graduate entrepreneurship that results from their investment, promoting institutional commitment and collaboration between HEIs and local partners rather than competition, to increase the positive impact of enterprise education and entrepreneurship support. About half of the HEIs seem committed as an entrepreneurial university, a term that is widely accepted but not always clearly understood as an idea, with no clear alternatives.

On a students' perspective some students have in mind to become entrepreneurs and some students do not have a specific interest on it until they study entrepreneurship. Sometimes Entrepreneurship modules could affect a student's career path. Personal characteristics, including nationality, family and social context, university offerings, as well as personal motives can influence the entrepreneurial intentions of students (Saridakis et al., 2016). Brignall (2002) notes that in Postgraduate Entrepreneurship studies sometimes students do not have business in mind before they start, but they see opportunities as the course progresses. In other courses students already have that entrepreneurial spark. Entrepreneurial learning though can also be abetted through communities of practice, a concept first introduced by Lave and Wenger (1991), showing that the social dimension influences the students' transition, learning outcomes and contribution (Kubberød and Pettersen, 2017).

There are indications that entrepreneurship education demonstrates better positioned procedures for graduate students that have more available time to develop a business and accordingly it is more possible for them to become entrepreneurs. With a delivery approach for entrepreneurship education that is common for all the students, the higher education institutions focus mostly to prepare the students for the employment market, rather than to create entrepreneurs, regardless of their entrepreneurship education provisions (Fenton and Barry, 2014).

According to the Global University Entrepreneurial Spirit Students' Survey (GUESS) (Saridakis et al., 2016) report for Great Britain 2016, it is less than 4% of the students in Great Britain that intent to start a firm (3.96%) or generally to become entrepreneurs (3.39%) after their studies (Table 2). From the same sample of students, 3.21% is studying a specific programme

on Entrepreneurship, 11.25% have attended at least one entrepreneurship course as compulsory part of studies, 14.93% attended entrepreneurship as elective, and 73.44% have not still attended a course on Entrepreneurship at the time of the survey (Table 3).

*Table 2 - Entrepreneurial Indicators (Saridakis et al., 2016)*

| Entrepreneurial indicators | Overall | Female | Male | British | Non-British |
|---|---|---|---|---|---|
| I am ready to do anything to be an entrepreneur | 3.39% | 3.18% | 3.84% | 3.24% | 3.64% |
| My professional goal is to become an entrepreneur | 3.43% | 3.23% | 3.87% | 3.23% | 3.77% |
| I will make every effort to start and run my own firm | 3.67% | 3.47% | 4.11% | 3.45% | 4.05% |
| I am determined to create a firm in the future | 3.89% | 3.66% | 4.37% | 3.64% | 4.31% |
| I have very seriously thought of starting a firm | 3.87% | 3.64% | 4.37% | 3.68% | 4.19% |
| I have the strong intention to start a firm someday | 3.96% | 3.73% | 4.48% | 3.71% | 4.39% |
| **Total respondents** | 968 | 664 | 304 | 609 | 359 |

*Table 3 - Attendance of entrepreneurship courses (Saridakis et al., 2016)*

| Attendance of entrepreneurship courses | Overall | Female | Male | British | Non-British |
|---|---|---|---|---|---|
| I have not attended a course on entrepreneurship so far | 73.44% | 77.33% | 65.19% | 78.02% | 66.01% |
| I have attended at least one entrepreneurship course as elective | 14.93% | 12.24% | 20.65% | 11.91% | 19.85% |
| I have attended at least one entrepreneurship course as compulsory part of my studies | 11.25% | 9.74% | 14.45% | 9.77% | 13.65% |
| I am studying in a specific programme on entrepreneurship | 3.21% | 2.09% | 5.61% | 1.83% | 5.46% |
| **Total respondents** | 1,058 | 719 | 339 | 655 | 403 |

Table 2 and Table 3, as above, show that there are categories of students with different needs in their studies. There are students that would require specific skills-set that would allow them to start a firm right after their studies as well as students that would proceed to a new venture on a specialist field (i.e., Medicine, Engineering etc.). Other students that want to study Entrepreneurship but intent to follow a career as employees in organizations of different kinds need Entrepreneurial skills that can apply within organisations. There are also students that even if they have not attended any relevant course, they turn out with the need to become entrepreneurs when finishing their studies. These students tend to need Entrepreneurial skills at some time on their studies, at a point when the curriculum is already determined.

Concluding, it seems that Entrepreneurship Education is useful on different stages of a person's life and applies to people with various aims and needs. It is not possible to pin down on one definition for Entrepreneurship Education, as the opinions are diverse and there is no agreement. Entrepreneurship seems to be for everyone, not only for start-ups and prospective or established Entrepreneurs, but also for improving employability, recognising opportunities, improve knowledge and technical, business management and personal skills, and the general mindset. This seems to place Entrepreneurship on its own, differentiating it from single university departments like Economics and Business. There are arguments regarding the methods, the pedagogical models and the structure of the programmes, the analogy of the taught and practical parts, and their more specific content. This makes it more difficult to measure their impact and their outcomes. What derives from the above is that there is clearly a need for the improvement of the theoretical base on rigorous indicators that would help improve the impact of Entrepreneurship Education through clearer aims and therefore, measurable and evaluable results.

## 2.3  Developing the Research Questions

In order to arrive to appropriate research questions for my study, I used a process of examining several aspects of literature and providing comments for each on how these approaches could support my thesis.

Entrepreneurship education according to Pittaway and Cope (2007) focuses on improving graduate employability and inspiring graduate enterprise. The path that will derive the highest influence on each person depends on student propensity due to a range of personal and socio-economic factors, as well as on the scope of the entrepreneurship programmes and their design (Lorz et al., 2013). They suggest that investing in entrepreneurship education should also mean focusing on the outputs of entrepreneurship education. If we know what policies might work in which contexts, entrepreneurship education could be better focused and clear.

Comment: Personal traits and the narrow and wider environmental impact of the students should be investigated along with the scope of the programmes and their design characteristics. Investigating the outputs of entrepreneurship education would also mean to focus on what works and how, and which method and approach provides better results. One of the ways to measure the results and improve the evidence for results would be the investigation of the skills that students acquire throughout their studies.

Henry and Lewis (2018) found that articles tend to adopt a more practical approach to derive findings of greater value for the design of entrepreneurship programmes. They mention that in the future, research should have an inter and trans-disciplinary approach, methodological diversity, and a specialised approach according to the attributes of the groups in the investigated sample.

Comment: Research has to be more practical and have entrepreneurship education as a focal point but to focus on a wider disciplinary approach. Entrepreneurship education should be investigated more as a course or module within programmes and not as a whole entrepreneurship education specialised programme of studies. On this way the researcher will have a wider point of view through different university programmes' frameworks.

Since 2008, Matlay found out that even if there is satisfactory quality of feedback from the students of entrepreneurship education programmes, their outcomes - even if identifiable - do not necessarily match in skills, knowledge and students' attitudes. Their impact is unclear (Pittaway and Cope, 2007) and the effort to improve skills and motivation remains questionable (O'Connor et al., 2012). Lorz et al. (2013) mention that the role of entrepreneurship in universities is questioned, as entrepreneurship is practical by nature. Jack and Anderson (1999) suggest more practical ways to teach entrepreneurship - in the work-field - in order to avoid overreliance on theory. Also teaching specific topics, i.e., ideal entrepreneurial behaviour (Fiet, 2001a) and how to write a business plan, does not necessarily mean it will have an effect on business viability or success, or a result on the abilities of the entrepreneur (Gibb, 1997, Henry et al., 2003, Honig, 2004).

Comment: The skills, knowledge, and attitudes that the students seek to improve have to be identified and compared to the ones that the programs aim to transfer through their impact. The programs' characteristics (e.g., practical – theoretical & basic modules) should be recorded along the way.

According to the Literature, research on Entrepreneurship education still needs a lot of improvements to be more accurate and specific. Lorz et al. (2013) mention the exploratory stage of the research with no ex-ante and ex-post measurements. While Mwasalwiba (2010) indicates the positive impact of entrepreneurship education on students, Rae et al. (2012) note that less rigorous studies - a large number within their sample - overestimate this very impact,

whose benefits have been questioned by Peterman and Kennedy since 2003 due to the research's low rigorousness by this time.

Comment: This research has to follow methods that will be as exhaustive as possible, with ex-ante and ex-post measurements.

Accordingly, the research is "An investigation of Entrepreneurship Education in Higher Education in Scotland: what is offered and how does it match the experiences and expectations of lecturers and students". The aim of this research is to examine the skills, knowledge, and attitudes that students of various backgrounds and characteristics seek to improve, in comparison with the stated aims and purposes of programs of various disciplines that contain entrepreneurship education courses, and to question the relation between the two parties and the outputs, comparing ex-ante and ex-post standings.

Research on the above could lead to a better understanding of the students' expectations and the procedure of choosing a university program that contains entrepreneurship education, following procedures that according to past reviews could be improved in order to achieve better results on investigating and understanding educational outputs in regard to entrepreneurship.

## 2.4  Research Questions

Considerations in the introduction and the above literature led to the development of the research questions:

i.  (a) What entrepreneurship or entrepreneurship related courses or programmes are offered by Scottish higher education institutions?
    (b) How are these courses or programmes presented on the institutions' marketing literature?
    (c) Do these presentations give any indications of the institutions' motivations and intentions for this provision?

ii.  (a) How do lecturers in Entrepreneurship express their purposes and/or expectations of Entrepreneurship or Entrepreneurship related courses or programmes?

(b) How do these lecturers' purposes and/or expectations relate or compare to the motivations and intentions of their respective institutions?

iii.   (a) How do students describe and evaluate their experiences on Entrepreneurship or Entrepreneurship related courses or programmes?

(b) How do these experiences and evaluations relate to the institutions' marketing claims for their courses and programmes?

(c) What is the extent of the correlation or mismatch between the students' expectations and the lecturers' and institutions' purposes in relation to Entrepreneurship Education?

# 3 Methodology

## 3.1 Introduction

The extent to which entrepreneurship has permeated the academic environment, the claims that universities make through the promotion of entrepreneurship education, and the experience and expectations of students who choose to attend, are investigated.

The answers to the research questions are a result of research that used primary and secondary source data. The secondary source data consisted of online and offline, printed, advertising material relating to the universities' Entrepreneurial Education provisions. Interviews with students, staff, and Entrepreneurship organizations, in combination with the analysis of the repertory grids, provided the primary data that was used for the research.

## 3.2 Context of the research

The universities provide courses on Entrepreneurship to spread entrepreneurial skills and to create Entrepreneurial individuals. They intend to provide the students with the skills that could alter their perceptions when handling situations and improve their entrepreneurial mindsets on different areas such as risk taking, need for independence (Bakotic and Kruzic, 2010), targeting on the growth of SMEs (Alarape, 2007), the development of knowledge and skills around entrepreneurship (DeTienne and Chandler, 2004), as well as encouraging actual new ventures (Kolvereid and Moen, 1997) and active business start-up planning (Souitaris et al., 2007). Entrepreneurship is being situated into the universitues' curricula as modules or entire new programmes that are created focusing on teaching different aspects of Entrepreneurship and transferring Entrepreneurial skills.

The students who are looking for their next steps in their studies, make an important decision that follows them along the way. They come from various family backgrounds, prior studies, and with career aspirations that would influence their expectations on what they should learn and on how their skills should improve after finishing their studies.

Staff from the universities and students were both interviewed, to identify areas of development or improvement for respondents from both sides. Along with the interviews, cognitive mapping methods (e.g., the repertory grid) and additional secondary data were used, to validate the results and achieve higher accuracy of the sample examined.

The sample for interview is selected from Scottish universities that provide Entrepreneurial courses to their students. They are being investigated through semi-structured interviews with voluntary participation. The interviews aim to uncover as many elements as possible and encourage discussion of the perspectives of both the universities and the students. This study is qualitative; thus, the findings are open to interpretation. This research follows an empirical and normative approach.

## 3.3  Methodological Assumptions

At this stage the objectives of the research were being determined. An inductive approach is adopted, allowing the researcher to have an insight of the social world. This approach allows the use of more qualitative methods, such as in-depth interviews, and participant observation. This approach therefore is the most suitable for the context for my research.

An inductive approach permits alternative explanations of the facts, as it is less structured. The research is concerned with the events taking place. Thus, the study of a small sample might be more appropriate, with the researcher being a part of the research process. As compared to deduction, induction puts emphasis on understanding the meanings that people attach to events and to an understanding of the research context, rather than scientific principles and data through theory. It lends itself more to collecting qualitative data – as in this research – and is more flexible to permitting changes through the research procedure. Generalization as a part of the conclusion is less of a concern (Saunders et al., 2009).

The inductive approach drives the overall research design and allows the researcher to examine the reasons behind what is happening, rather than just describing what is happening, as would be the case with a deductive approach. Being inductive allows the examination of a situation being open to multiple aspects of data, to improve knowledge on a subject (Easterby-Smith et al., 2008).

My goal is to use qualitative methods within an inductive approach to develop a framework of the underlying structure of the participants' experiences, by summarizing and evaluating raw data. The inductive approach is straightforward for deriving findings through a qualitative data analysis (Thomas, 2006).

Qualitative data collected through the inductive approach, can allow for amendments at different stages of the study to make the research process better addressed. The overall focus of the study can be amended, as well as the research questions if necessary.

## 3.4  Position of the researcher

This research intends to present the overall picture that universities promote, and the traits and qualities of the students who attend, based on the variety and the positioning of entrepreneurship and entrepreneurship related courses or programmes. On the other hand, the students' experiences present the opportunity to investigate how the universities perceive entrepreneurship education on a more practical level and how students make their academic choices. This could potentially improve the future of entrepreneurship education and the way it is perceived.

As an Economics and Business Management student myself, I have been in the position of participating in Entrepreneurship related courses. During both my first-degree studies in Economics, and my master's degree in International Management, courses such as Entrepreneurship, International Entrepreneurship and New Venture Creation, dealing with emergent topics within Entrepreneurship Education, were available.

As an actual Entrepreneur, choosing to investigate the impact of Entrepreneurship Education on students, as the subject of this thesis, was mostly of personal interest that linked to investigation of my previous personal experience of Entrepreneurship education.

Being a student myself, in institutions that offered entrepreneurship courses, I have my own views and beliefs on what entrepreneurship education can offer to students, and I am aware that my experience could potentially influence this research. However, things develop with time, and this research is an effort to objectively investigate the impact of Entrepreneurship Education on current students, not to promote my own beliefs. Combining experience and adopting a reflexive approach to reduce bias (Rowe, 2014), the participants are approached

with an open mind and a flexible manner in order to achieve the best possible degree of openness, honesty and reliability. This is an honest attempt, and the research cannot be value-free (Greenbank, 2003), and reality can only be described objectively (Dubois, 2015), to an extent. Adopting a reflexive approach does not guarantee higher quality of this research but it does give the researcher the opportunity and the perspective to improve with time (Holmes, 2020).

According to the researcher's observations and experience, entrepreneurship education is approached by the majority of the universities from a mostly theoretical perspective, offering the students general knowledge that does not prepare them for future practical applications in entrepreneurial environments. Investigating the above will lead to a better understanding of the current university approach and how it affects the market, as well as how it could differentiate to better meet the students' demands and needs.

The subjects investigated in this research are divided into two wider groups, the University entrepreneurship courses, and their students. The selection of the courses includes those provided in the Scottish higher-level education (universities). The actual subjects will be the lecturers responsible for courses, and the selection of the courses will be made by sampling, in order to cover a fair number of courses.

The lecturers were asked about their views of the students' expectations. The participation of the students took place on a voluntary basis and determined the quality of the research to answer the research questions. They were aware of the researcher's experience and knowledge in Entrepreneurship related courses. The students who showed Entrepreneurial interest after their studies or had a level of earlier Entrepreneurial activity, were informed about the researcher's Entrepreneurial activity too. The aim was for the participants to feel equal, not superior of inferior, and provide the best possible quality of information. The researcher adopted a position simultaneously as an insider and an outsider (Mohammad, 2001), attempting to gain as many advantages as possible from each position. Making the students aware of my previous experience (i.e. an insider) helped in the interactions. The results produced from the interaction with the above subjects helped the researcher to explore answers on the research questions. To achieve comparable results, the research design was approached in detail, specifically, on the theoretical basis, time, validity and reliability procedures, sampling, and sampling size (Lorz et al., 2013).

## 3.5  Research Strategy

Decisions therefore were made on how to conduct the research which led me to the steps involved – first to examine all the claims made by all the universities in Scotland for what they were offering at the time under the heading of Entrepreneurship Education. I examined the advertising language that was used to promote these courses and programmes. I looked at the range of these at different universities to see if there was a pattern or if they were offering different kinds of things. I then decided for the primary data that I would interview lecturers and students from as many possible programmes, from different universities.

This research emphasizes the need to investigate what the universities offer on entrepreneurship courses, what the students expect to gain from their experiences within the entrepreneurship courses and the links between them. The chosen research approach is inductive, as the research has to adopt an approach where the researcher is able to interview, empirically investigate, and observe the respondents. The study examines several Entrepreneurship courses and combines the findings on each. Consequently, the researcher intended to adopt a case study research approach with multiple embedded case studies, with a number of participants for each case study, so they involve more than one unit of analysis (Yin, 2003)

A case study is an empirical investigation of a phenomenon within its real-life context (Robson, 2002). It enables the researcher to gain a rich understanding of the processes within the context of the research (Morris and Wood, 1991), which interacts closely with the phenomenon being studied (Yin, 2003). The case study is mostly used in explanatory and exploratory research because of its ability to investigate the reasons behind an observation and why the phenomenon in question takes place (Saunders et al., 2009).

In practice, the primary data collected was not sufficient to enable the multiple embedded case studies that were planned. Instead, the whole sample was dealt in one study rather than in small case studies.

### 3.5.1 Population/Sample

The population of this study includes lecturers in universities that provide Entrepreneurship courses, either as a whole programme or as a course module within another context, and the

students attending these programmes or courses, as part of their studies, or up to six months after the end of their studies. The students still had a fresh view of their experience of their studies and were in the best position to comment on the details of the courses, their experience, and the overall contexts. The sample has been chosen from this population.

The sample for the secondary data is broader, as it was useful to investigate and compare the different positions of the university programmes and courses. All the Scottish universities were examined on how they include Entrepreneurship within their curriculum, how they promote Entrepreneurship as a field of knowledge, and what their expectations are of the students, when Entrepreneurship is included as part of a programme. The secondary data collection does not depend on the willingness of the participants, and the researcher can have unobstructed access because all the universities display this information on their websites.

### 3.5.2 Location

The research takes place in Scotland and the sample is identified from the Scottish institutions that provide Entrepreneurship courses on a university level across all the regions of Scotland. Several universities were approached to request access and the participants that were willing to take part in this research in the end came from four universities, representing several geographical areas across Scotland.

### 3.5.3 Restrictions/Limiting Conditions

It had been hoped to select a sample with a gender and nationality mix but the low response rate prevented choices. All of the lecturers and students who responded were included in the sample. Despite the lack of choice, the gender and nationality mix was reasonable in any case. This is a study that provides results from a sample drawn from students that have chosen entrepreneurship courses or have graduated from entrepreneurship courses in Scottish higher education. Even if the Entrepreneurship courses are structured in a similar way with other Entrepreneurship courses on an international level, and even if the students are of multiple nationalities, this should still be considered as a study for the Scottish universities and the students they attract, whether they are Scottish or international. Also, the questioned sample of students are only the ones that chose and accepted to participate in the research, which determined the sample. The students who participated graduated in 2018-19 or 2019-20 and

could present statistically different attributes or perceptions from students of earlier or future years.

### 3.5.4 Sampling Technique

This research followed a mix of non-probability sampling techniques. First with self-selection sampling, where the administrators of the relevant University departments were asked to advertise this research to their students and lecturers, and then with snowball sampling, asking the students and lecturers who responded to suggest other participants. The population of this research consists of the higher education institutions in Scotland (see Appendix xx.xx). Using this mix of sampling techniques resulted in having an initial sample of 14 participants. After consideration, as this was not enough for the research, 6 further participants were identified from 3 new courses in the University of Strathclyde and the University of Edinburgh, reaching a sample of 20 participants, from 4 different universities in Scotland. Further analysis of the Findings is presented in the Findings chapter (4.3).

The search for participants started by contacting the administrators of the relevant university departments to request access to the directors of the programmes, lecturers, and students. Each university has a different communication system; in some of them, it was possible for the administrators to contact the students directly and in others, the administrators had to contact the programme directors and the lecturers of the courses first. Once interviews were arranged or conducted with the lecturers and directors, the students were approached and informed about the opportunity to participate in the research.

The selection was dependent on the willingness of the staff and the students to participate in the research and the researcher had as many interviews as possible on that basis. The researcher attempted contact with all the administrators of the programmes and arranged the maximum number of interviews within all the institutions that provided access and all the participants that expressed interest.

The number of participants from each University is shown on Table 4.

*Table 4 - Sample - Number of participants*

| | Lecturers | Students |
|---|---|---|
| University of Glasgow | 2 | 6 |
| University of Strathclyde | 2 | 6 |
| THE UNIVERSITY of EDINBURGH | 1 | 2 |
| University of Dundee | 1 | 0 |

## 3.6 Plan of Action

The research uses primary and secondary data, and methods to validate the findings and elicit additional information. The data collection procedure consisted of several stages, as the researcher had to collect data from different groups. The collection procedure follows a flow from more general concepts to more specific and analytical methods. In the following, the interviewer asked for more details in every case and used additional sources and methods to validate the findings and proceed to a more accurate comparison of the collected data. This procedure was separated into three different phases. The first two phases aimed to determine the investigated sample of programmes and courses and their students and to identify the intentions, aims and objectives of each side. A first comparison of the gaps and similarities of both students and programmes was made to examine the initial proposition for comparison.

In the third phase, all the data from the interviews generated small scale case studies and tables of data that allowed the researcher to analyse them further and come to conclusions.

### 3.6.1 Phase 1

The first phase of action is the search for secondary data referring to the Scottish Universities and their official positions. This includes all of their exposition on Entrepreneurship and their objectives related to it. The below steps were followed. Steps 1 to 3 refer to the selection of secondary data, while step 4 deals with the first part of obtaining primary data through interviews. Finally, step 5 describes the first attempt to combine the previous steps.

1. Creation of a database of Scottish entrepreneurship courses and programmes, which focuses on the aims of the courses through their positioning to attract potential students.
2. Investigation of the promotional material and marketing literature of the courses and programmes, in terms of their positioning, their wording and the overall image that they intend to pass to the market to attract students.
3. Creation of a spreadsheet containing all the above data for ease of access during the next phases and comparison with derived data.
4. Semi-structured interviews with lecturers and programme directors on Entrepreneurship courses and programmes have been used, to identify their study choice procedures, their action plans and their intentions for the students.
5. Creation of tables of data and analysis of all data sets, looking at the aims and objectives of the courses and programmes and the intentions of lecturers and their perceived results. This has been conducted to identify matching points, similarities and/or gaps.

### 3.6.2 Phase 2

In this stage the research sought to identify the skillsets that students really acquire through education programmes. Semi-structured individual interviews were conducted with students, from a sample of entrepreneurship courses and programmes to examine their background and their intentions, as well as the perceived results of attending their chosen courses.

Additional data were acquired throughout the semi-structured interviews using cognitive mapping methods (i.e., repertory grid) on students of the aforementioned programmes to extract additional information, to indirectly confirm aspects within the interviews and to obtain a clearer view of their perception of their skills and the results of the used teaching methods.

### 3.6.3 Phase 3

Both the intentions (phase 1) and skills transmission (phase 2) were compared and analysed. Cases were constructed for different courses and their students, creating tables and charts to understand the connection between the aims of the university, which also reflects on the positioning of the lecturers, the perceived learning of the students and the real results on individuals.

Questions for further investigation were then developed. This analysis could possibly draw questioning on the existing Entrepreneurship education model.

## 3.7  Data Collection

This research needed data collection from several sources. A variety of primary and secondary data were used, to have a complete picture of the research environment and enough data to investigate the research questions.

### 3.7.1 Secondary Data - Document and Website Analysis

Secondary data were collected from written material on the institutions' websites to examine the positioning that the entrepreneurship courses and programmes use in order to attract students, and the overall pictures they present that influenced the students choices for applications. This type of data collection was based on the reading material that the university programmes use as the most common way of assisting students to reach a decision when looking for a programme to continue their studies further. The online image of each programme is constructed in a way to reflect the image that each university wants to present for a programme, according to the type of students that they wish to attract, i.e. their marketing strategies for the programmes.

The first step for the researcher is to be aware of the claims of the universities and their programmes regarding the taught material and the development of the participants – students. The data were gathered from online sources and printed documents used to inform the students about the programmes, describe the programmes' structures and the reasons used to encourage the applicants to make a choice.

The purpose of gathering this material is to use it for analysis along with the data from the semi-structured interviews. These data are the initial knowledge of the researcher for the courses and were used in the carrying out of the interviews to initiate discussion and to investigate the extent of correlation between the universities' intentions and the students' and staff's positions.

There are certain advantages in collecting secondary data for this research:

- They can only be collected from a single source, the relevant university itself, and even if the university information is not regularly updated, it is the only source that the students have access to in order to inform themselves about their potential choices. The most recently available version of the above-mentioned source was used in the research.
- The collection of these kind of secondary data is unobstructed and the successful full data collection depends only on the data collection ability of the researcher, as they are publicly available as advertising material for the students. They provide an economical way to gather information, particularly in terms of time and money. (Ghauri et al., 2020).
- They can provide comparative and contextual data, as the researcher can compare the positions of the programmes through different sources from the same university.
- They are stable and are available in forms that can be cross-checked by others, so they make the research findings more open to public scrutiny (Denscombe, 2007).

There are no disadvantages to this method of gathering secondary data for the specific type of research as there is only one main source, which is relevant and updated. Access to the data is free, they are not an interpretation, and they provide an objective picture of the reality, with no quality or presentation issues that could affect the quality of the research. On the contrary, any data that do not seem objective or seem to have quality and presentation issues, comparing with alternative data from another marketing channel from the same source, would only mean that there is an opportunity for further discussion with the interviewees on the next stage of the data collection.

During the secondary data collection, all the above advantages and disadvantages were given consideration. An effort was made to collect data from more sources than the university itself. There are online sources that bring together data for all the universities in the United Kingdom and other countries, hypothetically making it easier for the students to compare the offerings

of the courses and to be more informed when making their list to proceed to applications. After comparing data from those kinds of sources, it was found that they are often outdated to an extent, or incomplete, being frequently one step back from the information provided on each university's individual website. After taking into consideration the above findings, the data collection was only made through using the official pages for each course, from each university's website, which was the most updated version available and precisely reflected the university's offerings, position and aims. Any changes that occurred up to the time of the interviews, were reflected in the gathered data.

### 3.7.2 Primary Data - Interviews

To investigate the perspectives of the individuals who participate in the research, as the research is both explanatory and exploratory, the researcher gathered primary data by conducting semi-structured face-to-face, video call and telephone interviews.

Conducting semi-structured interviews allows the researcher to establish personal contact with the participants, allowing reflection on events, feedback, and personal assurance on the way the information is used. Semi-structured interviews are more personal and more descriptive, allowing more space for complex or open-ended questions, also contributing an exploratory perspective to the research (Saunders et al., 2009). Hence, personal contact makes the participants more open in providing explanatory answers and achieves a higher response rate, while the researcher gets a better understanding of the respondents' qualities (Healey, 1991). Using open-ended questions and standardised information, the researcher can navigate the discussion and prompt the interviewee in aspects that can reveal different perspectives, useful new information and more detailed descriptions.

Semi-structured interviews were prepared and conducted having in mind that the researcher should minimize data quality issues in order to gather data of the highest possible quality through the respondents' interviews. This was reflected in the structure and tone of the questions, in efforts to avoid interviewer or response bias. The face-to-face contact between the interviewer and the interviewee can affect the perception of the interviewee in several ways, causing the interviewee to provide different levels of access to the interviewer and various levels of insights and details (Saunders et al., 2009).

A few of the interviews had to be conducted through video call or telephone, because of the distance between the participant and the interviewer, or because of the safety measures during the COVID-19 spread which was at its peak during the last phase of the interviews. Two out of a total of twenty interviews were conducted through telephone and two of them by video call.

The advantages of these methods are mostly associated with easier access to participants and consequently lower cost and more efficient way of data collection. The distant interviews also had a disadvantage since the impact of a face-to-face approach is greater. While in the video call it is possible for the interviewer to establish trust, to an extent, and explore the participant's responses including the non-verbal behaviour in a way that is closer to the face-to-face interview, even if there is not extra time for small talk before and after the interview, the telephone interview may lead to issues of reliability as the participants may be potentially less willing to engage in an exploratory discussion and respond to more sensitive questions. Additionally, on a telephone interview it is more challenging for the interviewer to control the pace of it, and the flow of the provided data, as any visual cues and non-verbal behaviour are absent (Saunders et al., 2009).

For the reasons mentioned above, for the two students who were interviewed remotely, a video call was arranged. The two telephone interviews were conducted only with lecturers, due to the different requirements of the interview structure and the lesser amount of personal data involved.

Two different interview structures were used. One for the lecturers of the courses and programmes that were investigated and one for their students and alumni. The interview questions for each of these interview types are provided in the Appendix, Table 12.

The interview with the lecturers investigated the selection process of the university programmes, the position of the universities on the knowledge they wished to transfer to students, the level that they expected their students to be at, after their studies on the various parts of this knowledge using a breakdown of it, as well as the teaching methods that they used to ensure that the students would be likely to absorb as much as possible.

The interview with the students focused on their expectations from their course, on their family background regarding entrepreneurial skills, as well as their position after their studies and how, or whether, they had met their expectations. The repertory grid technique, that is

analyzed in more detail in 3.7.3, was used along with the interviews, to help the researcher understand and explore the perceptions and the needs of the interviewees regarding the skills they acquired during their attendance on the relevant course (Goffin et al., 2010).

However, on a semi-structured interview, a number of data quality issues were identified, that the researcher should be aware of, when analysing the data (Saunders et al., 2009). The reliability of the source and of different types of bias, as well as validity and generalisability, are a few examples.

It is possible that during the interviews, the interviewer intervenes with the data from the responses through non-verbal behaviour, tone of questioning and comments, imposing their own beliefs through the asked questions. It is also possible that there is bias in the interpretations of the responses (Easterby-Smith et al., 2008) by the interviewer, or receiving information with limited value, due to lack of developed trust between the interviewer and the interviewee. This, along with any perceived interviewer bias could also lead to response bias. Response bias could also happen when the interviewee is sensitive to some topics and would not wish to reveal or discuss specific aspects that could reveal sensitive information or put them out of their socially desired role, or in a position of having to talk positively or negatively for the organisation in which they work or study. The dispositions of the individuals who agree to be interviewed, as well as the time-consuming process of semi-structured interviews, could all perceivably lead to bias.

The researcher can minimize the possibility of bias during the data collection or data analysis, by identifying possible issues during the interviews or during the transcription of the interviews. Data quality issues could potentially be overcome by increasing the transparency of the research design; the reasons for the use of the specific strategy and methods can be clearly explained and presented. Flexibility can be shown through willingness to explore the complexity of the topic discussed. The researcher needs to be prepared and to have thorough knowledge of, and familiarity with, the research topic, the information supplied to the interviewee, the chosen location and the whole approach in questions, comments, behaviour, and appearance. All the above could potentially have a connection to or influence on the collected data (Marshall and Rossman, 2014).

*An attempt to ensure that qualitative, non-standardized research could be replicated by other researchers would not be realistic without undermining the strength of this type of research* (Saunders et al., 2009).

In keeping with Marshall and Rossman's (2014) indications as mentioned, the researcher made strong efforts to make realistic assumptions about the potential to replicate the research findings.

While planning and conducting the first interviews, all of the above aspects were taken into consideration, choosing the best possible place, and preparing every aspect, even including the informal chat that would take place before the interviews. Open-ended questions, notes for the structure and the tone that had to be used, as well as the material for the relevant department were shown to the participant at a certain point of the interview, to discreetly prompt further comments and gain further insights.

During the interviews with the lecturers, the structure, the tone of questions and non-verbal behaviour had to be carefully considered to direct the conversations and gain the best available data. On this type of interview, it seemed more difficult to develop trust than in the interviews with the students, and the conversation could easily digress to topics outside of the actual research interests. During the first two interviews, the interview time was considerably exceeded beyond the planned 30-45 minutes in order to gather all the information needed. The reason was the willingness of the interviewees, which led to the extended discussion on different but contextually relevant topics. During the third interview, the structure and quality of conversation were more focussed and more meaningful data and insights were gathered in a timely manner.

For the students there was a different interview structure, as trust was of major importance to gaining meaningful information. More general questions had to be asked first, about their experiences and the classes. In what followed, sharing personal experiences as a student helped in asking the more personal questions and in introducing the repertory grid. During the first interviews it was revealed that the questions and structure had to be clearer, as there were points that the participants did not understand. After some of the questions were modified, the discussion topic and research objectives were clearer to the students, confirmed by a better quality of answers. From the early interviews and during the overall interview process, it was observed that each participant had unique information to impart and that they had to be asked about as many aspects of their environment as possible. This was an early stage for patterns identification, therefore as much information possible for the participants' backgrounds and their views of the world had to be gathered to understand better their personalities and their

choices and to be in a stronger position to obtain better and more comprehensive results. In the last stage, when showing the repertory grid to each participant, the presentation and explanation had to be improved further, as well as to proceed to improvements on the repertory grid itself, to be clearer and more understandable.

### 3.7.3 Repertory Grid Technique

The repertory grid technique was used in the interviews with the students, to help gather more data on their views. The repertory grid technique was initially developed for the field of knowledge of psychology to allow the interviewer to collect quantitative data and elicit information through a semi-structured interview (Napier et al., 2009), without channelling the interviewees' thinking into predefined terminologies and categories (Goffin et al., 2010). This allows the investigated attributes to be analysed on the frequency of their appearance, the strength of mentioned qualities, as well as the general perception over the different groups of the sample, generating insights, identifying correlations and any possible need for improvement within any of the chosen attributes.

This is a cognitive mapping approach (Walsh, 1995), which is useful for understanding how individuals and groups perceive facts and the other individuals in their environment. The technique is based on the Personal Construct Theory (Kelly, 1955), a model made of:

> *distinct bipolar constructs that allow a person to compare and contrast distinct objects* (Curtis et al., 2008; pp.40).

The repertory grid technique leads the interviewer to produce the cognitive map, which summarizes the data into the interviewee's frame of perception (Goffin et al., 2010). From the quantitative data, obtained from the repertory grid, the interviewer can carefully proceed to assumptions and further qualitative analysis.

One of the objectives of this research was to study the skill sets requirements from the students and those that the entrepreneurship programmes provide. The repertory grid technique helped to explore the students' perception regarding the skills they could acquire through their studies. On Table 5 is the repertory grid that the interviewer used to acquire data from the students.

*Table 5 - Repertory grid on students' skills on different stages of life*

| Construct | Family background - Character | Studies prior to the course | During the course | After the course | Ideal Position | Construct |
|---|---|---|---|---|---|---|
| **Emergent Pole - 1** | | | | | | **Contrast Pole - 5** |

<caption>Elements</caption>

The elements were rated according to the strength of the different skills that the interviewees think they acquired at the different stages of their lives. This made the interviewees deliberate and bring to the surface their own view of the different skills, when the interviewer identified various skills that the interviewees claimed that their attendance on the course had an effect upon. The various skills that the interviewees mentioned are summarised in the Findings chapter (4.3.2). The results are credible, since the repertory grid is based on subjective data and personal perceptions about social actions (Curtis et al., 2008). However, the interpretation of the interviewer is subjective, and every possible effort was made to keep the interpretation unbiased and impartial.

Using the repertory grid on a couple of interviews it was made clear that the technique needed to be more accessible and transparent, to have a better quality of results. A few skills were swapped to their emergent poles, as they were better understood (e.g., Renaming *Confidence with Financial Stability* to *Confidence with Financial Instability*), and changed the sides of the poles, so the strength of a skill would be reflected from the highest number on the scale from 1 to 5, with the decisive skills being at the left column. For example, on the highest level of having Time-Management skills would be the number 5, and *Time-Management* is written on the left column, with number 1 reflecting its contrast element on the column at the right (Appendix, Table 13).

## 3.8 Construction of Research Instruments

The data collection instruments as above were constructed on the basis of answering the research questions in the most comprehensive way possible, on an attempt to explore and understand the University's perspective, the students' perspective and their interplay, taking into account their background, their individual environments, as well as their participation environment.

The research questions, derived in the last part of the Literature, addressed the below concepts:

- the aim of the Entrepreneurship programmes
- the skills-sets the students acquire through them
- the effectiveness of the teaching methods on transferring skills
- possible areas for improvement on current teaching methods

From the Literature, Entrepreneurship courses are supposed to improve graduate employability, inspiring graduate enterprise (Pittaway and Cope, 2007). The design of the Entrepreneurship programmes and their scope, as well as personal and socio-economic factors are responsible for this influence, and therefore investing in entrepreneurship education should also mean focusing on the outputs of entrepreneurship education (Lorz et al., 2013). The exploration of the design of Entrepreneurship programs should consider the attributes of the investigated sample, in a trans-disciplinary approach, with methodological diversity (Henry and Lewis, 2018).

As explored in the Literature Chapter, Entrepreneurship is practical in nature, its role in universities is questioned (Lorz et al., 2013), the outcomes of the Entrepreneurship Education programmes for the students do not necessarily match their needs (Matlay and Solomon, 2008), their impact is unclear (Pittaway and Cope, 2007), and the reasons behind their motivation is questionable (O'Connor et al., 2012). There are views that teaching Entrepreneurship should be practical and on-the-field (Jack and Anderson, 1999), that the business plan has no effect on the abilities of the entrepreneur (Gibb, 1997, Henry et al., 2003, Honig, 2004), and that the impact of these kind of studies is often overestimated (Rae et al., 2012).

In order to investigate the above and find answers to these questions, a clear picture of what is offered in the target market as a whole in respect to Entrepreneurship courses, to what extent, and why (i.e., what are the reasons and the aims of this offering) should be obtained. This was successfully provided with the collection of the secondary data. The aim of the Entrepreneurship programmes has been revealed through the collection of the secondary data from the universities' online exposure. It has been validated and gone into in more depth during the interviews with the lecturers of the various programmes. The skills that the student should expect were discussed and pointed out.

In the following, the details of the interaction between the universities and the students, needed to be explored and the semi-structured interviews seemed to be the most appropriate

way of doing so. However, this did not seem enough, and a confirmation of the findings and the data acquired through the interviews was needed. The repertory grid seemed to cover that gap, providing a way to cross-evaluate the answers from the interviews and show inaccuracies or bias on previous responses. The students' perception of the programmes and the reasons for their selection are discussed through the interviews with the students, where they were asked about the specific skills they believe they acquired during their participation in the Entrepreneurship programmes. This was validated by the Repertory Grid, to understand the perception of the students for their skills and their position after attending their programme, to elicit more details on their point of view, and to reveal possible correlations between different skills. The repertory grid provided quantitative data that, through their analysis let the researcher understand better the views of the students, detect possible hidden and emergent issues, and extract a more integrated interpretation of the results.

The effectiveness of the teaching methods on transferring skills was investigated with the comparison of the first two sets of data. Comparing the intentions of the Entrepreneurship programmes with what the students think they would acquire and what they did finally gain from the programmes, enabled the creation of a report on their results.

As a round-up of the above, the analysis of the resulting data concludes with a suggestion for possible areas of improvement on current teaching methods, based on suggestions on how the teaching methods could cover the identified differences between the results that the students expect and the results that the programmes achieve. This was a result of a one-to-one comparison between the programmes and their students, and an overall comparison among the programmes' results.

The above revealed the actual results for the students in the specific sample, on the specific year of studies. As this is qualitative research, the researcher engaged all the necessary precautions to ensure that the interpretation could be impartial and unbiased. The interviews were cross checked with secondary data and further analysis on quantitative data to maintain a level of credibility and ensure that the interpretation is as consolidated and coherent as possible. This research cannot necessarily be generalized for all the students of all the years in all the Entrepreneurship programmes, but it could work as an indicator of possible need for improvement and further research.

## 3.9   Analysis of Qualitative Data

To achieve deeper insights from the qualitative data, analytical tools were used to organise and analyse all the material, both primary and secondary.

All the data collected were stored for analysis with NVivo data analysis software. As the data include semi-structured interviews, web content, advertisements and generally the positioning of the universities through each way that they reach students, NVivo assisted in finding connections and patterns within the content in the form of themes for further analysis.

## 3.10 Ethical Implications

This research was carried out according to the guidelines of the research ethics committee for non-clinical research involving human subjects of the University of Glasgow. Ethical approval was obtained from the University of Glasgow prior to the fieldwork. All the participants were briefed about the research, the research's aims, scope and method, and signed a consent form regarding the use of the data they were going to provide.

All of the respondents were notified about their anonymity during the research and their right to withdraw at any stage if they wished to do so. The respondents have their privacy respected, as well as the right to ask questions and get feedback from the findings and be informed of any benefits arising from the study. This research is committed to the avoidance of words, phrases or language that are biased against a person's gender, ethnic group, age, religion, or disability (Creswell and Creswell, 2003). The respondents were assured that the interviewer intended to maintain the highest level of objectivity in discussions and analysis throughout the research, and would adhere to the Data Protection Act 2018 (GDPR).

An application for ethical approval was submitted in the College of Social Sciences Research Ethics Committee. The project was approved with a starting date on the 26th of May 2019, when the contact emails were sent. Shortly after this date the interviews started.

# 4 FINDINGS & ANALYSIS

## 4.1 Introduction

This research was conducted in the academic environment, at the end of the academic year, when the courses finished, and the students had an overall picture of the programmes related to and engaged with Entrepreneurship. The lecturers and the programme directors had completed teaching and they were supporting the students with their dissertations, while the universities were planning changes for the next academic year in staff and curriculum, as well as the presentation of the programmes in terms of wording, titles, and core courses. The academic staff had already taught the courses, presenting knowledge, tools and in some cases experiential techniques to the students. Conducting the interviews at this time of the year was very important for this research, as both the students and the lecturers had a complete picture of the year's modules and how they had worked out for both parties. Thus, they provided complete and robust data, having a recent picture of their experience and their interaction within the modules. A few additional Interviews with students of additional programmes were conducted on the next academic year, with the researcher attempting to undertake them under similar conditions, at the same time of the year, using the same interview structure.

The students, regardless of their background, chose their programme and were in the courses for various reasons, with a variety of expectations. People with a mixture of different backgrounds, family background and previous knowledge, perceive the taught class in different ways. The skills grown, the information absorbed during the course, and the extent to which the university's intentions matched their expectations, were questioned.

This chapter presents the data gathered on the universities' aims and positions, along with data derived from the interviews with students commenting on their experience. The chapter consists of three parts; the presentation of secondary data, primary data gathered during the interviews, and finally the presentation of the findings from the repertory grid. This set of data presents the positions and the circumstances from both parties, lecturers and students, and are also used in the following chapter to discuss the correlation and the interplay between them.

## 4.2  Secondary data - Entrepreneurship Courses in Scotland

Scotland is home to some of the world's oldest and most prestigious universities, having an internationally successful sector of higher education. With the oldest institution, St Andrews, acquiring its university status in 1413 and two more in Glasgow and Aberdeen following in the same century (*University of Glasgow*, 1451; *University of Aberdeen* 1495), Scottish higher education has today 17 institutions, with more than 5 centuries of accumulative experience.

Entrepreneurship education began in the first half of the 20th century and spread across the American universities and the English-speaking world up to its last quarter. Following the trends of the international academic environment, the Scottish universities embraced this new field and combined it with their various academic fields, developing the curriculum, enhancing the knowledge and prospects of the students. Entrepreneurship societies, centres and incubators emerged within universities to support aspiring Entrepreneurs.

Below there is a presentation of all the findings on the Entrepreneurship courses in Scottish universities at the time of this research, along with their individual characteristics and particulars. There is a presentation and analysis on how Entrepreneurship is included through core or optional Entrepreneurship related modules, parallel Entrepreneurship support and programmes' claims and descriptions.

### 4.2.1  The universities and the courses

There are 17 higher education institutions across Scotland. The oldest four of them having their university status since the period between 15th and 16th century, and the rest of them on the second half of the 20th century, with the newest being as young as 2011. Each of them has different areas of specialization and a broad range of fields that are taught, as well as many locations across the map, scattered across Scotland and thus geographically accessible.

The Scottish universities provide Entrepreneurship programmes in their undergraduate and postgraduate studies, and a wide range of Entrepreneurship courses within other business programmes, and other disciplines, sometimes being in the core of the course, or as an optional module to enhance the entrepreneurial skills of the students. From the 17 Universities in

Scotland, 13 of them provide Entrepreneurship courses and programmes on both their undergraduate and postgraduate studies (Table 6), 3 of them only on a postgraduate level. Only the *University of the West of Scotland* provides a course that supports Entrepreneurship on one undergraduate program without mentioning Entrepreneurship in their material, and claim they provide means to support enterprising individuals but do not include clearly any specific Entrepreneurship courses.

*Table 6 - Entrepreneurship courses in Scotland by level of studies*

| University | BSc / BA (Hons) etc | Master Level (MA, MSc, MLitt, etc) | PhD |
|---|---|---|---|
| University of St. Andrews | 2 | 6 | |
| University of Glasgow | 1 | 8 | |
| University of Aberdeen | 2 | 4 | |
| University of Edinburgh | 11 | 2 | |
| University of Strathclyde (Glasgow) (1) | 4 | 7 | 1 |
| Heriot-Watt University (Edinburgh) | 1 | 4 | |
| University of Dundee | | 8 | |
| University of Stirling | 2 | 3 | |
| The Open University (4) | 3 | 4 | 1 |
| Edinburgh Napier University | 6 | 8 | |
| The Robert Gordon University (Aberdeen) | | 2 | |
| Glasgow Caledonian University | 3 | 6 | |
| University of Abertay (Dundee) | | 2 | 1 |
| Queen Margaret University (Edinburgh) (2) | 6 | 1 | |
| University of the West of Scotland | 1 | | |
| University of the Highlands and Islands (3) | 12 | 6 | |
| Royal Conservatoire of Scotland (5) | 1 | 1 | |

(1) incl. 3 Technology Ventures MSc variations
(2) incl. 3 Business & Management MSc variations
(3) incl. 2 MBA variations

(4) incl. 2 Computing & IT variations
(5) Entrepreneurship available in all subjects in School of Music

There are 130 higher education programmes and programme variations (i.e., one programme title with 3 different possible outcomes – e.g., MSc, PGCert, or PGDip) in Scotland that provide

Entrepreneurial Education with Entrepreneurship or Entrepreneurship related courses (Appendix, Table 14). The university that provides more courses or programmes than any other single university is the *University of Strathclyde*, with the *Hunter Centre for Entrepreneurship* that provides specific support for Entrepreneurship teaching and research.

The word "*Entrepreneurship*" or "*Entrepreneurial*" is clearly mentioned only on the title of 23 programmes (Table 7), in 10 of the universities; *University of Glasgow (UoG), University of Edinburgh (UoE), University of Strathclyde (UoS), Heriot-Watt University (HWU), University of Dundee (UoD), The Open University (TOU), Edinburgh Napier University (ENU), The Robert Gordon University (RGU), University of Abertay (UoAT), and the University of the Highlands and Islands (UHI)*. 17 of them are of postgraduate level (i.e., MScs, MLitt, PGCert, PGDip, MPhil), 3 are undergraduate programmes (BA), and 3 are PhDs. From these, 5 are in combination with other disciplines, situated within non-business departments; Chemistry, Engineering, Translation, Biomedical Studies, and Tourism.

*Table 7 - Entrepreneurship courses in Scotland by how they include Entrepreneurship*

| University | Title | Title - Business Contained | Business - Contained | Title - Other Contained | Other Contained | Business Specialised - Contained |
|---|---|---|---|---|---|---|
| University of St. Andrews | | | 7 | | | 1 |
| University of Glasgow | | 1 | 7 | | 1 | |
| University of Aberdeen | | | 4 | | 2 | |
| University of Edinburgh | 1 | | 11 | | | 1 |
| University of Strathclyde | 2 | 1 | 4 | 1 | 4 | |
| Heriot-Watt University (Edinburgh) | | | 2 | 3 | | |
| University of Dundee | | 2 | 3 | 1 | | 2 |
| University of Stirling | | | 4 | | 1 | |
| The Open University | 2 | | 4 | | | 2 |
| Edinburgh Napier University | | 4 | 1 | | 8 | 1 |
| The Robert Gordon University | | 1 | 1 | | | |
| Glasgow Caledonian University | | | 8 | | 1 | |
| University of Abertay (Dundee) | 3 | | | | | |
| Queen Margaret University (Edinburgh) | | | 5 | | 2 | |
| University of the West of Scotland | | | 1 | | | |
| University of the Highlands and Islands | 1 | | 4 | | 10 | 3 |
| Royal Conservatoire of Scotland | | | | | 2 | |

Another way of mentioning Entrepreneurship is by including the word "*Enterprise*" in the title (Appendix, Table 14). That is the case in 9 more programmes and their variations, 4 of which are at postgraduate level, and 5 are undergraduate programmes (BA). More disciplines are involved here too; Computer and Information Sciences, Sociology, Social Policy, and Criminology.

Entrepreneurship courses are also widely included in programmes within most business and management studies and other disciplines, including other disciplines combined with business (Table 7). When Entrepreneurship is not on the title of a programme, it is contained as a module and its involvement is usually mentioned on the aims of the specific programme. That is all of the rest of the 98 programmes (and their variations) in Scottish Universities, that provide Entrepreneurship or Entrepreneurship related courses in their curriculums. 31 of them are within non-business departments.

Non-business disciplines include Entrepreneurship courses to provide Entrepreneurship education to their students. We find that 7 of the Scottish Universities, (i.e., *UoG, UoA, UoE, UoS, HWU, UoD, ENU, UHI, Royal Conservatoire of Scotland (RCS)*) consider Entrepreneurship Education and the skillsets that Entrepreneurship Education aims to improve, potentially useful to students of different disciplines. Entrepreneurship is combined with various fields, to lead and support students with self-employment and developing their business skills to survive in the market. Entrepreneurship in this case is combined with almost any field, and more commonly than the usual Business courses; Healthcare (*UoE*), Art (*UoA*), Translation (*HWU*), Architecture, Media, Tourism, Sports (*UHI*).

When each of the universities provides Entrepreneurship to students of one or two non-business departments, and mostly on postgraduate education, *ENU* and *UHI* give the opportunity to students of a wide variety of non-business disciplines to enhance their knowledge on Entrepreneurship (Table 8). *ENU* provides Entrepreneurship courses within postgraduate courses in Ecotourism, Design courses, Law, Medical studies, and in one graduate course in Music. *UHI* combines Entrepreneurship courses in undergraduate-only non-business disciplines with Architecture, Audio Engineering, Production, Media, Music, Tourism, and Sports.

*Table 8 - Entrepreneurship courses in Scotland by subject*

| University | Subjects that contain Entrepreneurship & Number of them* |
|---|---|
| University of St. Andrews | Business 7 — IT 1 |
| University of Glasgow | Business 8, Music 1 — Geography 1 |
| University of Aberdeen | Business 4 — Environment 1 |
| University of Edinburgh | Business 12, Law 1, Medicine 1 |
| University of Strathclyde (Glasgow) | Business 7, Engineering 4 |
| Heriot-Watt University (Edinburgh) | Business 2, Translation 2, Brewing / Distilling 1 |
| University of Dundee | Business 5, Engineering 2, Biomedical 1 |
| University of Stirling | Business 4, Law 1 |
| The Open University | Business 6, Computing & IT 2 |
| Edinburgh Napier University | Business 4, Music 1, Law 1, Medical 1, Tourism 1, Sports 1, Motion Graphics 1, Design (Product / Lighting / Exhibition / Interactive Art) 4 |
| The Robert Gordon University | Business 2 |
| Glasgow Caledonian University | Business 8, Engineering 1 |
| University of Abertay (Dundee) | Business 3, Computing & IT 2, Audio Engineering 1 |
| Queen Margaret University | Business 5, Acting 2 |
| University of the West of Scotland | Business 1 |
| University of the Highlands and Islands | Business 8, Music 2, Drama / Production 1, Tourism 1, Sports 3, Interactive Media 1, Architectural Technology 1 |
| Glasgow Conservatoire | Music 1, Theater 1 |

* When there is Business & Other subject (Business - Specialised), business has not been considered

Universities sometimes provide Entrepreneurship modules, or modules that include Entrepreneurship elements that are being taught within different programmes. Table 15 (Appendix) is a rearrangement of Table 14 (Appendix). It shows the available modules in each University, and on which programmes they are available. It seems there are 3 different types of modules:

1. Modules that are being taught in more than one programme, either as core or optional (e.g., *UoST, Entrepreneurship and Business Development*; *UoG, Entrepneurial Finance for SMEs*).
2. Modules that are slightly different for different programmes, having a level of specialisation for the specific programme (e.g., *UoE, Entrepreneurial Leadership* and *Entrepreneurial Leadership in the Social and Sustainable Enterprise*).
3. Modules that seem specialized and designed for the needs of a specific programme and have no nominal connection with other modules used in different programmes of the same university (e.g., UoS, *Entrepreneurship, Innovation & Commercialisation*, *Venture Management Strategy & Growth*, *Business Models and Strategy*).

It seems that many universities mostly prefer to use the same courses/modules in different programmes (e.g., *UoD, UoA, ENU, UHI, RCS*), when others (e.g., *UoS*) prefer not to have identical titles on multiple programmes and to appear as unique, or as specialized variations. A few universities provide some Entrepreneurship or Entrepreneurship related modules within their lists without it being clear to which programmes are they related (i.e., *UWS, GCU*), and others use the term Entrepreneurship in a few programmes within their values and aims, but they seem to be taught within other modules (i.e., *UoD, UoSt, QMU, UWS, UHI*).

### 4.2.2 Aims of the courses

All of the universities promote their programmes mainly through their websites and with printed literature that is usually distributed through fairs and exhibitions. The printed literature follows the same presentation that exists on their current websites. When each university designs a course, they set an aim, describing to students their intentions and possible outcomes after graduating. Some universities outline the possible path that graduates could follow according to the university's aspirations for the course, while others inform the prospective students

about the career that was followed by alumni of the course. The intentions seem to be in line with Maritz and Brown (2013)'s suggestion to keep the programmes' aspects and components as clear as possible.
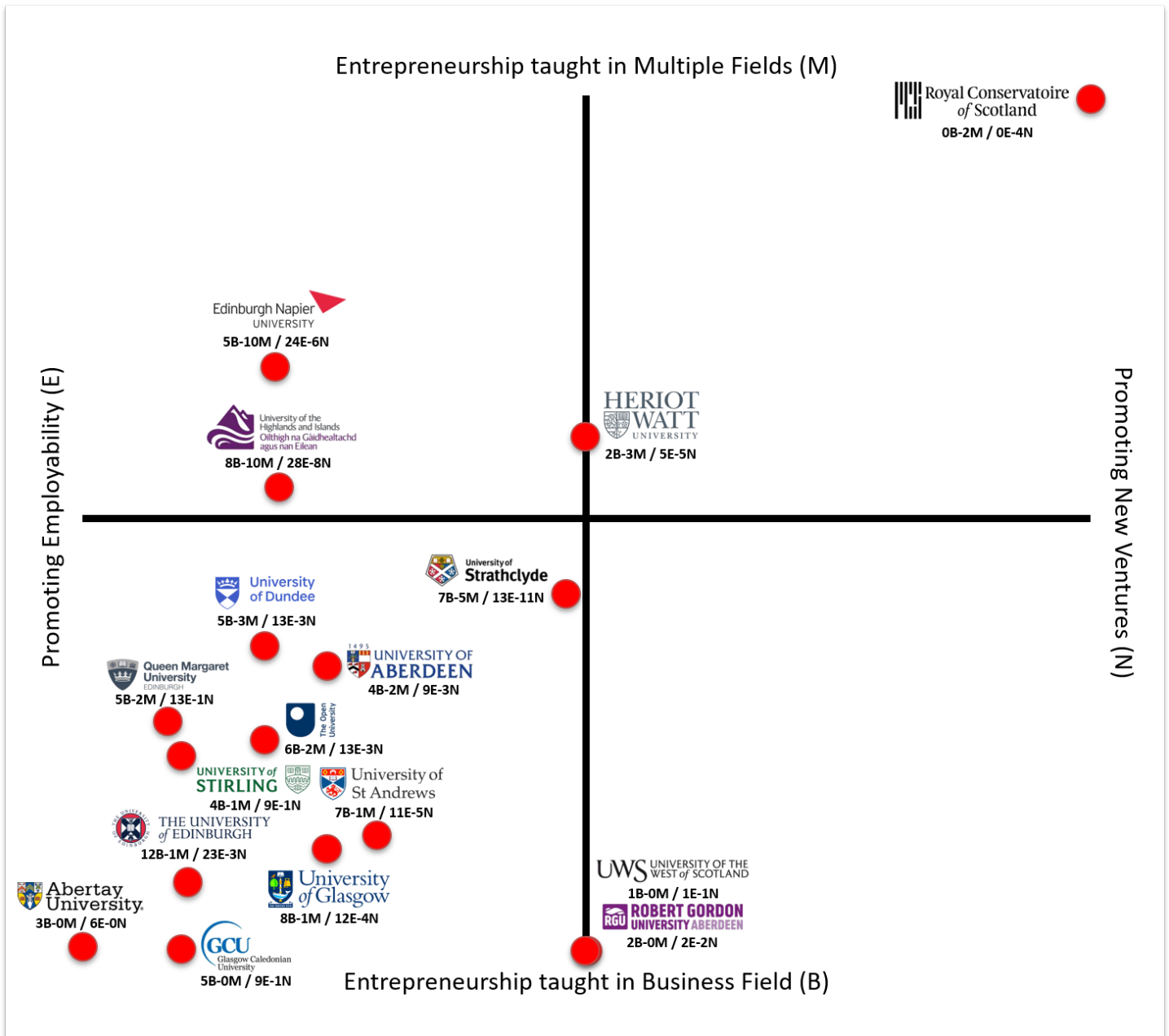
There are programmes that focus on developing the entrepreneurial skills of the students in a business context and their aim is to lead them to new start-ups, or to an enhanced approach into business, improving their employability (Appendix, Table 16). This seems more common for *UoG, UoA, UoE, UoD, University of Stirling (UoSt), TOU, GCU, UoAT, QMU, UHI*. In other programmes, entrepreneurship is taught through optional modules that students can choose, depending on their personal aspirations and plans. *UoSA, UoA*, and *UHI* mostly follow this path (Appendix, Table 14).

Programmes that contain Entrepreneurship usually contain different kinds of similar wording, mostly in their "*aims*" section, making claims in order to attract interested students (Appendix, Table 16). The sections that each university uses to discuss their targets and to mention Entrepreneurship in some way, are the programme overview, the aims for the students, the structure of the programme, and each course's overview.

In Figure 3, the aims of the universities when they include Entrepreneurship related modules within their curriculum, are explored. The universities mention two different targets for the students; to enhance their employability, creating highly competitive and Entrepreneurial individuals, and to provide them with the knowledge to create new ventures. That is on the horizontal axis. Most of the programmes seem to either promote employability, or to promote new ventures in combination with promoting employability. For this reason, each of the universities was given two points for each of the programmes, so in the case that it promotes both new ventures and employability, there is one point for each of the variables. There is only one exception (e.g., *RCS*) that promotes Entrepreneurship only as a means for new ventures, without mentioning employability within their aims.

Furthermore, on the vertical axis, for some of the universities, Entrepreneurship is taught only within the fields of Business when for others it has started being a subject that can be combined with multiple fields. Similarly, each university has received one point for each subject that includes Entrepreneurship in Business (B), or in other fields (i.e., Multiple fields (M)).

*Figure 3 - Aims of Entrepreneurship Modules in Scottish Universities*



**Entrepreneurship taught in Multiple Fields (M)**

Royal Conservatoire of Scotland
0B-2M / 0E-4N

Edinburgh Napier UNIVERSITY
5B-10M / 24E-6N

University of the Highlands and Islands
Oilthigh na Gàidhealtachd agus nan Eilean
8B-10M / 28E-8N

HERIOT WATT UNIVERSITY
2B-3M / 5E-5N

**Promoting Employability (E)**

**Promoting New Ventures (N)**

University of Strathclyde
7B-5M / 13E-11N

University of Dundee
5B-3M / 13E-3N

Queen Margaret University EDINBURGH
5B-2M / 13E-1N

UNIVERSITY OF ABERDEEN
4B-2M / 9E-3N

The Open University
6B-2M / 13E-3N

UNIVERSITY of STIRLING
4B-1M / 9E-1N

University of St Andrews
7B-1M / 11E-5N

THE UNIVERSITY of EDINBURGH
12B-1M / 23E-3N

University of Glasgow
8B-1M / 12E-4N

Abertay University
3B-0M / 6E-0N

GCU Glasgow Caledonian University
5B-0M / 9E-1N

UWS UNIVERSITY OF THE WEST of SCOTLAND
1B-0M / 1E-1N

RGU ROBERT GORDON UNIVERSITY ABERDEEN
2B-0M / 2E-2N

**Entrepreneurship taught in Business Field (B)**

Accordingly, Figure 3 consists of two axes, with opposing pairs; Promoting Employability (E) versus Promoting New Ventures (N) on the horizontal axis, and Entrepreneurship taught in Business Field (B) versus Entrepreneurship taught in Multiple Fields (M) on the vertical axis. Below each of the universities the score for each of the variables is visible.

The two extremes seem to be *UoAT* and *RCS*. That is when Entrepreneurship is taught only in Business, promoting only Employability, and when Entrepreneurship is taught only in fields other than business, promoting only new ventures. All the other universities provide a mix of these characteristics, instead of a singular approach. The *University of Abertay* (*UoAT*) provides their students with the opportunity to make a career as a researcher or within a range of

professions such that Social Entrepreneurship can be combined. They do not mention any form of new ventures or start-ups and only promote employability, while they provide Entrepreneurship only within business programmes. *The Royal Conservatoire of Scotland* (*RCS*) on the other hand, aims to help their students to encounter the inherent entrepreneurial nature of their professions, making them able to act Entrepreneurially, developing entrepreneurial skills. They do not mention employability in relation to entrepreneurship and do not provide any of the Entrepreneurship courses within a business field.

The universities of the bottom line that teach Entrepreneurship related courses only within business programmes are *GCU, RGU* and *UWS*. While all of them promote both Employability and New Ventures to an extent, they do not extend Entrepreneurship teaching to other fields. The *Robert Gordon University* (*RGU*) aim to create individuals with entrepreneurial thinking capable both of operating within an existing organisation or creating and growing their own business. The *University of the West of Scotland* (*UWS*) in their Business Undergraduate course focus on the employers' needs and aim to transfer relevant skills to the students, providing also "*a well-developed understanding of how to manage and develop a business*" as well as flexibility to tailor the degree in the individual's interests and career aspirations. The *Glasgow Caledonian University* (*GCU*) promotes mostly the employability of the undergraduates, aiming in transferring skills in franchising, internationalising, and launching start-ups, feeding the market with specialists in process management, business development and social business, among other specialties. However, the word Entrepreneurial is being used in every BA and MSc page, and it seems to have 6 active modules in the curriculum of 6 different programmes. A further 12 modules in their list (Appendix, Table 15) seem active but it is not clear through which programmes students could enrol in them, and they do not appear in any of the advertised programmes. Even if their presentation is ambiguous on a certain level, it is clear overall that they mostly promote Employability and keep the Entrepreneurship teaching within Business.

The universities that mostly promote new ventures along with *RGU* and *UWS* are *UoS* and *HWU*. The *University of Strathclyde* (*UoS*) has a common aim for all the undergraduate courses that have entrepreneurship as a core module. They are:

> *designed for students who want to start a new enterprise, those who want to take over the management of an existing business and those who are aiming for leadership positions. (UoS - aims)*

In their master's degrees, they mention the potential to take over a family business, to work for SMEs, large corporations or leading consultancies as entrepreneurially thinking employees, but in almost all the courses they mention primarily the establishment of a start-up or a new venture. *Heriot-Watt University (HWU)* aims to provide enterprise skills and prepare business students for employment in business support, to be competitive as entrepreneurial employees and "*bring local, national and global competitiveness to existing organisations*", or for innovative self-employment and business ownership. What is innovative in *Heriot-Watt* is that they provide a mandatory Entrepreneurship element in Translating master courses, aiming to provide in professional translators not only understanding of their business translating aspects, but also knowledge for new ventures creation on their field. All these universities promote new ventures with every opportunity. The reason that they are still in the middle of the figure is that none of them is designed purely to support start-ups and new ventures. All of them also mention that they improve the students' employability.

*UoSA, UoG, UoE,* and *UoS* are just above the bottom line, providing Entrepreneurship related courses in only a few fields other than business. *University of St Andrews (UoSA)* provides Entrepreneurship as an element mostly within Business programmes and in one programme in Information Technology. In their aims they use the same wording for all five master's programmes in business, mentioning the past employability of the school of Management's Alumni. Only on the module of *Entrepreneurship and Business Development*, they claim that students learn how to design and plan a start-up business. *UoG* provides one programme in fields other than business (i.e., *Music Industries MSc*) and two other master programmes within the Business school that have Entrepreneurship in their core; one that contains Business Planning as a course, and combines *Management with Enterprise and Business Growth*, and one that contains Entrepreneurship in the title; *International Business and Entrepreneurship (IBE)*. The first programme mentions the leadership potential and adaptability of the graduates, and the different roles that alumni could undertake within existing businesses. For the second programme *(IBE)*, the aims are totally different. The programme mentions that it is for talented and ambitious entrepreneurial individuals, with ambition and entrepreneurial flair, who would like to develop a career in international business development, international entrepreneurship, or venture management. It combines developing entrepreneurial skills for business start-up and management skills for the international marketplace, such that as alumni they would have the potential to start new ventures in the international marketplace or apply their entrepreneurial capacity to support the business development of SMEs and multinational companies, with

emphasis on a managerial perspective. The programme structure clearly follows the above, containing start-up plans, entrepreneurial finance, market analysis, and consultancy projects with real companies. The above illustrates different styles of presenting the aims of each programme within each University. In many cases, as in Table 16 in the Appendix, the Universities use the same text for multiple programmes, when others are going deeper, by describing with more detail their aims for each programme, with a clear differentiation between them. The *University of Stirling (UoSt)* mostly aims for enhanced employability and the career development of their students. They only mention that they aim to create Entrepreneurs – among others - in the *Business and Management MSc*, while providing Entrepreneurship in only one field other than Business. *The University of Edinburgh (UoE)* presents both its undergraduate courses and MSc as means to understanding what they describe as the venture creation process, claiming that they will provide the skills needed to identify and screen opportunities, and exploit them in a new or an existing business context. They also mention a career in agencies supporting innovation. *The University of Edinburgh* has also included in the past, Entrepreneurship in a PhD programme in *Optical Medical Imaging with Healthcare Innovation and Entrepreneurship*, where they claimed that the students will understand and appreciate the innovative leaps they are making and be able to capitalise on their discoveries, showing that they consider Entrepreneurship education important for various sectors. At the time of this research, they only combine Entrepreneurship with Geography, in a business context.

The rest of the universities show that they are more open in the challenge to provide Entrepreneurship in more fields. *University of Dundee (UoD)* presents the connection of the courses with the needs of the employers, enhancing the employability of the undergraduates, giving also as an option that the skills could be used ultimately in the students' own businesses. The *University of Aberdeen (UoA)* presents the enhancement of the graduates' employability in different sectors, but also includes modules in new venture development and entrepreneurship that are intended to introduce students to the fundamentals of starting, testing, funding, and running their own business. In master's degrees, in addition to employability enhancement, they claim that, in the course, the new skills that the students will gain will enable them to tackle future professional challenges and strengthen their entrepreneurial perspective. With the *Entrepreneurship in Practice* course, the acquired skill sets give the learner the opportunity to develop, shape, and build new ventures of their own. *The University of Aberdeen* also includes Entrepreneurship in non-business contexts, inducing Law and Medicine students to act Entrepreneurial. The *Queen Margaret University (QMU)* aims

to provide graduates with enhanced employability on their Business Management programme, and confidence for all kinds of careers including self-employment through their master's degree, which specializes in *International Management and Leadership with Family and Smaller Enterprises*. They innovate by including Entrepreneurship in the values of Acting education. The *Open University (OU)* provides Entrepreneurship courses with no clear objectives and intentions from the University, as the students can tailor their classes according to their personal needs and use them to develop the skills they need. They only show to the students what they should expect (e.g., salary increase, career progression and improvements to their organization of business), rather than aiming on providing specific qualities.

At the top of the Entrepreneurship inclusive universities are the *ENU* and the *UHI*. The *Edinburgh Napier University (ENU)* teaches Entrepreneurship not only through business courses. In the MBA allows students to combine it with a specialization in Entrepreneurship to reflect their area of interest. In *Business Management* they include Entrepreneurship as a mean for the students to start their own business, among other career routes. In the undergraduate courses which provide Entrepreneurship as a specialization the aim is to prepare students for a career in all sizes of businesses, or for new ventures. What is unique is that *ENU* also aims for preparing students to combine Entrepreneurial skills with *International Festival and event Management*, as well as *Popular Music*, as part of undergraduate programmes, and in the *Ecotourism MSc*. *ENU* provides Entrepreneurship related modules as optional in multiple programmes in other fields without specifying their aims in the course descriptions. On the same mindset, the *University of the Highlands and Islands (UHI)* not only has business courses that are linked with the development of new and existing ventures, but also include Entrepreneurship in many undergraduate degrees, urging undergraduates to act Entrepreneurially in their respective fields. This also includes careers in non-business contexts, such as Music, Audio Engineering, Architecture and Sports.

Overall, the Scottish universities aim to provide a wide skillset that students can put to use in multiple situations. Either being employed by multinational organizations or by SMEs and social enterprises, using entrepreneurial ability the graduates within each organization (intrapreneurship) can apply their learning in order to contribute to their growth, or to having plans for new ventures and innovative start-ups. They also intend to make students act entrepreneurially in fields other than Business (e.g., Art, Science, engineering etc.) and understand their potential. This links to the view of Botham and Mason (2007), that Education should have a wider purpose than business formation. The provision of a diversified skillset

though for multiple possible situations seems to contradict the view of Weber et al. (2014), where without a focal approach the learning goals and methods can be vague. This seems to be left in the discretion of the students, to choose where to use the relevant skills, and how to follow what is provided based on the skill set they have received. A skill set that should be acquired though the different levels of their individual education, as Kott et al. (2015) suggested.
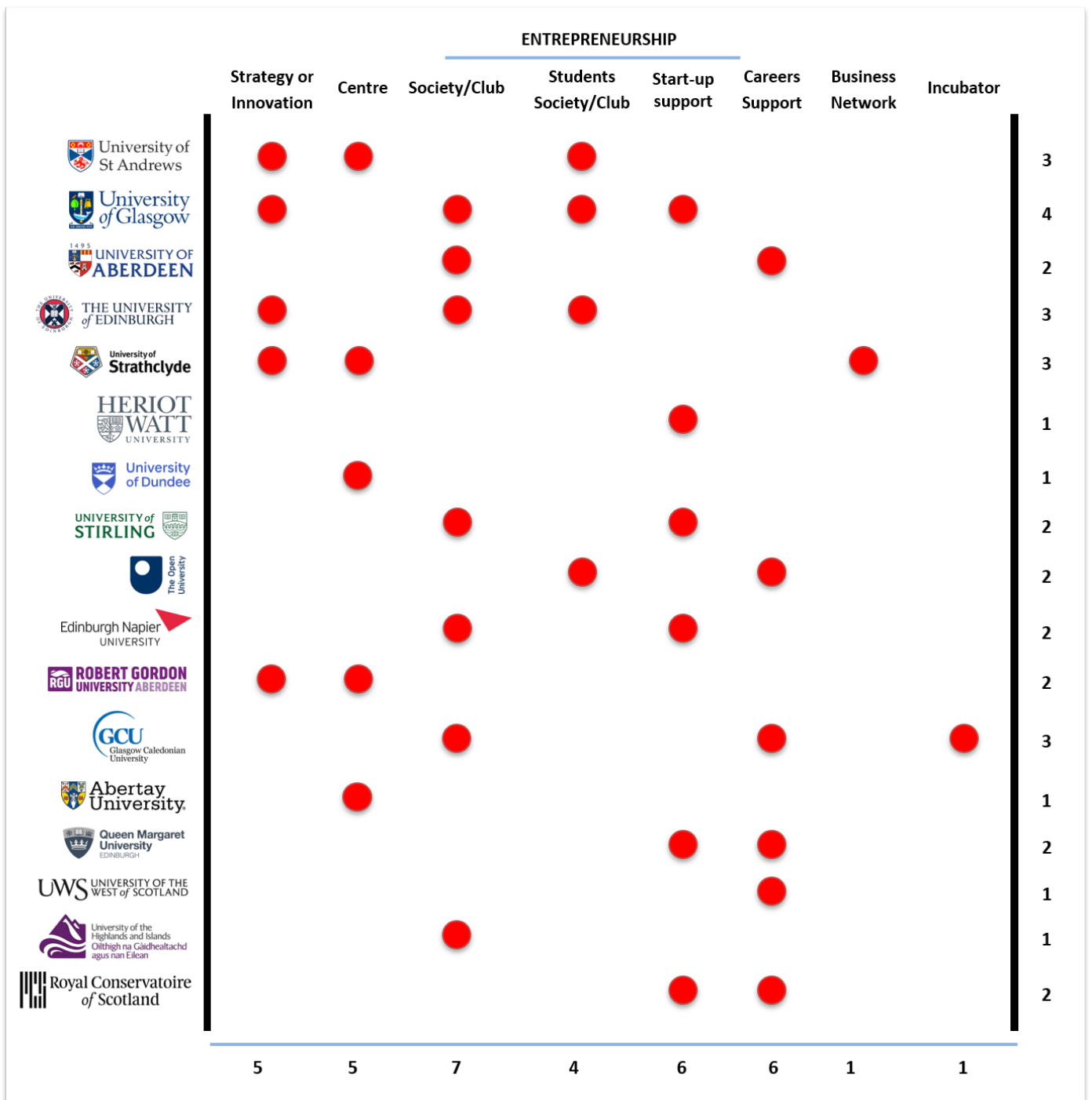
Within all of the programmes, it seems that enhancing employability always comes as a basic aim, and training for new ventures and potential start-ups always comes as an additional element. All of the programmes promise a chance for an advanced career in their respective sector, including all the programmes that mention that students could create their own businesses. In a small number of programmes, however, it is not clearly specified what the aim is for their undergraduates regarding their employment after their studies.

### 4.2.3 Entrepreneurship Support

Many of the universities have in-school organisations that support Entrepreneurs and start-ups, or even teach Entrepreneurship alongside classes (Appendix, Table 17). These organisations support Entrepreneurial individuals through clubs, Entrepreneurship societies, incubators, organisations within the University and competitions, but not necessarily with Entrepreneurship classes. They possibly play their role though on the way that Entrepreneurship classes are being taught within each University. This possibly works as a parallel support for individuals that aim to improve Entrepreneurial skills, as according to O'Connor et al. (2012) and Farhangmehr et al. (2016) Entrepreneurship education may not be related directly with the improvement of these skills and the motivation for entrepreneurial actions.

In Scottish higher education, all of the 17 institutions that provide Entrepreneurship related modules and provide Entrepreneurial attributes in their aims for their participating students, are also home to some kind of Entrepreneurship support within their institutions. In Figure 4 , along the top axis are all of the kinds of Entrepreneurship support that the universities provide. On the left axis are all of the 17 higher education institutions, on the right axis there are the totals of the kinds of support that each university provides. Along the bottom axis is the total times that each kind of support appears within the institutions.

*Figure 4 - Data Table - Entrepreneurship Support in Scottish Higher Education*



| | Strategy or Innovation | Centre | ENTREPRENEURSHIP Society/Club | Students Society/Club | Start-up support | Careers Support | Business Network | Incubator | |
|---|---|---|---|---|---|---|---|---|---|
| University of St Andrews | ● | ● | | ● | | | | | 3 |
| University of Glasgow | ● | | ● | ● | ● | | | | 4 |
| University of Aberdeen | | | ● | | | ● | | | 2 |
| The University of Edinburgh | ● | | ● | ● | | | | | 3 |
| University of Strathclyde | ● | ● | | | | | ● | | 3 |
| Heriot Watt University | | | | | ● | | | | 1 |
| University of Dundee | | ● | | | | | | | 1 |
| University of Stirling | | | ● | | ● | | | | 2 |
| The Open University | | | | ● | | ● | | | 2 |
| Edinburgh Napier University | | | ● | | ● | | | | 2 |
| Robert Gordon University Aberdeen | ● | ● | | | | | | | 2 |
| Glasgow Caledonian University | | | ● | | | ● | | ● | 3 |
| Abertay University | | ● | | | | | | | 1 |
| Queen Margaret University | | | | | ● | ● | | | 2 |
| University of the West of Scotland | | | | | | ● | | | 1 |
| University of the Highlands and Islands | | | ● | | | | | | 1 |
| Royal Conservatoire of Scotland | | | | | ● | ● | | | 2 |
| | 5 | 5 | 7 | 4 | 6 | 6 | 1 | 1 | |

As in Figure 4, the most popular of the eight identified ways to support Entrepreneurship within the universities is a university club or society (i.e., seven university backed societies/clubs in different universities), followed by start-up support and careers support (six each). Five of the universities have a centre for Entrepreneurship, which has the same popularity with creating a university strategy or innovation program as a framework for guidance and support. Only four of the universities have a students' Entrepreneurship related society, and only one mentions a

business network. Additionally, only one of the universities mentions openly their in-house incubator. This feature can be a bit more indistinct, as some of the universities provide forms of incubators or accelerators within other types of support, or in cooperation with other organisations.

The university that provides the greatest range of means of support is *UoG*, with four different kinds identified, followed by *UoSA, UoE, UoS,* and *GCU* that each provide three variations. When there is no reference to a specific type of support in a university, it does not mean that this type of support does not exist at all. It could mean that it does not exist independently but could be included within another type of support. For example, in *HWU* there is no incubator, but the students can use the facilities of their start-up support as an incubator. Likewise, in *UoD*, they do not have a university incubator, but they provide one in partnership with an external organisation through their *Centre for Entrepreneurship*.

The universities that provide only one means of support start with careers or start-up support and provide a relevant club to promote Entrepreneurship or have an Entrepreneurship centre. This is the case at *UWS, HWU, UHI* and *UoD* and *UoAT*. *UWS* provides direction and support to setup a business through their Careers department and the Commercialisation team. *HWU* has an Enterprise team that offer advice for start-ups and spinouts and encourages entrepreneurial talent with start-up surgeries and boot camps, providing also their facilities as an Incubator. *UHI* has the *CREATE* Entrepreneurship Project that consists of competitions and workshops that aim for the participants to develop business ideas, knowledge, skills, and motivation, and to realise their potential through enterprise. It seems that the Careers support is mostly a way to include people who would like to start their own venture, while the start-up support and the club take more in depth approach, supporting Entrepreneurial initiative and providing additional knowledge and skills to supplement the knowledge the students get from the programmes.

*UoD* has its own *Centre for Entrepreneurship* that helps students, staff and undergraduates to develop entrepreneurial skills and pursue new business ideas. They principally aim to improve employability and then to support those who wish to start their own business. They organise events and provide an Accelerator/Incubator in partnership with *Elevator UK*. *UoAT* also have their own Enterprise Centre, to provide support and guidance for students and recent graduates to make them think creatively and practically for the best way to approach their ideas and make them a reality.

Sometimes different practices for providing support do not seem all that different, when carefully observed. It seems from the above, that in some cases it is mostly a difference in the organising base and the internal function of the support is then variously named as an Enterprise centre, a club, or start-up support.

When the universities provide two ways of support, there is a mixture of the same kinds of support, with the only difference being in the case of the *OU* where there is a student run society instead of a university backed one, and that for *RGU* there is an Innovation strategy of the university promoting Entrepreneurial thinking and acting and providing an accelerator and start-up support within their plan of action. In all the other cases, when there is an integrated strategy or innovation plan within the university, the universities provide three or even four (i.e., *UoG*) kinds of support as separate functions. Providing at least two ways of support is what most of the universities do. These are *UoA, UoST, OU, ENU, RGU, QMU* and *RCS*.

*UoA* has the *Aberdeen Business Enterprise Society*, a member of the *Scottish Entrepreneurship Network*, collaborating and organising events and competitions to boost Entrepreneurship, knowledge exchange and networking. Through their careers service they promote Enterprise and Entrepreneurship, providing a list of attributes that the graduates are expected to have by the end of their studies. They provide information about self-employment and urge students to get involved. They support students on starting a business and on testing their skills and ideas through competitions. They also work with businesses through their Innovations centres. *UoST* has recently appointed its first *Entrepreneur-in-residence* in May 2020, to support students, staff and alumni to achieve their start-up ambitions. They organise skills workshops, business ideas evaluation, developing business plans, funding advice and commercialisation of research to access global business networks. Additionally, they have the LEEP student society, *for Leadership, Entrepreneurship, Employability and Personal Finance*, who help their members to excel in interviews, improve personal finance, create or manage business ideas, grow their leadership potential and other personality traits, and organise events to help learn skills for success, and initiate discussion on ambitious plans. The *OU* has an Entrepreneurs Society who organize events for training and development and networking. They also provide general guidance through their Careers Centre on how someone could become an entrepreneur. *ENU* have an Entrepreneurial community to support students, alumni, and staff to develop enterprise skills to follow opportunities and develop their ideas to start businesses. They also have had *entrepreneurs-in-residence* since February 2021 to mentor, inspire and support

students and academics with entrepreneurial goals and ideas. *RGU* has a centre for Entrepreneurship that provides all the Entrepreneurship related courses within the University, does research, organises events in partnership with other organisations and engages in national and international research projects. Through *Innovation@RGU*, in the Business and Innovation section, they support Start-ups, offer training for Entrepreneurs, and provide an Innovation (Start-up) Accelerator (Incubator). *QMU* has created the *Business Innovation Zone* in cooperation with the *Business Gateway*, to provide guidance through workshops, events and one to one support. They provide networking, mentoring, funding opportunities, meeting space, desk space, rehearsal space, support for competitions and access to film and media facilities. They also provide the *SHIFT* summer school, along with the *RCS* and *Glasgow School of Art*, with a common aim to promote networking and deliver specialist events and resources for creative entrepreneurs, freelancers, artists, designers, producers, and performers. *RCS* created the *Make It Happen* and the *Make It Happen Fund* to help get ideas, projects, companies, and collaborations off the ground and into the world, through a series of workshops, also providing the *SHIFT* summer school, along with the *QMU* and *Glasgow School of Art* as above.

It seems that when a university creates a way to support students on their skills in Entrepreneurship and Entrepreneurial endeavours, the extent to which the support will operate depends on their internal organisation. In most of the universities, the two ways of support that each of them provides seem to go a lot further, creating a more complex environment of support. Only *OU* and *ENU* seem to have approaches that, in comparison, are more straightforward and simpler, and provide only as much as they have mentioned briefly in their literature.

*GCU* seem to be a bit different than the next group of universities. They do provide three ways of Entrepreneurship support, but they do not have an integrated strategy or innovation initiative. That means that the three ways of support remain independent in a way and simpler. They provide support through their careers guidance on what it means to be an entrepreneur and how to become one. They have an incubator that provides funding, training, and mentorship to support start-ups and have a community in cooperation with Enactus to motivate students to develop and use entrepreneurial skills through action to improve lives.

The rest of the universities provide three or more ways of support for Entrepreneurship and most of them build on solid foundations, with the creation of a university strategy or innovation program that provides their supporting framework of action. These are *UoSA, UoE, UoS* and

*UoG*. They provide different combinations of kinds of support, but they extend as much as possible within each of them. *UoG* provides four variations of support, one more than any of the others.

*UoSA* has an Entrepreneurial Strategy, for a culture shift between to be brought about between 2018 and 2023, developing a new model to create opportunities for researchers, investors, industry, policy makers, teachers, students, the government, and founders. They have planned to create support structures, support start-ups, establish investment vehicles and opportunities and will ensure that all the relevant departments will be involved. Through their Entrepreneurship Centre they provide two programmes, an 8-week Fast Start programme, for up to 30 people, plus a 13-week Accelerator Bootcamp for 12-15 teams. They also have a student Entrepreneurs Society with a goal to promote Entrepreneurship and encourage the development of ideas. They organize webinars, pitching competitions, they invite speakers and generally work along with and within the *Scottish Entrepreneurship Network*. The *Scottish Entrepreneurship Network* is a joint venture between *UoA, UoE* and *UoG*, to increase innovation and collaboration. They create common events and promote the events of all the participating universities to communicate, share and support everyone that is involved.

The *UoE* has had the *Edinburgh Entrepreneurs Society (EntSoc)* since 2016. They have the mission to dream, develop and disrupt, stating that they consider Entrepreneurship an experiential journey that cannot be learnt by reading a book. They create events and activities to support like-minded students by the help of business partners. They coach their members and connect them with alumni, student groups and mentors. One of the partners of this society is the *Edinburgh Innovations*, an organization within the *UoE*, that aims to help researchers and students on the commercialisation of their research and ideas. *UoE* integrates Entrepreneurship within as many departments as possible, to promote ideas and the commercialisation of knowledge (e.g., *Technology and Entrepreneurship*; *Bayes Centre for Data Science and AI*), as well as providing the *Student Enterprise Hub*, *Start-up community platform* and other infrastructure and resources, *UoE* Business School also has an Entrepreneurship Club that seems to have existed since 2013. They support everyone interested in Entrepreneurship and share resources to pursue entrepreneurial ambitions. They have a series of events that occur every month, with a pitch competition at the end of the year.

*UoS* established the *Hunter Centre for Entrepreneurship* in 2000, which is focused on the study, research, and encouragement of entrepreneurship within Scotland. Committed to engaging in,

and drawing from, world class research to inform the design and delivery of a growing portfolio of useful learning experiences offered to 'Strathclyders' (students, staff, and alumni) and the wider entrepreneurial ecosystem. They provide the Growth Advantage Programme for businesses, design Entrepreneurship teaching within the University and along with *Strathclyde Inspire,* they form *UoS*'s *Entrepreneurship Strategy 2020-2025*. They have the Strathclyde University Incubator and their hub for Entrepreneurship, Innovation and collaboration, the *Glasgow City Innovation District*. *UoS* also has the *Strathclyde Business Network*, which facilitate relationships and networking for the students with business professionals and graduate employers, to help students contextualise theoretical learning. They organise events through the year, and the Glasgow Business Summit, a student-led business conference.

*UoG* has the *Student Entrepreneurship Society* aiming to educate students about entrepreneurship, develop their business acumen and inspire them to pursue entrepreneurship as a career path. They facilitate networking with entrepreneurial students from different degree areas and are a part of and contribute to the Scottish entrepreneurship network. There is also the *Glasgow University Start-up society* that collaborates and nurtures the entrepreneurial community of students, staff, and alumni. The University provides the infrastructure and the resources to nurture start-ups, spinouts, and other entrepreneurial activity, collaborates with businesses to develop cutting-edge research into new products and processes, powering their bottom lines, with an overall aim to spread the city's reputation for innovation worldwide.

These universities go the extra mile by having a framework of action through their Strategy or Innovation initiatives. This is the difference from the universities that provide only two ways of support. If we will not count these initiatives, the universities that seem to provide the most ways of support are *UoG* and *GCU*. However, these initiatives seem to provide a more complex way of combining the ways of support, with many branches, taking benefit from every possible aspect so that each element of Entrepreneurship support can potentially bring results.

Overall, the above data present a picture of the status of Entrepreneurship courses and programmes in Scottish universities at the time that the data was collected, in 2019. This data was then used to help to develop the questions of the interviews section, for the second part of the research.

## 4.3  Primary data - Interviews

A sample for communication was selected in some of the universities, based on their size and distance. The first contact was with the administrators to ask for permission for access to students and staff. The next stage of contact was with the lecturers and programme directors who were willing to participate. After the first contact and interview with them, they informed their students about the opportunity to participate in this research. The selection of the students was based on their will to participate. A reward technique to attract participants was not chosen, as this could possibly add bias to the research. For example, the researcher could attract people that were already in new ventures and/or with already strong Entrepreneurial interest.

The data that were collected during the interviews revealed the position of the staff and the students, and how they perceived their interaction and the outcome of each course. The repertory grid was focused on the personal reflection of the students on their personality and development. There was a difference between the two categories of participants; staff and students. The staff were of a smaller number, with more specific specialties, and the line of questioning was intended to investigate their opinions and thoughts and whether they were aligned with each university's positioning as it was presented in their marketing literature. It was mostly an investigation into their intentions, ways of acting, and level of conformity.

With the students it was a different kind of investigation. There was a bigger number of respondents, with a broader range of characters and a variety of calibres on adeptness, abilities, capabilities, capacities, and targets. A different line of questioning was used for interviewing students to make them feel more comfortable in commenting on all the aspects of their course and reflecting on their experience, resulting in a more detailed profile for each participant. The repertory grid at the end of each interview is used as a method to check up and compare the outcomes of each interview and to have an in-depth understanding of the data collected.

It was observed that lecturers and students had a different way of approaching the interviews. The students followed a more unified way of explaining things about their course. The lecturers, depending on their background and position, approached things in a totally different manner, using a variety of ways and words. When they are involved in the design of their programme they provide broader and more internal details, more thoroughly (*UoG, UoS*); when they cover for another lecturer they talk only within their specific level of involvement (*UoE*); when they

teach modules that are included in multiple programmes they refer to the specifics of their modules without providing much information about their students and the programmes (*UoS*).

The different dynamic in the relationship between interviewer and lecturers, and interviewer with students, had an impact in the quality of the answers. That was by design, since the expectation from interviewing the university lecturers/directors, was to confirm if the university's approach or positioning related to the entrepreneurial courses was being followed or up to date. As far as the students are concerned, the objective was to have open, honest reactions on the quality of the courses and how they believe they could have an impact on their futures.

The qualitative data analysis software NVivo was initially used to extract topics for analysis. NVivo helped on the first stage of the data analysis procedure, when the categorization took place, using keywords and phrases that included similar keywords, synonyms and phrases with similar meanings. Due to the small number of responses, further analysis through NVivo would not seem to be productive and the analysis continued manually with the groups that had been formed. The need for manual work became more visible during the first stage of the analysis of the interviews with the students that were the main volume of interviews. Many times, the way in which they were expressing the different concepts was indirect and circumlocutory, using various approaches, instead of in a similar way to each other. This instigated the need to follow different tactics and to continue on a manual analysis of the findings.

### 4.3.1 Interviews with Staff

The interviews with the staff were conducted in order to explore the intentions of the lecturers who teach the courses and to confirm their consistency with the position of the advertising materials and electronic sources of the university programmes, upon which students rely to make their decision to join a programme.

Most of the interviews took place at the university, in the working space with which the staff are familiar and comfortable; only two of the interviews were completed over the phone. On the telephone interviews the lecturers were replying to all the questions but kept the conversation within the limits of the questions that they were asked. This made the interviews shorter and more focused. On the interviews within their working spaces the lecturers were willing to expand on the questions, providing a feeling that they were guiding the researcher

through as many aspects of the programme as possible. The interviews started by investigating the broader scope of each course, and the ways in which they attract students. One of the questions to be answered was whether the programmes choose specific types of students or if it is the students that choose the courses and programmes. The courses' representatives were also asked about the overall teaching procedures and routines, what they expected to teach, as well as the knowledge that the students should have after the course. They were asked, when possible, to give examples of alumni who successfully used their entrepreneurial skills after attending the course.

During the interviews with the lecturers there were a variety of topics that were analysed. The promotion of courses, the student choice criteria, the course outcomes, and the knowledge expected to be transferred to the students, are some of the topic examples covered.

During the NVivo analysis, the frequency of the words and phrases used, was analysed. This was an inductive thematic approach and was accompanied by a deductive thematic approach based on pre-considered themes. Using repeated words and phrases as indicators, all the interviews were examined phrase by phrase, categorising the topics that had been discussed. These topics were common in most of the interviews, with different approaches from each member of staff, different levels of detail and points of view.

The staff talked about the way that their university promotes the courses, the course requirements, the selection of students, the entrepreneurship provisions of the university and the expected course outcomes. They mentioned how they teach business planning, the available networking, employability improvement, family businesses of the students, new ventures that students started after their course and different types of skills that the students improve during the courses, emphasizing the presentation skills, and how they separate the taught theory from the practical learning. They also reported that for some students the entrepreneurship courses have a more informative role and serve as a first touch with the business and the financial world.

Four of the six lecturers were actively participating in the promotion of the courses. These are also the lecturers that were partially or wholly responsible for the design of the course. They do not have any input on the marketing side or the promotion, but they do have knowledge on how the course should be marketed and provide details for the web pages and help on the information used in the design of the printed literature. They mentioned open days, promotion

within the university, the use of the agents of the university to advertise it in different parts of the world. The lecturers that were not involved in this procedure seemed to not be familiar with more information than the task they were allocated. The same lecturers did not seem to know more details on how their colleagues were teaching the same class in class variations between different teaching periods like the spring school.

It seems that the design of the courses follows the global trends and the same rules that any other business work by. The names of the courses and the modifications on the taught modules follow the trends in the global marketplace to attract students and improve their reputation, getting as many students as possible on each course, if they meet basic criteria.

The requirements for the students to be accepted in the courses are broad. For all the universities, entrepreneurship is for students of all backgrounds that meet some minimum entry requirements based on their performance on previous studies. The students that apply for the courses come from engineering, journalism, law, chemistry, maths, physics, geology, biology, art, and other backgrounds. It was found that it is widely accepted that entrepreneurial skills are useful in a variety of disciplines and only a few of the optional classes within the courses require prerequisites. Not all lecturers, however, had knowledge of the backgrounds of the students and the short-listing procedure. From the lecturers who did, the universities did not seem to follow Pittaway and Cope's (2007) suggestion of strategic implementation through well assessed feedback, altering their programmes flexibly according to their recruitment process.

It was mentioned that students who already want to start a business and have the knowledge and their research gathered for a specific venture, would directly go to the accelerator programme. In one case the lecturer also mentioned that they would not accept business students who have already been through similar courses, because having a more specialised course would mean that the costs would increase. In more specialised courses that had entrepreneurship in their core, like *International Business and Entrepreneurship MSc* in *the University of Glasgow*, it was mentioned that students with management and business background were mostly considered during the application process. Anyone with a science background would have to make a case for it. But it was made clear that there are always exceptions.

It seems that when entrepreneurship is provided within other modules, it is mostly to initiate the students into the basics of entrepreneurship and it is informative rather than in depth

knowledge of the subjects that is provided. For a few courses such as engineering and journalism, it seemed that an entrepreneurship module is a requirement.

The lecturers in many cases, especially the ones who were participating in the design of the courses, were following their university's literature when describing their expectations of the students, during and after the course.

According to the lecturers, the expected outcomes depend on the course objectives. Some courses are mainly informative, targeting students of different disciplines who are interested in basic market knowledge and awareness. Other courses aim at providing the students with the technical skills necessary for future careers. These types of courses mainly target students within existing companies, or family businesses, and talented, inspiring students who want to start a business in the near future. The courses are expected to provide the knowledge and entrepreneurship grounding for taking ideas further, improve networking, business opportunity identification, and improve knowledge in business structure building, financing, and market analysis and awareness. Self-reflection and evaluation, improvement on pitching and presentation skills, are also among the objectives.

The students get basic business skills, and they learn to appreciate diversity and inclusion, although these are not necessarily career oriented.

The lecturers' backgrounds vary from academically oriented to former multi-businesses entrepreneurs and business consultants.

During all the courses they were teaching how to do a form of a business plan, including more simple and comprehensive tools like the business model canvas that seems to be perceived as an earlier version of a business plan. In some courses there are real world assignments with the students working as consultants for external companies. This, according to the lecturers, provides them with real experience, and they learn the way they should present themselves to prospective employers and clients. Only in one course it was mentioned that there are modules requiring that the students must actively run the business for which they are raising their plan.

It was said that sometimes it is just that people want to work independently and start with their own idea. That is when they do not mind uncertainty and chaos. The university provides the education, the exposure to an idea, and students take it from there. In all the courses there

was several students that were attempting, or already had started new business ventures. The vision for some of the lecturers and their courses is that the students will use the centres for entrepreneurship to actively start a business or gain enterprising skills. There are entrepreneurship provisions within each university (i.e., accelerators) that support these procedures and motivate students to practice their knowledge. In one university it was mentioned that this differs sometimes between the undergraduates and the postgraduates, as the undergraduates can allocate more time on extra activities. They said that most of the start-ups come from the undergraduates and there are very few graduates, comparatively, who have been inspired by a postgraduate entrepreneurship module. At the same university, the basic and most important thing for every student is viewed as being the acquisition of their degree. In other universities though, especially when the entrepreneurship related modules where not compulsory, it was said that a lot of the postgraduate students were very keen to start their own businesses at the end of the course or at some point in the future. They could provide actual examples of innovative companies that were started from graduates, and examples of founders that met each other in the university and started businesses together. Entrepreneurial actions were mentioned though to be expected outside the course of the studies, showing that the findings are in line with Lorz et al. (2013) and Galloway et al. (2015), who suggested that the main aim of the universities is to enhance the Entrepreneurial potential of the participating students and to develop in general their Entrepreneurial mindset.

Many of the students were coming from a business background, with family businesses. They have the opportunity during the classes for practical learning, while teaching theory is also a big part of the class.

The Lecturers in many cases consider that the students are improving their skills. Some of the skills mentioned were enterprising, technical, soft and hard skills, as well as generic ones that relate to entrepreneurial treats. Other skills such as innovation, creativity, market analysis, teamworking, problem solving, networking, presentation, confidences, and business planning, were also mentioned. Ways of how to promote themselves to clients and employers, how to start – run – fund a business, (i.e., standard business frameworks, analysis tools) and pitching, are considered essential for future entrepreneurs. After all, as Lazear (2005) mentioned, acting entrepreneurially requires a wide skill set and a combination of attributes in an individual, to increase the chances of becoming an entrepreneur.

Some of the lecturers are informed about the Entrepreneurship provisions of their university

and some of them focus more on their classes. The entrepreneurship provisions include the accelerators, start-up competitions, the start-up visa process for the international students, help to start a business from the university career centres and entrepreneurial networks. It also seems that the universities, as happens in *UoG*, increase gradually the numbers of dedicated entrepreneurship staff, creating the conditions for more entrepreneurship classes in the future.

It was pointed out that many international students come from family businesses, and they choose entrepreneurial classes to help them take their family business to the next level.

During the interviews there were many times that the lecturers were referring to the theory and the study of tools that the students will use as a basis for the future. They are taught, through academic literature and guidelines, how to generate and promote ideas, ways to prepare and conduct business and investment meetings, and how to get funding. Extra reading material focused on their business idea is provided. Business plans and reports on the viability of a business, as well as case studies are used to reflect on a variety of situations.

There is also the practical side of the classes, where students have opportunities to put their acquired knowledge into practice. In *UoD*, there is a practising entrepreneurship project where students are asked to run the business that they are raising a plan for. In UoS, there is an environmental entrepreneurship project, as part of client based environmental entrepreneurship in practice, where students act as consultants to existing companies. Practical learning is considered to reflect on the taught theory, as small projects within the class, after each teaching session. UoS also has a virtual incubator program, for students who would like to test their ideas and develop their pitching. In *UoG*, effort is made to apply experiential learning on the different aspects of starting a business. Market analysis, idea testing and development and presentation, are some of the tools used to prepare students to start a business and accompany them within the academic space up to the point that they could really start it. Big parts of the success are reflection on the procedure and group effort. Students also work on the entrepreneurial finance side and apply the content of the businesses' analysis on case studies. They also act as consultants, advising companies how to expand.

All lecturers believe that students are improving their overall skills, in business and entrepreneurship. The most mentioned skill for its improvement is that of presentation skills.

### 4.3.2 Interviews with Students

Most of the interviews with the students took place in the buildings in which they had their classes, for them to be more reflective and to feel more comfortable. Only three interviews were conducted by video call, as these three students had already returned home. For these three interviews there were minimum limitations, as a short meeting had already taken place a few months before, and there was some familiarity about the research.

The interviews started by asking the students about the procedure they followed to choose the programme and what made them conclude to their selection. They were also asked how they pictured the programme they chose, and whether the Entrepreneurship within the programme was an important factor for them and why. In the following, students were asked to reflect on the courses they were taught and comment on each of them, regarding their view on the learning material, the teaching procedure, the gained knowledge and the skills they improved during the academic year. All the above can be useful for universities if they interact with their own feedback as is suggested with Lorz et al. (2013).

At the end of the interview, they were asked about their family background, previous studies and experience, as well as their plans for the future. The repertory grid was completed for each of the students through discussion about the different skills they felt they improved (or not) during the academic year, and their overall view on them.

During the NVivo analysis it was observed that students describe similar concepts in totally different ways; different choice of words, perspectives and sensitivities over certain topics. There was a complexity on the way they perceived their environment and how they interacted with it, based on their different backgrounds, previous studies, working experience, relationship with the concept of entrepreneurship and their short and long-term objectives.

They described the procedure they followed to choose their master's degree programme, their first impressions of it, their lecturers and the structure of the modules, the outcomes of every course and of the whole programme overall. The students provided information about the entrepreneurship provisions of the universities, the general entrepreneurial environment, and their practical implications. They reflected on their course of studies, on how they developed, and provided suggestions for improvement based on their individual views and experiences.

All the above were discussed around their personal and family background, previous studies, previous work experience, and their plans for their future.

## *TOPICS DERIVED THROUGH THE nVIVO ANALYSIS*

Each of the following themes was derived from the interviews through the NVivo analysis, with each of the students referring to these topics in their own way; How they chose their programme and why, their previous studies and the requirements of their course for accepting students, their family background and family businesses where this applied, the Entrepreneurship provisions of their programme, the background of their lecturers, the course outcomes, the impact and decisive parts of the courses (e.g., if it had mainly an informative role and acted as a first touch with Entrepreneurship and was improving market awareness, the level of depth on business plan creation, if it was improving employability rather than promoting independency, the level of networking the students were achieving), the skills that the students felt they were acquiring during the programme, in which parts the programme was promoting more practical learning and practical applications and where it was mostly about teaching theory and the potential new ventures and businesses that the students could start after their participation or during the programmes. Last, there are the students' plans for the future and their reflections and suggestions on their chosen programme based on their experience, creating a profile of the student, what they consider important and the changes they think that could improve the quality of the programmes in the future.

Coding has been used when mentioning the students, in a way that makes it possible to understand if the students that are mentioned are in the same programme or university (Table 9). It has been designed this way to make it possible to understand the differences in perceptions of people who participated on the same programmes or were studying within the same university culture. For example, if an identifying code is MA1, the first character of this format corresponds to the programme, the second to the university, and the third acts as a number for the student, as for some of the programmes there are multiple students who participate in the interview process. There are universities A, B, and C, and programmes M, V, N, E, I, T, L, which are random letters that match each of the programmes, as below.

*Table 9 - Student participants names coding*

**3 Universities - A, B, C - 7 Programmes - M, V, N, E, I, T, L**

| MA1 | VC1 | NC1 | EB1 | IA1 | TB1 | LB1 |
|-----|-----|-----|-----|-----|-----|-----|
| MA2 |     |     | EB2 | IA2 | TB2 |     |
|     |     |     |     | IA3 | TB3 |     |
|     |     |     |     | IA4 |     |     |

Using coding for the interview data enabled further analysis as follows. Next to each claim are the codes of the relevant students. When there are only one or two students who agree with a sentence, it means that the specific students mentioned clearly, their opinion or position on this matter, when others may have mentioned this or part of it but not clearly, or in an undeniable way. In some cases, not all the students are from the same programme next to a claim. For example, in the creation of the existence of a business plan within the programme, students 2, 3 and 4, from university A, and programme I (i.e., students IA2, IA3, IA4) agreed that they did a full-scale business plan that was a result of multiple courses that came together at the end. This could mean that student IA1 did not mention it, did not understand the extent or the importance of it or they have given more attention to more important things for them. Similarly, when IA3 described the client-based assignments along with a core module, it is safe to assume that IA1, IA2 and IA4 experienced the same too. If there is a reference from other students of the same programme on the specific matter, it is reasonable to accept that it exists and is recorded accordingly. In this way, using the coding applied to the topics from nVivo further analysis was made possible.

It seems that many of the students chose to study in the UK mostly because of the language and the fact that there are more Entrepreneurship and specialised combinations of courses with other disciplines. The universities seem to accept students from any background in the same programmes, leaving the students to decide if a programme is fit for them. They accept a wide variety of backgrounds, business, or non-business, with previous work experience and own

businesses or not, with willingness to start a new venture in the future or not. Almost half of the students come from environments with a family business.

It was observed that the universities do not openly advertise all their Entrepreneurship provisions, but when they mention the provision of guest lecturers and lecturers with real experience in new ventures and start-ups, this is sometimes over-stated and the lecturers do not seem to have been carefully selected or relevant. Many of the programmes put their students into consultancy projects for real companies, providing real-life experiences. The outcomes of the courses have to do with the enhancement of the knowledge of business, the procedures and knowledge of how to develop ideas and start new ventures, and the general environment around it. For some of the students the Entrepreneurship programmes seemed to be mostly about market awareness and general information, but for others a great way to further develop their skills on business plan creation and idea development. This meant that for some students it was mostly about the improvement of their employability rather than their independence soon after their studies. Different types of networking were shown to be an important factor for almost half the students who mentioned they experienced it, either by meeting like-minded individuals, or by exposure to external connections with real businesses and financial sources.

Regarding the skills that the students were developing throughout their attendance in the programmes, it seems that even students in the same programmes perceive them differently based on their personal circumstances, plans, and backgrounds. While the students described an range of theoretical elements within the programmes, they also mentioned a variety of practical learning methods, and practical application of the newly acquired knowledge. It seemed that it was mostly the students who already had in mind to start a business or join an incubator that took full advantage of these provisions to test their abilities. There was a variety of future plans discussed, and most of them agree that some work experience of the market is first needed, before any attempt at their own venture.

This next part of the analysis allowed the development of the nVivo themes into more specific topics for analysis that emerged from the data and came into three broad categories relating to: 1. Students' situations and dispositions when choosing programmes; 2. Elements of the courses and programmes in which the students studied; and 3. Post-course directions for development. The specific topics for these broad groups are explained below.

## Topics in category 1 - Students' situations and dispositions when choosing programmes

**Influencing Factors on Students' choices**

It is clear from the findings that the students choose their masters programmes or courses in a variety of ways, influenced by a range of factors. The paragraphs that follow illustrated these with links to the students' coded responses.

When looking specifically for Entrepreneurship, one usual procedure is to search for entrepreneurship and then look into the programme structure of the master's course. Four of the students chose programmes based on the modules advertised and then applied to institutions selected because of the university's ranking and accreditations.

Most of the students chose the UK because of the language. They made extensive research within the UK, then they narrowed to Scotland and the university of their choice; a bit less than half of them chose Scotland directly. For one of the students, the main reason for the final choice was the lower tuition fees, as compared to the rest of the UK, due to financial help through *Students Awards Agency Scotland (SAAS)*. Another one chose the UK over France because of the shorter one-year programmes. One of them chose the UK over Australia because the offer from Australia was not for an Entrepreneurship related course.

Other motivations for some of the students to choose the UK, were the networking events, lectures and public talks outside the school, and the social life of the cities.

About half of the students wanted to go deeper into the discipline of Entrepreneurship, to understand the field, get knowledge and potentially start a business or continue in business in a more systematic way, using academic knowledge and tools. A few of them chose to study Entrepreneurship as they wanted to potentially start a business in the UK, where the rules and practice in business are different to their home culture. For others the choice of programme was due to a general interest in Entrepreneurship. They were expecting to get real life business experience from their course. Others chose their programme because they understood that it could provide the knowledge for them to generally start their own business or work with their family business.

In the case of a combination of disciplines, which was less usual to find (i.e., Environmental

Entrepreneurship, which combines business and engineering) the students applied immediately without much prior research, some with no extensive searching procedures, as they either were in their field or wanted to specialise in this specific field. As one of the students mentioned:

> *this seemed perfect because it is a mixture of the two things that I wanted to do. So, I was like, let me give it a shot. So, I applied.* (EB2)

For some of the students the decisive factor was the discipline that was combined with Entrepreneurship. (i.e., International business with Entrepreneurship). For others, the decisive factor was their contacts from within the university who recommended the programme (A recommendation from a Lecturer or recommendation from alumni), the existence of a specialised centre for Entrepreneurship within the university (i.e., Hunter Centre), or the replacement of the dissertation with a different activity that makes the learning procedure more practical, such as a Virtual Incubator Project.

The students expected to gain the described skills, to get an understanding of the market and get involved with real life scenarios and real-life case studies.

**Course or Programmes Requirements**

There are parts within the interviews that provide direct and indirect information about the requirements of the universities to accept students within their programmes. All of the below provide clues about the standards and the choosing procedures that each university makes use of when selecting students. The reported issues are not obvious from the formal written requirements and have impact on the results that the programmes attempt to achieve with the students.

When Entrepreneurship is taught within disciplines other than business, it is usual to find common modules between programmes that students from different programmes can attend and have in common. It is observed that in most courses there are several students who do not have an Entrepreneurial background. Many students though, already had their own businesses before attending an Entrepreneurship course.

In most cases, the universities accept students from any background, with minimum requirements. Many of the students have a background in non-business disciplines before attending an Entrepreneurship course; In software engineering/computer science, Law,

Geological Engineering, Engineering, Parks recreation and tourism with event planning, and mechanical engineering. On the side of the business studies, the students come from a range of backgrounds too; Engineering and business, business administration with marketing, business administration, advertising and marketing and then business administration, marketing and business opportunity, economics, English education and IT.

When students come from a specialised subject, some modules may be proven to be easy for them and the content perceived as very general. Thus, the content of the lectures may not be considered helpful.

Some of the students in the programmes have work experience when others attend directly after their first degree. The backgrounds of the student vary; one of them had 3 years work experience as an entrepreneur with a few start-ups on Entrepreneurship courses and start-up events. Others had totally different circumstances: One student stopped after 5 years as a police officer; another had experience in environmental impact assessment; one worked for 15 years in media and telecommunications including 8 years with their own business (agency) in digital Marketing; one had for 2 years of multiple roles in a corporate company and a start-up; and others 2 years with a building manufacturer; in an international company; in the wedding industry; in a mining company (internship) along with two own start-ups; one had gone as a marketing intern to China, keeping a part time involvement later; in customer service management; one-year experience in Engineering; business in student recruitment and experience in translation, interpretation, and tutoring; and one had just attempted to set up their own business.

The students seem to appreciate the good mixture of different backgrounds and level of working experience, since they could learn from each other's strengths and use their collective knowledge throughout their studies, to become better. For example, one student mentioned that:

> *mixing the class, I think people can get better, because Entrepreneurship is a journey. Based on your experiences, you have more to exchange, your scenarios, and things to be discussed.* (VC1)

One of the students said the opposite happened for them; there was not a good mixture, the situation did not help them improve and was not liked, so effectively they agree with the above.

When the students attend directly after their first degree, their lack of working experience and motivation can be seen, when compared with their more experienced fellow students, as a barrier. One of these students, however, came directly from their first degree, having ongoing working experience along with their studies and their own businesses.

In some cases, it seems that a very liberal approach on entry requirements and a mixture of different language requirements leads to a low quality of the mixture of nationalities and communication within the classes. One reported that 90% of their classmates were from the same country. Some of the students reported that many of their classmates cannot communicate well because of their poor level of English, and thus cannot contribute to the class and group work. One of them mentioned that many of their classmates were discussing in their own language during the classes and the assignments, not helping the others or themselves on improving their ability in the English language.

Only a few of the students in the classes would participate actively and express their ideas, as one of the students said that applied to 10 out of 54. It was also reported that some of the students just want to get a master's degree and return to their hometowns, making minimum effort. Their classmates reported that many do not have any future plans and would not be potential partners or even help with social ties.

Some students have their own business idea and want to start their own business and participated in teams within which each also had their own business ideas. Other students commented that their program could be a bit more challenging or demanding.

**Family Background & Family Businesses**

The students presented differences in the family work background. Some of the students come from families with their own businesses. These differences seemed to produce different effects on their approach to Entrepreneurship and their Entrepreneurial spirit and appetite.

The students that come from family businesses seem to have at least some basic understandings on how businesses work and would like to expand their knowledge; in the environmental sector; in hospitality and plastic manufacturing; in the retail of building construction material; in livestock industry; power brokering; private banking and pharmacy business; in automobile dealership and manufacturing of women's garments; in property development.

In terms of risk taking, one student mentioned that their family takes very calculated decisions, with practically very low risk. Other students referred to their relationship with risk taking and of how comfortable they were with financial instability, and now that they are more informed, they would be more cautious and less careless in their future actions. As noted by Piperopoulos and Matlay (2012), these could be indications that entrepreneurial education should still possibly consider its structure and its effectiveness to optimize its results and avoid adverse results on the graduates' entrepreneurial mindset.

A few students commented that the majority of students in their class come from backgrounds of having family businesses. They said that there are many who had experience through their family businesses and could understand some things better than the rest through their real-life examples and search for processes to improve them.

For the rest of the students entrepreneurial flair was developed in a different way that is not related to direct contact with a family business. One of the students was interested in computers and wanted to explore their capabilities. Another student has a brother who has their own business, and another brother who is an accountant. One student's parents are in the banking and education sectors, but they were inspired from their grandmother, who had a business in the grocery sector and an agricultural background. Another's parents had always workied for the same company and one student's parents work in the public sector. For another student, their parents are a middle school teacher and an engineer in a state-owned company; they are conservative in outlook, but they still allow them to act independently and choose their own career.

## _Topics in category 2 - Elements of the courses and programmes in which the students studied_

**Entrepreneurship Provisions**

From the students' perspectives, they mentioned that their universities offer initiatives and activities that help students to create their own ventures. Most of these seemed to be very important for those students that presented it, providing an enthusiastic approach. They also mentioned initiatives that were described by the lecturers, as below.

Edinburgh university has *Edinburgh Innovations* that helps with the commercialisation of ideas and provide the Entrepreneurial visa for students. Strathclyde university encourages students to try and develop their own ideas through the pathways program, which is out of normal university hours, and teaches students how to start and develop a business on its three optional and separate stages. For the students that will pass all the three stages it also works as a competition with the support of banks (e.g. with the Royal Bank of Scotland) for those students who would like to start new ventures and, in cooperation with the *Strathclyde Entrepreneurial Network,* they provide students with the Entrepreneurial visa, where needed. Strathclyde also has an incubator.

*UoG* offers a program which helps students to start their own business, providing them with an enterprise manager and a start-up grind with monthly sessions, talks from Entrepreneurs and networking sessions. *UoE, UoS* and *UoG* also provide a consultancy project for students in certain programmes, exposing them to real life businesses and problems (many students reported this).

The Universities also often invite guest lecturers with business experience to talk about their businesses and provide insights. The feedback from most of the students for these lecturers is not highly valued, as they consider them as not relevant and outdated.

Most of the above provisions are not mentioned within the advertising material for the programmes and the students have to do their own research within the university pages. Only the consultancy projects and the guest lecturers are mentioned within the descriptions of the curriculums.

**Lecturers' Backgrounds**

The universities have lecturers and guest speakers of various backgrounds. Students were asked to give feedback on that diversity and the impact it could have in their participation in the classes.

One of the students mentioned that there were a lot of guest speakers who talked on a variety of topics. There were real Entrepreneurs who had been through different experiences and processes, to start their own business. They talked about the commercialization process,

starting a business through a competition, intellectual property, and other topics. Other students, at different universities, talked about one lecturer in their class who was a serial Entrepreneur and could explain from personal experience why they teach what they teach. Other students talked about more lecturers and a network of people who had actual experience and could guide students. Others found that their lecturer only had attempted to start a business once, and decided to pursue a career in academia, instead of business. Other lecturers had Entrepreneurial experience, but their students mentioned that they were possibly not allowed to talk about it. Another student said that they did not have lecturers with Entrepreneurial experience at all.

**Course Outcomes**

Each of the students on a personal level perceived their course differently, according to their aspirations and needs, which formed their personal point of view.

In many of the courses, the students agreed that it helped them a lot, going through all the knowledge they would need to set up a new venture in the future.

Among the comments on the course outcomes, one student mentions that it is a new qualification overall, that diversifies their skillset; they know a lot more about business and can apply for every graduate position. One of their classmates mention that they got new ideas and was exposed to trends and the idea generation procedure or else ideation. Through the business competition they got feedback about the commercialisation potential of their business. Another student mentions that, even if they have experience, they had to unlearn everything otherwise they would not learn anything.

For one student the most important thing was to learn more about financing a business, grants, crowdfunding, what is the most suitable ways to apply etc. The course gave them some idea and inspiration on how to start a business. Another student felt that the most important outcome was that they learned how to fund a business and how to approach the funding sources and to appear distinctive from other applicants. They feel now comfortable to do research, develop, evaluate, and support business ideas. One commented that some of the alumni started their own business, whilst another learned about the cultural differences when working with people of different ethnicities. One student mentioned that at the end of the course, they did

not understand the significance of an over analytical business plan, as that is only the theoretical side of things for them.

## Informative Role – First Touch & Market Awareness

Different levels of past exposure in Entrepreneurship left a variety of impressions on students, when they had to comment on the weight of the knowledge they actually think they received on Entrepreneurship.

For some of the students, the programme has mostly an informative role, either because it is their first touch with Entrepreneurship, or because the nature of the course is generic in nature. Students who have some experience thought that their programme was a bit basic, designed to cater for people who do not have management experience. They understand that it would not be the same to make a proper business plan, but at least they get a general idea of the aspects that they have to think of, if they needed one in the future.

An important outcome for some of the students was the market awareness that their programme offered. They were inspired by the different sectors within which they could potentially innovate. They appreciated and were impressed by the knowledge of the funding processes and funding sources at the different stages of the business, and the guidance on the optimal ways of making an application. A few of the students also mentioned the awareness raised on the latest trends in the global market.

## Business Plan Development

Learning how to make a business plan was present within the curriculum experienced by most of the students. This provoked a higher, different level of thinking. The level of depth and analysis of the business plan changes in each programme. Sometimes it is not only within one course and the complete knowledge comes from more courses within the programme.

One student in particular mentioned that in the module of New Venture Creation they came up with an idea and made a business plan, and in entrepreneurial finance they did the numbers. In New Venture Creation it was more about the feasibility of the plan, to proceed with the finance and numbers for it. Another student mentioned that they were taught components of the business plan but never did an actual whole business plan. Their classmate agreed that they

would not know how to do a cashflow if it had not been for the competition they participated in, that was separate from the course. The students of another programme agreed that they did some elements on finance, but they never did financial forecasting in the full scale that would be necessary. They had, however, created a complete plan to launch a business considering all business aspects.

In one of the programmes the students created together a full-scale business plan, as part of a project, and made a presentation about it. It was three courses that came together in the end, to create this project. One of them mentioned that they did it a few times within all of the classes, so they feel now better prepared to create their own. Another one confirmed that they had to do multiple business plans, and pitching.

On another programme they had to do a full-scale business plan on a realistic idea and gave special attention to the financial side, where they were provided with a formula where they could calculate costs and create the financial statements for the business. They did the same for their dissertation project.

Two of the students that were in the same programme confirmed that they did a full business plan with presentation and showed that it was mostly about the theoretical side of it and discussing ideas and its aspects, and less like a real business plan. It could even be separated in individual assignments instead of teamwork. Another student only reported a basic business plan and presentation, without many details.

In some cases, the students managed to create a full-scale business plan through their dissertation, and asked for help from the university, to put it together.

**Networking Opportunities**

Networking was an important factor for some of the students. Some of them did not experience it while others reported expanded their network.

Many of the students got to know real businesses through modules that provided client-based assignments, like entrepreneurship and international management modules. Some talked to angel investors directly, as they had one as a guest lecturer. A student from the same programme had an opportunity to turn their idea into a new venture through a competition and

contact with some of the big companies in Scotland. Another student mentioned that networking starts from being involved with the programme itself and from the contact with like-minded individuals within their team. In another university they mentioned the Networking sessions that run along with the programmes, like the start-up grid in *UoG*, and the opportunities that the students had each month to meet businesses and Entrepreneurs.

**Skills Development**

The students seem to experience the courses differently and focus on things that are more important for them, personally. It is safe to assume that if some of the students experienced improvement of a skill, then the skill and the provisions were available for the rest of the students on the same programme too, given the student's circumstances and level of readiness to accept this knowledge the way it is taught. All the comments that refer to personal development are separated, and it only covers what is related to the studies. Students seem to perceive and express all the skills slightly differently, with small variations. This will be analysed further in the discussion, along with the relevant data from the repertory grids.

The students improved a range of skills to different degrees and intensity while studying and that were significant enough for them to mention, (Table 10), and, as in the literature, indicating the positive impact of Entrepreneurship education on students (Mwasalwiba, 2010). The skills they talked about were described as theoretical and practical skills and include presentation skills and pitching; entrepreneurial skills; financial skills; business design; teamworking; and multitasking. Also mentioned are time management, referred to also as managing pressure; creativity; design thinking; innovation capability development; skills for networking; analytical skills; and business tools like SWOT analysis, breakeven and market strategies; critical and analytical thinking. Listed also are skills on business strategy including exit strategies; international entry modes; business development skills; relationship building skills; techniques for market penetration; market analysis; communication skills; cultural differences recognition; organizational skills; problem solving; and entrepreneurial thinking. Confidence; willingness to take risks; market research skills; decision making; business start-up management skills; accounting skills; market awareness; and idea generation also were mentioned.

According to many of the students, some of the skills had a bigger impact on them than others and contributed more to their development. The skills mentioned the most in this category

were, presentation skills, confidence, multi-tasking, time management, market strategy, risk taking, market segmentation and market research, internationalization, higher confidence to start their own business, understanding of how business works, effectiveness and related mindset, self-reflection. Some students mentioned that there was a tangible and important improvement in their skillset overall (Table 10).

The students seemed to have different needs for entrepreneurship education, as Matlay and Solomon (2008) mentioned. The skills they were initially expecting to get were entrepreneurial skills, management skills, leadership skills, skills on finance, knowledge on the protection of the business, like intellectual property, business development and selling skills, communication skills, presentation and pitching skills, international communication and teamworking, time management, marketing skills, general business overview skills, market research skills. Many of the students went in to the programmes with a more open-minded attitude and were looking forward to exploring the courses and find out what they can take from them. For others, for example IA3, described the skills taught and the intentions on the programme's literature as "*very accurate*". MA1 said that "*the skills are transferrable, but it takes time, and it requires our own working experience*". In the table below it is possible to see exactly which students, from which universities made the comments listed above.

*Table 10 - Skills mentioned during the interviews*

| + Mentioned as Improved, ++ Mentioned as Strongly Improved and Contributed in their development, * Expected before Attending | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Skills Mentioned during Interviews** | **Students** | | | | | | | | | | | | | | **Totals** | **Number of Students** | **Most important** | **Most Expected** |
| | MA1 | MA2 | VC1 | NC1 | EB1 | EB2 | IA1 | IA2 | IA3 | IA4 | TB1 | TB2 | TB3 | LB1 | | | | |
| Presentation Skills and Pitching | | | + | | ++ | + | + | + | | + | | *+ | | | 8 | 7 | 1 | 1 |
| Confidence & Confidence to start a business | | | | | ++ | | | | ++ | + | | + | | ++ | 8 | 5 | 3 | |
| Overall Skillset – tangible and important improvement | | | | | ++ | | | | | ++ | | | | ++ | 6 | 3 | 3 | |
| Entrepreneurial Skills | | * | | | | | + | | + | | | | + | + | 5 | 5 | | |
| Time Management | | | | | ++ | + | | | | | | * | | + | 4 | 3 | 1 | 1 |
| Creativity | | | | | + | + | | | | + | | | | + | 4 | 4 | | |
| Innovation Capability Development | | | | | | | | + | | + | + | | | + | 4 | 4 | | |
| International Entry Modes – Internationilization | | | | | | | + | | + | ++ | | | | | 4 | 3 | 1 | |
| Communication | | | | | | | | | | | | | | | | | | |

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| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Management | | | | | | | | | | | | | | | **4** | **3** | **1** | **1** |
| Creativity | | | | + | + | | | | | | + | | | + | **4** | **4** | | |
| International Entry Modes - Internationilization | | | | | | + | | + | ++ | | | | | | **4** | **3** | **1** | |
| Communication Skills | | | | + | + | | | | | | | *+ | | + | **4** | **4** | | **1** |
| Self-reflection | | | ++ | | | | | | | | | | | ++ | **4** | **2** | **2** | |
| Financial Skills | | + | | * | | | | | | + | | * | + | | **3** | **3** | | **2** |
| Teamworking | | + | + | | | | | | | | | | | + | **3** | **3** | | |
| Multitasking | | | | ++ | + | | | | | | | | | | **3** | **2** | **1** | |
| Business Tools (SWOT, break-even, market strategies) | | | | + | | | | | + | + | | | | | **3** | **3** | | |
| Risk Taking Willingness | | | | | | | ++ | | + | | | | | | **3** | **2** | **1** | |
| Business Design | | + | | | | | | | | | | + | | | **2** | **2** | | |
| Networking | | | | + | | | | | | | + | | | | **2** | **2** | | |
| Analytical Skills | | | | + | | | | | | | | + | | | **2** | **2** | | |
| Cultural Differences Recognition | | | | | | | | | + | | | | | + | **2** | **2** | | |
| Organizational Skills | | | | | + | | | | | | | | | + | **2** | **2** | | |
| Market Research | * | | | | | | + | | | | | | + | | **2** | **2** | | |
| Market Segmentation and Market Research | | | | | | | ++ | | | | | | | | **2** | **1** | **1** | |
| Decision Making | | | | | | | | | + | | | | | + | **2** | **2** | | |
| Market Strategy | | | | | | | ++ | | | | | | | | **2** | **1** | **1** | |
| Understanding how business works | | | | | | | | | | | | | | ++ | **2** | **1** | **1** | |
| Effectiveness and related mindset | | | | | | | | | | | | | | ++ | **2** | **1** | **1** | |
| Theoretical and Practical | | | | | | | | | | | | | | + | **1** | **1** | | |
| Managing Pressure | | | | | | | | | | | | | | + | **1** | **1** | | |
| Design Thinking | | | | | | | | | | | + | | | | **1** | **1** | | |
| Critical and Analytical Thinking | | | | | | | | | | | | | | + | **1** | **1** | | |
| Business Strategy and Exit Strategies | | | | | | | | | + | | | | | | **1** | **1** | | |
| Techniques for Market Penetration | | | | | | | | | + | | | | | | **1** | **1** | | |
| Business Development and Selling | | | | | + | | | | | * | | | | | **1** | **1** | | **1** |
| Relationship Building | | | + | | | | | | | | | | | | **1** | **1** | | |
| Problem Solving | | | | | | | | | | | + | | | | **1** | **1** | | |
| Entrepreneurial Thinking | | | | | | | | | | | + | | | | **1** | **1** | | |

| | | | | | | | | | | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Penetration | | | | | | | | | | | | |
| Business Development and Selling | | | | + | | | * | | | 1 | 1 | 1 |
| Relationship Building | | + | | | | | | | | 1 | 1 | |
| Market Analysis | | | | | + | | | | | 1 | 1 | |
| Problem Solving | | | | | | | | + | | 1 | 1 | |
| Entrepreneurial Thinking | | | | | | | | + | | 1 | 1 | |
| Market Awareness | | | | | | | | | + | 1 | 1 | |
| Business Start-up Management | | | | | | + | | | | 1 | 1 | |
| Accounting | | | | | | | | | + | 1 | 1 | |
| Idea Generation | | + | | | | | | | | 1 | 1 | |
| International Communication and teamworking | | | | | | | | * | | | | 1 |
| Marketing Skills | * | | | | | | | | | | | 1 |
| Leadership Skills | | * | | | | | | | * | | | 2 |
| Management Skills | | | * | | | | | * | * | | | 3 |
| Intellectual Property and Business Protection Knowledge | | | * | | | | | | | | | 1 |
| General Business Overview | | | | | | | | * | | | | 1 |

## Practical Learning & Practical Application

Many of the students claimed that they could apply the knowledge they were acquiring from the courses. They referred to all the material that seemed to help them understand in practice and apply their newly acquired knowledge.

There was pitching in front of a panel, emulation of the practical tools that were discussed in the class with examples, along with case studies. Most of the students had the chance to work as consultants with real clients, bigger companies and small start-ups and many could contribute to their own internationalisation, understanding their needs and getting into their shoes and talking directly with the entrepreneur. There were both advantages and disadvantages with being involved in a consultancy role; some students had to find the companies that they would work for by themselves and all described worthwhile experiences and outcomes, working exactly on the features of the companies from which they needed the most to learn (i.e., internationalisation). This significant impact was expected for both the

students and the businesses as it had been widely predicted in several of the research studies that were examined in the literature chapter (Fukugawa, 2005, Ridder and van der Sijde, 2003, Wani et al., 2004, Brindley and Ritchie, 2000, Ucbasaran et al., 2001, Arnold et al., 2002, McLarty, 2003, Pittaway and Thedham, 2005, Stewart and Knowles, 2000, Afolabi et al., 2017). They described overall a very good level of communication with the decision makers of the businesses but there were also a few unfortunate cases. One of the students had to find a new client in the middle of the semester, as the communication had been low and the personal face-to-face contact impractical due to long distance. Some of the universities left the students to find a client on their own in order to let them be innovative according to their needs and persuade them to work together. In one of the programmes, one of the students reported that in almost every course they had to do something for a real-life client. Another student said that they were assigned to an entrepreneur, to follow them in business for a few days.

For some, they claimed that they had the right balance of theory and practice and working with a company of their choice was hands-on. Some said that although the start of the programme was a bit more theoretical, it ended up being extremely practical. One student mentioned that they expected the hands-on practical session to provide more than the academic experience.

One of the programmes brought an angel investor to speak to the students so they could find out what their needs are and how to be better prepared for doing presentations and seeking opportunities for funding. Other programmes provided entrepreneurship related workshops with real companies and professionals that were reported by students as exciting.

Some students reported that they were able to participate in a multi-stage competition that was open to everyone in their university and was supposed to teach the participants about developing a business, getting them through all the stages, from the development of the idea to pitching for funding. Others had to prepare their ideas, develop them, pitch, fund them and get into a virtual incubator, or to participate in a business simulation under real life business circumstances, and in computer-based business simulation on a weekly basis. They also had the opportunity of coming into contact with Scottish organisations and make provisional applications to get funding. Some of the programmes even allowed the students to present a full-scale business plan as a dissertation, or to have hands-on real-life experiences and an internship as part of their grade, instead of a dissertation. In other programmes, depending on the lecturer's style, some made it really practical through discussion of current events and the creation and pitching of a business plan for their idea.

The students feel that they have improved their skills and knowledge overall after their programme and can apply them onto their own ideas, to get them off the ground and underway. They applied tools and did analysis throughout their course, like SWOT analysis, breakeven, market strategies and business canvas models. One student mentioned that a practical and important part of the course was how to develop roadmaps; technology roadmaps or product roadmaps. Another said that through the Virtual Incubator Project they had to present their business idea and apply all the knowledge they had acquired throughout the course. For all the students who worked as consultants with real clients, they successfully applied their learnings from their courses onto their real-life projects and were in close contact with actual entrepreneurs. They also mentioned that they learned about cultural differences in practice, while working in their projects in multinational teams.

**Teaching Theory**

Extensive amounts of taught theory seem to have left many of the students with questions about the application of it and the actual ways that they could apply their knowledge. A less intensive practical side seems to make it harder for the students to participate effectively in the courses, with active interest, as many students seek what is applied, lively, attractive and current, in order to absorb and deeply understand the provided knowledge.

While some students claimed that their courses had the right balance of theory and practice, others mentioned many theoretical features and that they had to cope with courses that were only about theoretical taught knowledge, while they were expecting an entirely practical experience. In these parts there were cases in which they mentioned overlaps between the classes of the same programme. One student mentioned that they could talk and discuss like an expert about all the theoretical aspects of entrepreneurship. They describe for example innovation and commercialization as a theoretical course, with a lot of guest speakers that talked on different topics. It was the same about the competition that they took place in, that was mostly open talks about business and entrepreneurship.

One of the students in a particular programme said that if there was even more practical experience, it would be very valuable. They had one course that was very practical, and they could work with real entrepreneurs, but the lectures who chose the more theoretical approach, as compared to a more applied, practical one, were the greater number and the only practical

part in their teaching was the presentation they had to do. Their theoretical knowledge was improved a lot, but the real difference was made with the practical course they had. For a few students though they did not have any real businesses to get involved with and the most practical side of the courses were the case studies they worked on, these were, in any case, enriching their knowledge, making them understand how the theory is applied in the market. They were told about how to do their market research, how to get into their market and how to manage SMEs. They asked their professor in one of the courses to have more case studies for SMEs, instead of the ones that were for the gigantic companies in the market, to be more relevant to them. And they still had courses that were fully theoretical. This could mean though, as O'Connor et al. (2012) and Farhangmehr et al. (2016) suggested, that Entrepreneurship education is not necessarily related with improving Entrepreneurship skills and motivation.

Another student mentioned that they went through all the theory about entrepreneurship; what makes an entrepreneur and how to be an entrepreneur, along with discussions from international visitors on globalisation of multinational companies and innovation. They also came across very theoretical courses, like management. The more theoretical courses usually were on the first semester of the programmes, seemingly to ensure that the students will be on the same level. Their classmate mentioned that many professors, excepting the ones that offered the practical courses and were really engaging, were just reading through the slides and were asking for questions. Another of their classmates talked about a few courses that were all theory and they just learned most of their content temporarily to pass the exam. As some of the courses were combined, there was a lot of overlapping.

In another programme they mentioned that a lot of the case studies they used during the classes were outdated. Two of the students said they learned the theory for basic knowledge when the course should be more specialised. One of them mentioned that teaching in some courses was based on slides. They mentioned that in one course they had to present ideas related to the theory they learned, but in most classes they were taught about the theoretical aspects and then they had to find out on their own how they could work in practice.

As a result of COVID-19 pandemic there were reported cases that many more practical aspects of the courses, like presentations, turned to theory, focusing on the reports.

One of the students mentioned that there were theoretical parts that were really interesting. There were lectures in internationalising and being successful in different countries, how to

manage the finance and the areas that an entrepreneur can cut back financially and other interesting, specialised topics. In the same programme another student felt that there were more courses than needed and sometimes instead of being complementary, they were overlapping to a certain extent.

For the students of another programme all the courses were laying a theoretical foundation and was only the business planning that had a practical aspect, as part of their assignment. They were even learning about tools like PESTEL and SWOT analysis, without applying them. A lot of overlapping between the courses, was mentioned again.

## Topics in category 3 - Post-course directions for development

**Improving Employability**

For some of the students it was felt that their course improved their employability. One thought about taking up a placement as a corporate consultant, or in academia. Others wanted to first start working, as they felt it makes more sense to first get some experience before trying to start their own business.

Others believe that the programme will help them both to get employed and continue with their business. It seems that overall, this is in line with Taatila's (2010) suggestion that skills that can be used "in" enterprise come before the intention to acquire skills "for" enterprise. As Storen (2014) mentioned, even without immediate results Entrepreneurial skills incite a positive attitude across new ventures in the future.

**New Venture-Businesses**

There were cases that were identified, where the participation of the students in the programmes presented opportunities in creating ideas and designing and starting new ventures, with potential collaborations between students.

Some of the students came up with new business ideas that could be potential businesses in the future, and others were already planning their ventures before the end of the course. They learned how to evaluate their ideas. One student found a company that was interested in their

idea and looked for resources through Strathclyde entrepreneurial network to get it forward. Another explored the needs of Scottish businesses to collaborate with start-ups or get into an incubator. Their classmate also plans to start their own business in the near future, and to collaborate with one of their teammates. They mentioned that there are more students in their programme who would like to use the ideas from their projects to create new ventures. Some students talked about alumni who created their own businesses and were coming back to the programme as guest speakers. They could also start the idea that they worked on as a new venture, even if the group have now separated after the end of the course, and the students returned to their countries of origin. One student also already works on an idea whilst still in the course with the support of the Enterprise manager of *UoG* and the guidance of alumni who had started their own business too.

**Plans for the Future**

The plans that the students have for the future, after finishing their studies, vary. Some of the students plan to return to their home country and start their own businesses there. Others would like to move abroad again in the future to start a business in another market. Until they will start their own business many of the students would like to first get some working experience in their home country, in the UK, abroad, or work in their family business in their home country and learn through it. Most of the students would like to start their own business, and for most of them their studies were crucial as a way to learn how to do this. Some of the students would want to start a business in Scotland, which is the home country for a few of them.

A few of the students expect to continue with their businesses, while also getting some working experience in the UK market. Many of the ideas that they would like to implement came up while studying and could be started in cooperation with fellow students. Some students commented that there have been many examples of business that were started by graduates/alumni from their programme. Some students commented that many of their fellow students have family businesses, and it is important for them to return and work for them, getting a more active role, as well as to know how to expand them internationally. Some of the students plan to go into incubators through their universities, to implement their ideas.

**Students' Suggestions and Reflections**

Each of the students left a series of reflections on their programme, according to their own level of experience and point of view, along with their suggestions on how their experience in the programmes could possibly be improved. The issues that were touched on with students in their responses included the following, explained below.

It is good for a student to have some experience before joining the course to get the most out of it. Focusing more on studying small businesses was proved to be more useful. In most courses, a mix of students with different backgrounds is expected, but this is not the case, as there are comparatively very few students with an Entrepreneurial background. The students' expectations in useful contacts – in terms of sharing experiences and improve their knowledge - were not met.

Small class structures were more appreciated, as this provided better support and more personalised lectures and learning experience. This helped in the direction of a more diversified skillset, with better feedback on business ideas and strategies. The financial side of how to run a business is not covered realistically, and the universities only focus on how to create a business, and just how to get it off the ground. Overlapping between the modules is a usual issue. Through talks with investors, students sometimes realised they had not learned how to create a complete and proper business plan.

The programmes strengthen the students' theoretical knowledge and background. Specialising on a second subject (i.e., environmental entrepreneurship) seems very useful and effective, as well as the exposure to relevant new trends (e.g., circular economy), which leads to ideas development. When the programmes have a strong Entrepreneurship base, students suggest sometimes that the dissertation could be tied with the actual start of the business or to be replaced with it.

There is always room for improvement on the different levels of the programmes' organisation, and updated content (i.e., case studies etc), as universities are trying continuously to figure out the best way to teach specific modules and to bring new lecturers up to speed. In their work as consultants within their studies, the students want to make a difference for the businesses but usually it is too early for them and the businesses were not well prepared for

the placements. Availability and resource management on electives is mentioned, as well as the originality of the modules that were sometimes replicating others or older ones, making them look outdated. Some modules (e.g. sales lab), are not well positioned and have a different title than their actual content, causing misleading expectations and overlaps. This however was obvious only for the students who had enough experience to observe and recognise it. For some students, their programme did not exceed their expectations.

It is usual that the skillsets that the students acquire changes their way of thinking. They improved problem-solving understanding and provided structure into forming their arguments. There is a belief that before starting a business the students need networking and working experience. Due to the COVID-19 pandemic, some course features turned from practical (presentation) into theory and students said they could not have the full picture as it should be. They find some modules very useful, and that others do not add to their knowledge, as students differ in their needs and backgrounds. What is presented on knowledge of how to fund a new venture seems be relevant only to the UK.

Usually New Venture Creation modules are considered very useful, detailed and to the point, delivered by a lecturer appreciated for their experience and attributes.

Students from other countries than the UK appreciate the way that the UK government supports entrepreneurs, they learn the different culture, start from zero and adapt. Consultancy projects are considered very helpful and relevant to the students' future aims, and students find exciting the fact that they have entrepreneurship related workshops with real companies. Modules that help students learn how to do proper market strategy, (i.e., *international entrepreneurship* module, *market analysis for new venture creation*) are appreciated, as the students consider it as the first step to start a business. Through teamworking, students learned how important it is to choose a good partner for the assignments and presentations, as well as for business.

Students overall feel that the aspects for which they had originally chosen the programme to be very beneficial (i.e., entrepreneurship aspect on international). Learning how to work with people from different cultural backgrounds is usually greatly appreciated, as well as a certain degree of student diversity. Some of the programmes work well for the students, improving confidence and decision making. On a more administrative aspect, students seem to consider it unfair that the lecturers can grade an entire class based on one paper or one assignment,

because it cannot reflect the breadth of knowledge, and focuses the entire module mostly on teaching. They find that multiple assignments or a different way of grading would benefit the programmes and the students.

Students enjoy the engagement during the courses and keeping the lectures on the length that they need to be, without overstretching. They find it interesting and challenging when multiple modules are combined and, in the end, come together through taught knowledge and assignments. They find it disorienting when a module is being delivered by many lecturers. They think that the students should participate more in the class, as they find talking, expressing ideas, and exchanging information is vital for the class. The language barrier has been identified as a potential cause that subsequently leads to lack of confidence when it comes to participation, as well as the simple reading of the material through slides, that disengages the students. Students suggest that higher TOEFL or IELTS scoring tests, or even just interviews during the selection process, could potentially solve the problem.

It seems that when the programmes advertise guest lecturers that are relevant with the sector, the students do not always get what is promised, as they can be non-entrepreneurs and they mention that the selection process could have been done in a better way. Role models and inspiring entrepreneurial figures are considered by them very important in developing entrepreneurial intentions.

The students expected as much engagement and practical experience as possible. It was reported that most of the students in the programmes return to their home countries. Also, the universities' network programmes are not adequate to help students start their own business. What seemed important was that students understand the difference between a good idea and something that could actually work in real life. An important thing for modules was to understand the objectives, and to monitor the students' progress properly, with communication and feedback on their work. In a few programmes the students had the chance to follow an entrepreneur on their day-to-day tasks, which would have been quite practical and to-the-point. Case studies, with alumni who had set up their own businesses, presenting problems and possible solutions where the students were asked to solve the problems, seemed to work best. It is believed that the programmes tend to potentially be much more beneficial to students who already have an idea they were working on. It is more difficult to adapt to an entrepreneur's way of thinking if someone does not have that background and entrepreneurial

mindset, but the programmes are still useful. As Lazear (2005) mentioned, learning and adapting is what an Entrepreneurial mindset is all about.

Students from other backgrounds (i.e., engineering), along with experience from a family business, happened to expect their programme to be harder.

Previous experience and motivation as classmate attributes are appreciated and students think that the programmes should avoid recruiting people who just want to get a master's degree and do not give serious thought about their future career in general. For many students it is important to find, among their classmates, people with potential, future partners or beneficial contacts for the future.

In Entrepreneurship related programmes the lecturers should still have relevant experience with the market, to be able to transfer more recent experiences, have an insight of what can be actually helpful for the students, and teach better business planning.

The students' learning objectives were not always met directly, as in the course students can realise that in order to learn for example how to be an Entrepreneur they have first to learn how to use analytical tools. This can make them initially feel that sometimes the skills that someone acquires at the university are the wrong skills, or are not that useful, and are not the skills that are actually needed. Potentially the analytical tools could be used in a big company or a lot further into their career but they seem to need knowledge that is immediately applicable and relevant with their level, without having to acquire first loads of experience in the market. Some students would enjoy it more if the university would give them real life challenges, or even a business starting or investment challenge.

### 4.3.3 Repertory Grid

The data of the repertory grids for the students can be found on Table 18 of the Appendix. It refers to the skills that the students improve during their life, their view on each of the skills, and their improvement during their studies.

The data have been analysed exhaustively for as many aspects as possible, to extract as much understanding from the data as can reasonably be achieved. In the tables, there are sub-totals, totals, average values, percentages, accumulative totals, counted vertically and horizontally,

where it can be meaningful, for the total of the respondents and for their sub-groups for each of the courses.

The vertical analysis of the data, shown on Table 18, refers to the results for all of the skills of each respondent in a row. At the side columns, totals (sum) and average indicate which are the strongest skills for each respondent, based on their total skills possession indications and their average indication between all of their life stages for each skill. The diagrams picture the movement for each skill during the life stages of the respondent, and the last column shows how much higher is the respondent's perceived ideal situation for a skill, in comparison with their best mark on it. At the bottom of the table, there are lines for the average, the percentage for each stage, the totals, and the increase of the totals for every stage, for all of the respondents. This is done in order to show a general picture of the sample and to make the individual marks comparable with the overall picture. The average shows the average mark for each stage on all the skills, the percentage shows the weight of each stage in comparison with the total, the sum shows the total marks for each stage for all the respondents, and the increase of the sum shows the total increase of the total marks of the skills for each stage.

In Figure 5 that derives from these data, there is the total change that the respondents experienced for each skill, during the three stages of life, including the difference from the perceivable ideal skill capacity on the third column for each skill.

This can be seen in more detail in Table 19 of the Appendices which presents the Linear Analysis of the data. This shows separately each of the skills, for all the respondents, categorised by course. It shows the increase for each of the respondents on each stage, for each one of the skills. Below every course, there is the average change of the respondents and at the bottom end there is the average change for all the respondents for each stage, on each one of the skills. There is also the total change from the one stage to the next, the number of the respondents that did not experience any change, mostly due to earlier acquired attributes (Kott et al., 2015), and the number of the respondents with positive or negative change (Oosterbeek et al., 2010, Lorz et al., 2013, Nabi et al., 2018).

Figure 5 - Total change between life stages and perceivable ideal skill capacity
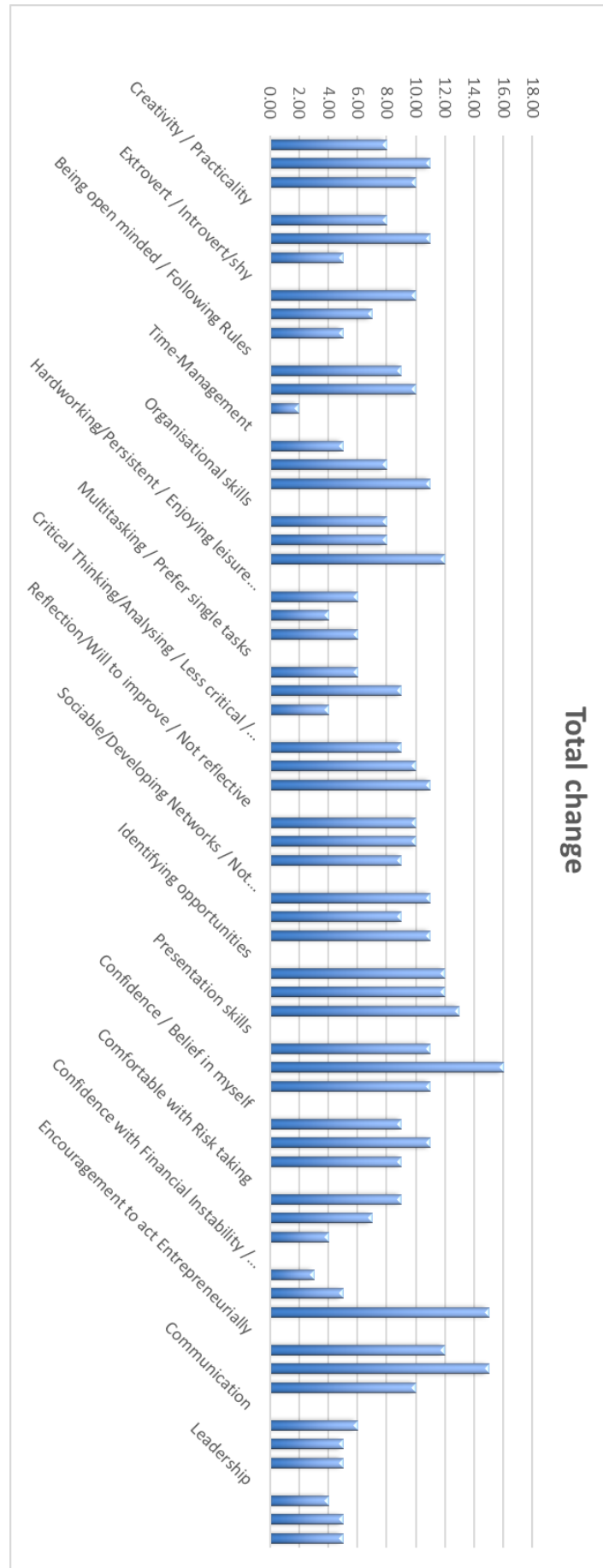
## 4.4  Concluding Remarks for Chapter 4

This chapter presented information about all of the courses in Scotland, the positions of the lecturers and the students on the programmes, their modules and all the aspects around them. These views and the combinations between them were used in the discussion chapter to follow.

Key aspects of the main topics that came up in these Findings and Analysis will be taken forward in the Discussion chapter. Those are the differences between views of students and lecturers, the actual skills that the students obtain, the differences on the way of thinking and interpretations of Entrepreneurship as a topic of studying, and the differences of perception of the different kinds of students based on their experience, background and future plans.

There was a potential significance of having a different relationship between the interviewer and a group of university staff or students. There is a possibility that their responding is going to be different.

Further points for discussion would be the use of the term Entrepreneurship from the universities to describe a wide variety of courses, the content versus the titles of the courses and the needs of the students, the kind of participants that the universities actually look for, the different personal results that the students aim to achieve based on their circumstances, and the questioning of the university approach to create entrepreneurial individuals that will be able to start their own businesses in the fastest time. The repertory grid data will act as a mean to compare the views of the students and corroborate their positions during the interviews. Along with these there are summarized data for the total impact of the programmes on the students' knowledge, and their overall skillset.

# 5  DISCUSSION

## 5.1  Introduction

The findings and their analysis are being discussed in this chapter, to find out the extent to which the research questions can be answered. The interviews of the lecturers are being compared to the secondary data, to investigate the extent of their match and their conformity with the advertised positions of their universities for the programmes. During the research on the secondary data, lists of all the university claims were created that have been compared with the findings from the interviews with the lecturers.

In the following, the students' experience on entrepreneurship, entrepreneurship related programmes and modules and the entrepreneurship side of their programmes are being discussed, using examples from each individual case. This is discussed further comparing with the programmes and courses' positions, marketing claims and the lecturers' outlines. The findings from the repertory grids allow the researcher to discuss emerging issues that are related to the skills that the students acquire throughout their participation in the programmes.

## 5.2  Entrepreneurship in the Scottish Universities

In the following discussion, I will be dealing with how the universities approach Entrepreneurship, and the programmes and modules included, that contain Entrepreneurship and Entrepreneurship related elements. I will investigate their similarities and differences and how the universities include Entrepreneurship, present, and advertise it to prospective students. Their wider positioning, understanding and comprehension on this field of education and their competition, will be discussed. It is the universities that decide what material would be good and useful to provide the students with during their studies, what is the best way to help them and the goals that the students should potentially reach. Entrepreneurship is a versatile field that can potentially be adjusted to different needs, be combined with other fields, and constantly evolve, being open to multiple interpretations. We could learn a lot through the differences between the programmes, and the approaches of different universities.

I will approach the discussion of the secondary data in a different way, using the findings to create a picture of their meaning, how they might be interrelated, and try to form links, starting with the evidence to form a justifiable explanation and signify their meaning. In the secondary data it is not as necessary as in the primary data to locate multiple similar cases, to recognise the possible existence of a fact, as the data are supported with hard evidence. Beyond the factual information, there are clear indications of the adaptability of Entrepreneurship within most of the fields of education, gradually moving from a business-related field to a mindset with a versatile application on all fields. The universities possess an increased analogy of inclusion of Entrepreneurship in business and other fields as compared to the programmes that mention Entrepreneurship in their core. The keywords that the universities use can make a huge difference for the students when looking for a programme, even in very similar programmes, pushing the universities to attempt to be competitive, different, and include Entrepreneurial characteristics in their values where possible, even if there are not clear indications within the modules that the programme contains Entrepreneurship. This is a result of Entrepreneurship being a trend and a reference point, being expected in studies, and attracting attention. All the universities provide a version of an Entrepreneurship related core or optional modules in different fields, which provide additional skills that potentially change the understanding of a field and allegedly increase the students' general career potential. It is usual for the universities to expose the students to a level of practical experiences, to enhance employability and additionally in occasions, to support students who would like to start a new venture in more specialised programmes. It is questioned whether the universities should accept everyone for more specialised programmes, or if they should keep the specialised programmes more protected to potentially increase the quality of the knowledge on offer and improve their results.

When Entrepreneurship appears only in a business school, it is possible that it is not recognized as a mindset at the specific university. When it appears in other fields, it usually provides knowledge on the commercialization of the field and the ways used to recognize poyentially useful and applicable knowledge and research for the market. The addition of Entrepreneurship related modules seems to strengthen the position of a programme, compared to other programmes on the same field and creates an advantage for the attraction of prospective students. The inclusion of Entrepreneurship is a procedure that evolves experimentally over the years and seems to work slightly differently for every university until they ultimately reach relatively common processes.

Given that Scotland has some of the oldest universities in the English-speaking world, we would expect them to lead and/or contain the most recent trends on education within their curriculum. The American universities, having a different mindset and more recently acquired culture than the rest of the English-speaking world, introduced Entrepreneurship education, which evolved from 1927 to 1978 as shown in the literature (2.2.1). Entrepreneurship education reached Europe and the United Kingdom at the end of the last century and only in 2008 it was recommended as an integral part of university education by the European Commission. Although Entrepreneurship education was not born in the United Kingdom, it was well adapted and integrated within the curriculums. In the faster-moving modern world it was integrated and adapted within most of the fields of education. The universities seemed to recognise that Entrepreneurship is not just a business module, but it is mostly a mindset that could potentially be useful for every professional, in all fields.

The marketing literature of most universities presents how the knowledge on Entrepreneurship would potentially affect the graduates' future, and the mindset that would develop after attending each programme. There are only nine programmes that mention Entrepreneurship in their title, nine more in which Entrepreneurship in the title is combined with a business field, and in five more it is combined with other fields. However, the total programmes in which Entrepreneurship is included in the curriculum, without being mentioned in the title, are 107, with 31 of them not related to business fields. This shows a strong will for the inclusion of Entrepreneurial traits in the package that the universities provide to prospective students.

The modules that the universities provide and are related to Entrepreneurship, do not always have the words Entrepreneurship, Entrepreneurial and Entrepreneur/Entrepreneurs in the title. They can have strong Entrepreneurship elements having names that include New Venture, Venture/Venturing, Business Planning/Planning, Innovation, Business Simulation, Enterprise, Commercialisation, Creativity/Creative, Mindset lab, Sales lab, Virtual Incubator, Business Models, Design, Creation, Start-up, SME, Business Skills. In the description of each module they have details and objectives about the Entrepreneurial skills and attributes that the participants will be taught and possibly acquire. In the total of 132 programmes, in the 17 Scottish higher education institutions, there are 157 modules - including their variations and different years of studies - that promote Entrepreneurship and Entrepreneurial skills. In some cases, there are no modules with Entrepreneurship related words in the titles and in other cases there are not even Entrepreneurship related modules mentioned at all. That is because the universities have

entrepreneurship in their values and aims but they supposedly teach them through courses that are business related. All the modules seem to be designed to be competitive and make the difference for the programmes, in comparison with the national and English-speaking competition in general, in order to attract students. Some of the modules have minor differences in the titles and their differences in their descriptions seem marginal, but it is clear that the keywords used, is critical for the postgraduate studies market and the competition between the universities, and from the way they are presented it seems that they make all the difference when students choose a programme.

Nowadays, it seems that Entrepreneurship is the buzzword when presenting a programme. From the way it is included in the literature it seems that the universities consider it as one of the decisive factors for a student to choose between programmes. It is expected in business programmes, and makes the difference in other fields, adding value to students who want to acquire extra skills to increase their potential. During the interviews with the lecturers, a shift in the way Entrepreneurship is included in the business programmes, was discussed. The term Entrepreneurship would leave the title of the programme, without major changes in the curriculum, and would appear as a separate programme in the future. All the resources of the university department were used this year to create a new programme for next year around, as the next new trend in the market. That was FinTech and as it was mentioned by the member of staff, it was the *"buzzword"* in all the conferences around the world. This shows that the universities clearly follow the trends, using specific keywords and adjusting accordingly to gain the students' attention.

Based on when the universities see things through the students' perspectives, it seems that the way to present a programme could be vital to the students' final decisions. According to the programmes' categories that come out, a student could either be looking for an Entrepreneurship programme, for a business programme, for a programme in another field that includes Entrepreneurship, having already a rough idea of what Entrepreneurship is, or looking for a programme in another field that includes Entrepreneurship without any previous knowledge in Entrepreneurship. In the first case, the student wants to attend a programme about Entrepreneurship, knowing what it is and what to expect. In the second case, when choosing a business programme, it seems that the inclusion of Entrepreneurship is being used to add value to the programme. In the other two cases, the universities want to strengthen their position among other universities that provide similar programmes. Regardless of whether the student knows what Entrepreneurship is or not, the universities provide additional skills

that will potentially help them understand their field from a different perspective and increase their potential and employability.

All the universities present their claims in their aims, in the programme overviews, the aims for the students and each course's overview (Appendix, Table 16). A lot can also be deduced from the structure of the modules within each programme (Appendix, Table 14). Some of the universities present their programmes, including Entrepreneurship, as the means to lead the students to new start-ups, enhancing their entrepreneurial skills, and others to improve their employability. That is more common for *UoG, UoA, UoE, UoD, UoSt, TOU, GUC, UoAT, QMU* and *UHI*. In the programmes of some of the universities though, like *UoSA, UoA,* and *UHI*, the students can choose Entrepreneurship as an optional module, based on their personal circumstances. Some of the modules have a place between more than one programmes within the same university. The above show that Entrepreneurship related modules are relevant to students of multiple programmes, are considered useful to different specializations and present versatile applications.

The *University of St Andrews* has a strategy of promoting how to be entrepreneurial, through the university culture:

> *to see potential in existing and future activity and to translate that into action and application. (UoSA)*

*UoSA* provides Entrepreneurship modules only within business programmes and mostly present the successful past employability of their graduates. They only have one optional, common module that intents to teach students how to plan for a start-up business. In one of their IT programmes, they include management and mention that the students will acquire all the knowledge and the analytical and critical skills necessary to manage the IT technologies that underpin all successful business practice, and how to identify it. In their undergraduate programmes they promote the acquisition of transferrable skills and the orientation of the programme to creativity and innovation, as well as the *Entrepreneur Society*. Although they promote the Entrepreneurship society, they do not promote their Entrepreneurship centre in their programmes' presentations, though. In total, their focus seems to be a balance between new venture creation and improving employability.

*The University of Glasgow (UoG),* in four of their programmes mostly present the leadership potential and adaptability of their graduates, and their role within existing businesses. In the

other four programmes, where Entrepreneurship elements are present, there is a more straightforward call for students, implying that they will be able to develop their own entrepreneurial ambition, start entrepreneurship projects and develop start-ups using their entrepreneurial flair, in combination with the entrepreneurial and management skills that they will acquire. *UoG,* seem to be targeting students who will be interested in courses that are either employability oriented or new venture oriented, giving them choices and mentioning that alumni followed both directions in their professional life. This is further reflected on one of the masters' programmes, in Music education, which is not relevant to the business school. When presenting the programmes, they do not promote the Entrepreneurship societies and the support of the university for start-ups, student enterprise and innovation.

The *University of Edinburgh (UoE),* mostly promote the enhanced employability and provide Entrepreneurship courses across their Business School programmes. They are career oriented and only refer to the possibility of the students starting their own venture and creating new business opportunities. New ventures were only found in three out of the thirteen programmes, including their variations. They do not promote their *Entrepreneurs* society and clubs, or Edinburgh Innovations – an organisation within the university – within the programmes' presentations, aims and descriptions. They provide only two Entrepreneurship related modules in most of their programmes, as optional, and one in their MBA, and there is a variety of Entrepreneurship related modules only on two programmes, that are clearly bounded with Entrepreneurship on their title. These two programmes, along with the MBA, are the ones that are not only employability oriented but also aim to help the students form new ventures. In other schools other than the business, there is only the field of Geography that combines business and Entrepreneurship. There is also a PhD programme in the medical engineering field that includes Innovation and Entrepreneurship and shows that *UoE* know and understand that students from other fields can benefit from Entrepreneurship education, through the appreciation of their innovative leaps and the knowledge on the capitalisation on their discoveries.

The *University of Strathclyde (UoS),* present a common aim for all the undergraduate programmes that include Entrepreneurship courses. All of them are within the business school. In the masters' programmes this changes though, as they provide unique descriptions and aims for each of them, focusing on their strengths and individual characteristics. They are in Business and Engineering, and they are clearly Entrepreneurship focused. In their presentation they mention that the students will think and act entrepreneurially and will be a good match and a

great asset for existing businesses, as well as fully capable to establish a startup, take over a family business, launch new ventures and generally engage in entrepreneurial activity. For Engineering, they present and promote the path of being a tech Entrepreneur, use the acquired knowledge to create new companies and ventures within large corporations, and fully understand the extent of their capabilities through their field, and use the opportunities they will come across, for personal growth. *UoS*, present and promote the *Hunter Centre for Entrepreneurship* with every opportunity, and everything that the existence of it means for the students who want to follow this path. They do not promote though the *Strathclyde Inspire* and the *Strathclyde Business Network* that could be great assets, when promoting their programmes to potential students. All the Entrepreneurship related modules, in the ten undergraduate and seven master's degrees (including their variations), are different or slightly different and personalised for each programme, so a student that searches for a programme's characteristics and attributes will never see major similarities between them and will feel that they have come across a unique and well-designed programme structure that has received proper attention.

*The University of Dundee (UoD),* present different aims for the students of their four MSc programmes (eight including their variations). Two (five) in Business, one (two) in Engineering, and one in the Biomedical sector. They mostly promote the increased employability in the three of them, with only one mentioning business start-ups in the biomedical MSc, as a possibility based on the module choices. Only in the Management programmes they promote setting up and managing their own business more than the possibility of acquiring roles in existing businesses. They only have two Entrepreneurship related modules that are being taught in multiple programmes. Within the Engineering programmes though, it seems that there are no Entrepreneurship related courses, but they still use Entrepreneurship within their content taught through Leadership, Finance and Management courses. *UoD*, also promote their Centre for Entrepreneurship within their literature, on the Management courses, to strengthen their position on the business set up.

The *Edinburgh Napier University (ENU),* provide Entrepreneurship related courses in eleven undergraduate programmes and only within four master's programmes. Except from the MBA, in the other three they focus on and promote the skills of starting a new business, the success of ventures, and the design of business, products and developments. Entrepreneurship has been combined with business, Biotechnology and Ecotourism, setting high and unique aims, specific for each of the programmes. In the undergraduate courses, Entrepreneurship related courses are included and combined with many different fields along with business, including Event

Management, Sports, Music, Law, Art, and different types of Design. It is not specified if they aim to an enhanced employability or the ability to create start-ups. They seem to aim for the development of the Entrepreneurial attributes, mindset, and creativity of the students, to be able to support enterprising endeavours and identify opportunities in their respective fields. This shows that ENU recognise and promote the importance of the Entrepreneurial mindset, and the need to develop this mindset as early as possible and along with each field of undergraduate studies. Seven out of their ten modules that are Entrepreneurship related, are being taught in more than one master's or undergraduate programme, to promote as many programmes as possible. Within their programmes' presentations, descriptions and aims they do not promote their Entrepreneurial community and Entrepreneurs in Residence, who support students and staff on their development and progress on their Entrepreneurial concerns.

The *University of Aberdeen,* present the students of the three business-related programmes (one undergraduate, two masters), that have Entrepreneurship courses, with the opportunity to also start their own business, along with being an asset for potential employers. In the other three programmes (one undergraduate, two masters) that belong in different fields (Law, Marketing, Medicine), they support how their opportunities could be improved and how their employability could be enhanced. When the students look for the programmes, the aims and descriptions seem unique and personalised to each of the programmes, including as many details as possible. Three of the six modules are present in two of the programmes between business, MBA and Law, and the other three are programmes specific. *UoA,* promote their Entrepreneurial society in their programmes' presentations, but not their Enterprise and Entrepreneurship part of their careers centre.

The *University of the Highlands and Islands (UHI),* include Entrepreneurship related courses in twelve undergraduate and six masters' programmes (including their variations), on different fields. In most of the programmes, except from the four masters' (MBA variations) and the two undergraduate degrees, Entrepreneurship related courses are included to improve Entrepreneurial thinking, support self-employment, drive creativity and support the creation of new ventures in the different fields. In the objectives of each of the programmes they are very specific, with a clear vision. In the undergraduate studies, most of the modules are included in multiple programmes, showing that Entrepreneurship and Entrepreneurial thinking can be useful in different fields and specialisations. Although it seems that Entrepreneurship related courses target specific attributes and skills for the students, it becomes clear that the modules are only designed for the specific masters' programmes. That includes *Entrepreneurial*

*mindset for growth* and developing an innovative business model in *Global Entrepreneurship*, *Architectural entrepreneurship* in *Architectural Technology*, *Entrepreneurship and portfolio development* in *Interactive Media*, *Research and plan a new business venture* in *Adventure tourism management*, *Entrepreneurship and social enterprise* in *Sports Management*, and four creativity, innovation and enterprise related courses for *Creativity, leadership and enterprise MA*. Throughout the presentation of the programmes, they do not present or use the *UHI Centre for Enterprise and Innovation (CREATE)* and the *CREATE Entrepreneurship project* to attract students or to strengthen their position.

*Herriot-Watt University (HWU)*, supply Entrepreneurship modules within programmes that aim to create Entrepreneurs, start-ups and promote enterprising activities in general. They also mention the nature of the career to aim for, in the respective industries, but it seems that they have included Entrepreneurship on purpose, in order to make a difference in some of their important and competitive programmes for the students that consider joining them. Only two out of the five programmes are in Business, one is an undergraduate and the other one is a master's programme. The other three are masters' degrees in *Brewing and Distilling, Translating,* and *Translating for business*. The modules are programme specific. It is only *Business Strategy Leadership and Change MSc* that do not have any Entrepreneurship modules, but they use Entrepreneurship within their values, taught through Leadership, Finance, and Management modules. *HWU,* have an Enterprise team that offer advice and encourages entrepreneurial talent and activity amongst staff and students, not mentioned in their programmes' presentation.

The objective of the *University of Stirling (UoSt)* is focused on the career development of their students. Entrepreneurship and Entrepreneurship related courses that claim to create entrepreneurs (among others), are only mentioned in one out of five programmes (one undergraduate, four masters). Within the programmes' presentations their career services are mentioned, for been awarded for their support on start-ups, small businesses and student Entrepreneurship. However, the do not mention Entrepreneur-in-residence, and their *LEEP Society* (Leadership, Entrepreneurship, Employability and Personal Finance), that seem to be a huge asset and help for the potential students. Their modules are being used in multiple programmes and two of their programmes do not have Entrepreneurship modules at all. In their Law LLB, Entrepreneurship is delivered by external speakers with industrial experience, and interactive seminars; the Social Enterprise Entrepreneurship is delivered through other Enterprise courses.

The *Robert Gordon University (RGU),* include Entrepreneurship related modules only in two of their master's programmes, in a focused way, with an intent to create entrepreneurial individuals who can use their new skills either on their entrepreneurial or intrapreneurial journey. They mention that students will be able to create, lead and grow their own business. They promote their staff's engagement with high quality and impactful entrepreneurial research, that is brought to life in the classroom. RGU, provide three Entrepreneurship focused modules, one of which is being taught in both master's programmes that are available. They do not promote their *Centre for Entrepreneurship* and their *Innovation@RGU* in the programmes's presentation.

The *University of Abertay (UoAT)* claims that their objective for their students is either a career as a researcher and academic, or within sectors that Social Entrepreneurship can be combined. They only provide one programme that includes Entrepreneurship which has two masters and one PhD variations. They do not show any modules as they are research-based and do not promote their *Enterprise Centre* in the programme's descriptions.

The *Glasgow Caledonian University (GCU)* mostly describes the employability of the graduates, showing the career perspectives that they could have. They promote the Entrepreneurial mindset and aim for their students to launch start-ups and own a business in two (one undergraduate, one master) of their five programmes with Entrepreneurship related modules (three undergraduates, two masters). They provide six Entrepreneurship related modules that are being offered in more than one of their five programmes. Something uncommon that can be noticed within the *GCU* website is that they use the term Entrepreneurial and Entrepreneurship everywhere, to strengthen their Entrepreneurial picture, even where there are no related modules or other features. There are also twelve additional modules within their list that seem to be active but do not relate with any programmes. It is not clear how the students could enroll, and do not appear in the presentation of any of the advertised programmes. It seems that *GCU* tries to show their credibility and create a competitive picture by overloading their descriptions with extra information and unrelated keywords, to draw attention. They also promote their incubator (*UHatch*), their Careers Enterprise and Entrepreneurship support and the *Enactus GCU* within the university.

*Queen Margaret University* promote the enhanced employability of their graduates in their three programmes (seven variations in total), offering practical experience, creative

entrepreneurial thinking, and the possibility to create their own business in only one of them. They only provide four modules within the four Business Management programme variations, but there are not any Entrepreneurship related courses in the other programmes. They use Entrepreneurship in their values, and the knowledge is possibly being taught within other courses, as both programmes inherently have Entrepreneurial values. That is *International Management and Leadership with Family and smaller Enterprises*, *Acting and Performance*, and *Acting for Stage and Screen*. They do not openly promote their *Business Innovation Zone* and their *SHIFT summer school*.

The *University of the West of Scotland (UWS)* offers the skills that potential students need to manage and develop a business. The undergraduate programme in Business is also designed to equip them with the skills employers need. There is only one programme though and even if it contains Entrepreneurial values, it does not contain any Entrepreneurship related courses. There is one module on Leadership and Entrepreneurial skills in *UWS* that belongs to the *School of Health and Life Sciences*, but the route that students must follow to enroll is not defined. There are no courses available, it is clear though that *UWS* support Entrepreneurs. That is also a part of their careers service and their commercialisation team.

The *Open University (OU)* offer eight programmes, including variations. In their undergraduate programmes in business and IT, they promote Entrepreneurship, business development, entrepreneurial thinking and innovation, and the development of business proposals, thus the ability to start a business. In their MBAs they focus on the positive impact on their career and the improvements in their business or organisation. They also offer a masters and a PhD in Innovation and Entrepreneurship, where the aims are academic. Except from the research-based programmes, they offer two optional Entrepreneurship modules between the three variations of *Business Administration* and one common module on *Innovation and Entrepreneurship* between the Business Management and the Computing, IT & Business variations. *OU* aims are more open, and common between multiple programmes. They seem to focus on providing Entrepreneurial skills through specific courses and determine whether they should focus more on the employment prospectives or the skills necessary to create new ventures. They do not promote within the programme's descriptions the Entrepreneurs society and their careers and employability services that provide general guidance to students on how to become Entrepreneurs.

The *Royal Conservatoire of Scotland* describe the very nature of all their graduates as

innovative self-starters with an inherent entrepreneurial spirit. They describe them as risk-takers with work ethic and self-belief, having acquired the practical knowledge of how to deal with all the challenges an entrepreneur could face, as they are natural entrepreneurs out of necessity. That is in line with Wickham's (2006) view on the qualities that Entrepreneurs should possess. They describe their approach as multi-disciplinary, designed to develop entrepreneurial skills and collaboration, to ensure longevity in this competitive sector. They include Entrepreneurship related modules in almost every level of studies in the School of Music and one module in the *Musical Theatre MA*. They create a competitive advantage across others by including Entrepreneurship. They also have student support, to prepare them for every aspect of their professional life. That is the *Make It Happen* and the *SHIFT summer school*.

*UoS, UoD,* and *GCU,* mention guest lecturers (*Entrepreneurship, Innovation and Technology MSc, Management MSc and variations,* and *International Business BA* respectively), to add on a bit more for the students and put an additional mystery tone in their programmes, promising real examples, professional expertise and first-hand experience, sometimes along with field visits, competitions, and real-life projects, and other times with real companies and Entrepreneurs. These are also the means for many of the universities to promote that the students will be able to put their skills and the theory in practice and learn practical skills. Some of the programmes that are in this category are shown below, including 9 universities and at least 16 programmes, making it usual tactics to attract students. Even in the case that they do not strongly present the practical side of the modules and the programmes, it is usual to attempt to expose the students - as much as possible – to a level of practical experiences and ways to practically train their skills, according to each university's practices and systemic perception (Appendix, Table 14).

- *UoG*
  - *Master of Global Business MGB*
  - *Global Markets Local Creativities IntM*
- *UoA*
  - *International Business Management MSc*
  - *Business Management MA*
  - *Marketing Management MSc*
  - *Precision Medicine and Pharmacological Innovation MSc*
  - *MBA* and variations
  - *Marketing Management MSc*

- *UoS*
  - *Technology Ventures with Digital Manufacturing MSc*
  - *Entrepreneurship, Innovation and Technology MSc*
- *UoD*
  - *Management MSc* and variations
- *ENU*
  - *Business Management BA and MSc*
- *HWU*
  - *Business Strategy, Leadership and Change MSc*
- *UoST*
  - *Strategic Sustainable Business MSc*
- *QMU*
  - *Business Management BA* and variations
- *UHI*
  - *Global Entrepreneurship RGCert, Drama and Production BA.*

It seems that all of the universities provide some kind of Entrepreneurship related modules, core or optional, to help the students increase their employability and develop their skills and make their programmes more attractive and competitive. They mention Entrepreneurship and start-ups for Marketing purposes and as an add-on to enhancing employability. Entrepreneurial qualities and skills are always an additional feature, in different levels of intensity, that is provided along with skills that can be used within existing Enterprises and organizations. There is no programme that exists solely for the creation of new Entrepreneurs, with the objective to create start-ups and train their participants accordingly. It is their intention to firstly enhance employability through Entrepreneurial thinking, and secondly to start a venture, by providing them with the teaching of skills both "for" and "in" enterprise (Taatila, 2010). A few of the programmes are being presented as having a strong character for new ventures, but the universities are willing to keep a broader curriculum in order to attract applicants with different backgrounds and interests. This way they can make the most out of the recruitment stage and fill the classes, possibly by sacrificing a level of specialization and knowledge quality. The way Entrepreneurship is provided, it feels like it would not be commercially correct and rational, as fewer students would have the level of expertise and knowledge to join the programmes.

When Entrepreneurship and Entrepreneurship related modules are being taught only in Business school programmes, this might indicate that in this university Entrepreneurship exists only in its traditional, usual, and well-tried position, to enhance Business programmes, and the university, as an academic organization, possibly lacks innovative thinking and/or flexibility. In these universities the benefits of the Entrepreneurial mindset do not seem to be recognized for the benefits in education as a total.

It is only since 2008 though that Entrepreneurship was proposed by the European Commission as an integral part of university education, and research on it seems to appear since 2010. Since then, it has been recommended that Entrepreneurship education should be used in fields that have a main role in economic growth (Byun et al., 2018). This should mean that in every profession Entrepreneurship education and the Entrepreneurial mindset could become useful and create better positioned professionals. It seems that most of the universities followed this suggestion and the first field that includes Entrepreneurship after business is Engineering. In Scotland there are 9 programmes within Engineering departments that teach Entrepreneurship. Music follows with 5 programmes, Sports and Theater/Acting with 4 programmes, Design in different variations with 4 programmes, Law and Medical with 3 programmes and 11 more programmes in various subjects. Entrepreneurship is being used by the universities as a tool to alter the perception of the students on the application and commercialization of their specialized knowledge and research, and possibly to understand at least how the market is going to use the outcome they will achieve, or how they need to present their findings and the extent of the application needed for something to be useful and applicable.

Presumably, the applicable nature of the Engineering studies needs to be underpinned with knowledge on Entrepreneurship, at least on a basic level, for students to understand the implications on the possible applications of their outcomes. It is either the applicable nature of the other subjects, or the inherent entrepreneurial spirit that define them, that entrepreneurship education seems to fit perfectly within their curriculum and create more advanced professionals that have a better idea of their position in the market within their field. Also, when the universities include Entrepreneurship in a programme, and provide entrepreneurial knowledge within it, it is safe to assume they try to make it more desirable and sought after, to create a competitive advantage across other university programmes that do not follow this tactic. A student that would come across two programmes on a specific subject with similar characteristics and similar curriculum – assuming a similar or identical modules structure – would possibly notice and distinguish positively the inclusion of additional

knowledge in one of them, and the familiarization with a mindset that could potentially help them further in the future.

However, the inclusion of Entrepreneurship only in Business schools, or in more programmes within other subjects, along with the inclusion of students of different levels of experience even within more specialized programmes, could be exactly what the universities would like to achieve according to their objectives. The universities could possibly have and follow a well-organized plan for every and each of the programmes, as the evolution of every new field of education could take years to adapt and evolve. There are possibly many steps and different kinds of trials before Entrepreneurship will have a specific place among subjects (Clark et al., 2016). Accordingly, the universities at this time, for this stage of evolution of Entrepreneurship education may look exactly for these kinds of students, as they appear.

The universities market themselves in diverse ways, each of their approaches has individual characteristics, and some of them are unique. There are no obvious rules in the inclusion of the Entrepreneurship education and there is no identical approach on the type and number of subjects that the universities choose to include Entrepreneurship. There does not seem to be a different interpretation of Entrepreneurship between the universities, but there seems to be a different understanding and experimentation on the way that they can make use of it for the very institutions and for their students.

*UoSA, UoAT, RGU* and *UWS* seem to be including Entrepreneurship education only in their business schools. *UoSA,* extent their presence as much as possible within their business school, through the available core and optional modules, whilst *UoAT, RGU* and *UWS* choose to include it on the extent that they will not look outdated or outside of the education market; they seem to only include it for marketing purposes, without actually providing any substantial modules. *UoAT, RGU* and *UWS* only integrate Entrepreneurship in no more than two subjects, and *UoAT* only provide it as an individual subject. *UoG, GCU, UoST, OU* and *QMU* include Entrepreneurship on one more subject each, other than an extended inclusion within their business school. That is possibly the subject that was the most relevant for the university and had to integrate Entrepreneurship education to make a difference on it in the market on education. GCU seem to push Entrepreneurial education in all possible directions within their programmes, overstating their aims and intents. *UoA, UoE, UoS, HWU* and *UoD* include Entrepreneurship on two more subjects, other than the extended inclusion within their business school. That again

possibly refers to the subjects that they would like to enhance, and thus would be effective through competition.

*ENU* and *UHI* follow a very different approach to the rest of the universities, including Entrepreneurship education across a range of 8 different subjects each, experimenting further and providing a different tone on the respective fields. They provide Entrepreneurship education not only in their business schools, which is included extensively, but also in many programmes in other fields (Appendix, Table 14, Table 15).

*RCS* is the only institution that they do not have a business school, but they include Entrepreneurship education extensively within their School of Music and on a more limited fashion, within their *Musical Theatre MA*. The difference is that they include Entrepreneurship by choice without having any additional resources from an in-house business school.

At this point, the first question can be answered, and additional questions raised from the findings can be identified. So far, the questions on what type of entrepreneurship or entrepreneurship related programmes are offered by the Scottish universities, and how these are presented on the universities' marketing literature, have been extensively covered.

It is important to examine the correlation between the trends within Entrepreneurship education. If Entrepreneurship education at this point of time seems to be just a lasting trend in the education market, or if there is evidence that it is a mindset that is being integrated gradually within the general higher education spectrum.

At this stage, for comparison reasons, it can be assumed that the closest a university is to the traditional teaching of Entrepreneurship, the more likely it is to include Entrepreneurship modules, to follow the market trends in education. It potentially needs additional resources and more in-depth research and specialisation to include Entrepreneurship in fields outside of its usual subjects, fields within business programmes. Thus, it can be assumed that when Entrepreneurship is more integrated within the University culture, it could lead to the realisation that Entrepreneurship bears the nature of a mindset, regardless of the field, and gradually step away from the idea that it is solely a market trend.

*Table 11 - Trend or Mindset - Inclusion of Entrepreneurship education within programmes*

**Inclusion of Entrepreneurship Education**

**Trend <---**     **---> Mindset**

| Type of inclusion | *Unclear inclusion* | Only Few in Business | Extended presence in Business | Extended in Business and one subject out of the Business school | Extended in Business and two subjects out of the Business school | As much as possible | Inclusion with no Business School support |
|---|---|---|---|---|---|---|---|
| **Universities** | *GCU* | UoAT RGU UWS | UoSA | UoG GCU UoST OU QMU | UoA UoE UoS HWU UoD | ENU UHI | RCS |
| **Number of Universities** | | 3 | 1 | 5 | 5 | 2 | 1 |

Some of the universities, on the trend side (Table 11), seem to be including Entrepreneurship as a programme or within other programmes, only because they have to keep up with the market and remain competitive. *UoSA, UoAT, RGU* and *UWS* only use Entrepreneurship within a business school, with *UoAT, RGU* and *UWS* showing that their aim is mostly just to include it and have it available for potential students. It is hard to say if these universities have realised the importance of Entrepreneurship education as a mindset, but by including it only within their business schools, they possibly do not seem to appreciate its possible further potential and applications.

*UoG, GCU, UoST, OU* and *QMU* have started including Entrepreneurship in one additional subject, other than business (Table 8; Appendix, Table 14), but they are still on the trend side, including Entrepreneurship to a few more important programmes for them or programmes that they have noticed that Entrepreneurship would make a difference in their offering and student recruitment. At this point GCU seem to be at the peak of the trend category, even if they seemingly include Entrepreneurship in multiple subjects, as they seem to have lost their focus

on the inclusion of Entrepreneurship and promise extensively that the students of a lot of programmes will gain Entrepreneurial attributes just by attending *GCU* as a university, even if the programmes do not include Entrepreneurship or Entrepreneurship related modules.

All the universities include the words Entrepreneurial or Entrepreneurship in the titles of a number of programmes, or within the programmes in modules. On the *GCU* case they can even just use these terms when describing the aims of the courses, without having any obvious modules to cover that kind of knowledge. This seems like a strong attempt to show that they follow the trends, without having adequate infrastructure and the provisions to do so.

*UoA, UoE, UoS, HWU* and *UoD* have started including Entrepreneurship in two additional subjects, other than business (Table 8; Appendix, Table 14), placing them somewhere in the middle between the trend and the mindset state, and only assumptions can be made at this point. They use Entrepreneurship either to improve the programmes and stand out of the competition in the relevant sectors, or they have realised that Entrepreneurship can be added in more fields and is not just a trend. In the category, currently discussed there are universities with strong Entrepreneurship centres. They focus not only on the teaching class and the fields that Entrepreneurship could be combined with, but also outside of the university programmes, with Entrepreneurship being made available to every student, as a separate function. This does not necessarily prove that they have accepted Entrepreneurship as a mindset, as they could have equally followed the trend of Entrepreneurship on the best possible way as an institution, to reach this level of inclusion. However, they are still more well positioned on the mindset side than the rest of the universities, already discussed.

Closer to the mindset side are *ENU* and *UHI*, which have included Entrepreneurship modules extensively. This could also mean that they follow the general trends to increase competitiveness as much as possible. However, with Entrepreneurship related modules built in on this level within an institution, it can be assumed that adding Entrepreneurship in so many subjects increase its adaptivity within the university and the university seems to realise in an extent that it could be something further than just a trend in the education market.

*RCS* is on this side too but clearly states that they belong to the mindset side. Entrepreneurial features are declared inherent in art and Entrepreneurship is built in and they include it without the support of an in-house business school.

It is highly possible that Entrepreneurship is perceived as a mindset in many universities. However, it is not clear to say for how many of them it is just a trend that they follow temporarily, for a few years or decades. It seems though that Entrepreneurship education spreads across all the Scottish universities and there is an increased inclusiveness and appreciation within non-business subjects.

In the cases where the universities attempt to provide Entrepreneurship outside of the usual business concept, they provide extraordinary combinations, opening knowledge paths to students of other disciplines, making them able to explore and understand the footprint and potential of their actions on their respective fields. It seems that Entrepreneurship is as much technical as a way of thinking and can practically be combined with any other subject, such as engineering and law, to medicine, dramatic studies, tourism, sports, graphics, media, design, translation, IT, geography, and architecture.

Based on the outcomes from answering the first question, in the following paragraphs, the differences of the various ways of inclusion of Entrepreneurship education between the universities, and how do these make a difference for the students, will be examined. More specifically, the universities' objectives for the students, when they include Entrepreneurship related modules within the programmes and how they distinguish their objectives on Entrepreneurship education between business and other subjects will be discussed. Furthermore, the views of the students on Entrepreneurship education, their expectations of their chosen programme and how they perceive the impact of Entrepreneurship education on their acquired skills and their professional future, either in business programmes or in other fields, is also examined.

Asking the first question was vital, as it serves as the groundwork of this research, to understand Entrepreneurship education within the universities before proceeding to further research within them. A level of knowledge is now acquired on how Entrepreneurship education is positioned within higher education in Scotland and the views of the lecturers and the students with these findings in mind, are further analysed.

## 5.3 Lecturers and Secondary data

The lecturers being interviewed were open to reply to all the questions and were improvising too, to provide as much extra information as possible on similar topics and aspects that could be potentially useful. In this section the intentions and the expectations of the lecturers are discussed and compared with the presentation of the university programmes.

As explained in the Findings and Analysis chapter, the lecturers who were interviewed were from different universities and worked on programmes in different ways. Five of the six lecturers have direct relation with the organization and the design of the programmes under discussion, and it felt that they appeared to be replying in line with their universities' formal position and advertising, commenting on their expectations. This shows a dedication to the programmes' efforts and targets but also potentially demonstrates less transparent interaction, when it comes to considering the real results that the programmes achieved with students.

**The main aim is to develop the Entrepreneurial Mindset, not necessarily to start new ventures**

The lecturers were mostly commenting on how the students improve their Entrepreneurial attributes through different courses, and less about any need to start a new venture, except from the cases that the students already had a family business and a small number of examples of alumni who started their own. It seems that the main aim of the universities is to enhance the Entrepreneurial potential and develop the Entrepreneurial mindset of the individuals (Lorz et al., 2013, Galloway et al., 2015) without that meaning necessarily that their aim is the new ventures. This interprets mostly as an open possibility and less as an aim itself.

One of the lecturers from *UoS*, referred to their class as an interdepartmental module; more specifically:

> *if you are doing journalism, how do you get a career in journalism? How is it that you get to launch a venture that could be sustained? How do you create a business model that makes journalism look successful? Because we know that journalism has all sorts of problems, so (you need to have) the feel for it. For example, in the journalism department, it makes sense for them to advertise it in this way, to try to attract students. (UoS lecturer)*

They make it clear though that they are not informed about the background of the students. They feel that the students are mostly interested in acquiring the skills that will prepare them for starting a business, and that:

> *perhaps they learn how to be a little bit more critical upon the ideas that they might have for a business venture (UoS lecturer)*

and also how to be more open in understanding that every idea involves many aspects. In *UoG*, one of the lecturers said that:

> *I would say (that) the majority of the students who do not come from family businesses, want to get jobs, and one or two to set up their own businesses. (UoS lecturer)*

He continued by saying:

> *we believe we can teach them the skills and give them the tools to do the job, whether they are born to be entrepreneurs or not, is another story. (UoS lecturer)*

They tend to try and develop their Entrepreneurial attributes so that the students can understand that if:

> *I was not successful this time, I will learn from it (…) Is personal reflections really important? How can I improve? (UoS lecturer - for their students)*

For *UoD*, the lecturer who teaches in the Engineering department said that there is the perspective that they:

> *will not speak to anyone really until they know for certain that they are going to graduate, because the main focus for them coming here and spending a lot of money is to get their degree (…) there are very few (students) that come in a postgraduate level and then decide, actually I am not going to pursue this career. I am going to start a business. (UoD lecturer)*

Based on the programmes' presentations (Appendix, Table 16) it seems that the main focus of the Universities aiming to attract students who are interested in starting their own business, is to improve and promote Entrepreneurial skills in order to enhance employability. They confidently mention, as an open possibility, that the students will be able to start their own business if they want to do so. *UoS* support that their programmes are:

*designed for students who want to start a new enterprise, take over the management of an existing business, and/or for those who are aiming for leadership positions. (UoS - aims)*

And that after attending, the students have the potential for:

*establishing a start-up; working in an entrepreneurial ecosystem support role (e.g., public agency); taking over a family business; working for a high-growth SME; taking a leadership role in a large corporation; working for a leading consultancy. (UoS - aims)*

In *UoG* they mention that they combine:

*the development of entrepreneurial skills for business start-up with management skills, for the international marketplace. (UoG - aims)*

or regarding the alumni that:

*alumni have either set up their own business, worked in SMEs, consultancy or multinational, in a management capacity. (UoG - aims)*

*UoE* mention that the students will be prepared for:

*careers (such) as venture founders, managers of innovation within existing organisations, or in policy and business development roles, in agencies supporting innovation. (UoE - aims)*

*UoD* say that the students will:

*gain the management and leadership skills needed to manage (a) business or even (their) own business, people and their performance, crises and change, projects, and the associated risks. (UoD - aims)*

Except for *UoS*, in half or more of the programmes that include Entrepreneurship modules, the universities promote only employability, without mentioning the possibility for start-ups in their objectives. This is the picture that the universities show in the programmes' presentations overall. Even in the ones that are start-up oriented, there is only a small reference on start-ups, in comparison to the rest of the career possibilities promoted. Taking into consideration that in most of the courses employability is only mentioned, then it is clear that the main objective is acquiring entrepreneurial skills in general, as DeTienne and Chandler (2004) observed, leaving the rest open to possibilities. The universities seem to expect that students choose courses because they would want to start a business in the future, but mostly through

a much bigger procedure, based in additional experience that they will acquire in the market, while working.

It seems that for the universities, the priority is to transfer the Entrepreneurial mindset to students and for them to apply it either in their company or in companies that they will work for. This comes with the implication that they may not need to teach the students specifically how to start their own business in order to achieve their programmes' objectives, and this could be considered a totally different procedure for the students to go through, that is not covered by the programmes on offer. This is possibly why it appears in the objectives of less than half of the courses. For the students there seem to be many different choices on how they will proceed in their career and how they will make good use of the programme that they have joined. However, they must be aware that if their goal is to use their newly acquired knowledge to start a new venture, it does not seem to be within the primary focus of the universities and it depends on them in most of the cases to use the provisions of their programme and their university to achieve their target.

## The Lecturers sometimes are not well informed about their university's aims

It seems that a few of the lecturers did not have a good understanding of their university's objectives and practices, and it looks like they only make assumptions based on the modules they had to teach. They could be possibly teaching the same modules differently than their colleagues and it seems that there are lecturers that are not informed about the outcome that the programme is willing to achieve and only know their part of action within the specific module, or part of it. The university though could also do this on purpose, as the aim of teaching the specific module could be part of something bigger and it would not matter for them to know the details. However, when the lecturers are not well informed it seems that they cannot adjust their teaching to the needs of the programmes and they cannot focus on the best side of the material, to optimise their results (e.g., focus on case studies about SME's instead of presenting more general cases about the big companies in the market).

In *UoS* they mention that:

> *It is the same kind of thing as far as I know. But of course, I do not teach the other (identical class outside the spring school). So, the other lecturer who does teach it, will have a different sort of approach. They will emphasise different things or will have a different kind of approach,*

*but I think it is the same assignments and things (...) I should say that I teach it specifically in spring school, I am not sure about the different versions of it. (UoS lecturer)*

In *UoE* they mention that:

*I was actually pulled into cover, (...) certainly the undergrad course was actually open to, um, sort of different departments (...) I am not quite sure what the criteria were for being in that course. Um, I am not 100% certain... (UoE lecturer)*

## When the programmes accept everyone, they tend to get simplified to provide fundamental knowledge; Entrepreneurship becomes a separate field of knowledge

The lecturers seemed to appreciate that the recruitment process is mostly based on the online presentation and the keywords used for the programmes. They believe that the recruitment process is divided between general and more specialized programmes. Most of the programmes seemed to accept any applicant, from any background, as long as they meet the basic criteria. In one of the more general programmes, it is mentioned that business students would not be accepted, to avoid specialising, since that would increase costs by investing on the programme design and further improvement, and by adding specialised knowledge and modules. In the more specialised programmes, the non-business applicants with a science background, would have to make a case for their participation. This seems to lead most programmes providing fundamental knowledge, without actual start-ups in mind, mentioning that the students that already have the tendency and the knowledge to start a business would have done so already, using the accelerator programmes of the universities, where these apply. That kind of mindset tends to promote the creation of more simple programmes, to increase the activity on Entrepreneurship education on the theoretical level, promoting the general awareness on Entrepreneurship. Comparing these results with the first part, this seems to be in line with the students that the universities expect to recruit. Most of the programmes seem to provide general knowledge on Entrepreneurship having only a percentage of students who require more specialised knowledge.

It seems fair to comment that most of the lecturers that teach on the programmes are not currently Entrepreneurs and even if they were in the past on a certain level, as some of the universities advertise, they were not serial Entrepreneurs. Having a more theoretical position in Entrepreneurship, in combination with the fact that the applicants are chosen randomly,

could mean that it is challenging to provide the students with adequate knowledge and skills to directly get involved in new ventures.

Even if it seems that Entrepreneurship is considered a decisive factor for students to choose a programme, in one of the programmes in would be taken out of the title and the curriculum on the next year, aiming to create a separate specialized programme on Entrepreneurship. This shows from the side of the lecturers who participate in the design of the programmes, that they search for the next trends and try to give Entrepreneurship a less complicated character. This adds on the nine programmes that are specifically for Entrepreneurship and takes it out of the 14 more programmes that include it in their titles along with other specialisations, giving to Entrepreneurship a main role within education, not just a supporting nature, taking Entrepreneurship gradually away from the trend status to a more integrated status and into a mindset.

## It is the circumstances of each student that determine their future plans

Another point that was mentioned, was that undergraduate students have more available time and are more likely to start a business while studying or after finishing their studies, in comparison to postgraduate students who are less likely to do so, as they follow a tight and focused schedule, and expect (and are being expected) to finish their degree. However, it was also mentioned during the interviews that in the programmes there were also undergraduate and postgraduate students that wanted to start their own business, or already had started business ventures and would do again so in the future, or had family businesses that they could apply their acquired knowledge. This shows that the circumstances would not matter when students already have their own goals before attending their programme. The programmes would not possibly change the position of the rest of the students for their future but would still be able to provide knowledge to students that are already keen to start or grow their own business.

Based on the interviews with the students, the postgraduate students seemed to be likely to start a business only after the end of their studies, even if they participated in the first stages of competitions and other preliminary events during their studies. Still, all the theory and the tools that are being offered, are considered as the guides that students will be able to use in future situations, regardless of the concept. They can be used for being Entrepreneurial, while

in employment or acting Entrepreneurially on creating a new venture. The students are not expected to be ready to start a business immediately after their studies for neither of the above provisions, as they would need time to develop. As long as the students have the knowledge of the existence of the above tools and a good understanding of their purpose and operation, they should be considered ready to follow future endeavours, when an opportunity will arise.

Throughout the interviews with the lecturers, it was mentioned that a few postgraduate students that had started businesses with the help of the university incubators and Entrepreneurs support. It seemed that this was happening at the end of their studies. This is in line with the presentation of the programmes where Entrepreneurship centres and other support are advertised and promoted, mostly as the means to gain skills and knowledge. They leave all their other provisions – where available – for the students to find once they are in the programmes, if they decide that starting a new venture is a path they would like to follow. This shows that they teach the students the knowledge and the skills and they expect them to ask for the support when they decide how they want to use these skills; in the employment market, or in starting a new venture by themselves.

## The lecturers' approaches

The lecturers seem to have a level of independence and demonstrate a range of teaching methods and qualities, following different processes and mindsets, even within the same institutions, in line with what Toding and Venesaar (2018) found. Their plan of action and way of thinking depends on their involvement in the programmes' design, on the module they teach and if it is core or elective, and on their proximity with students and their work. There is a tendency to provide the students with practical experience on different formats and helping them through the university provisions for Entrepreneurial individuals that would like to start their own venture, but this seems for the time being to be limited to the students that specifically show this specific interest.

Comparing with 5.2, the lecturers of the UoG were the ones that were also designing their programme and mentioned Entrepreneurship potential and experiential learning of the students. They believe that students can do anything they want once they graduate. The online picture of the university on this course is the exact view of the lecturers that were interviewed as they were working with the Marketing team to create the programme presentation.

In the UoE, the lecturer talked mostly about how the students will get the knowledge on Entrepreneurship and how the differences on students' backgrounds accelerated that or not. They mentioned the creation of complete business plans to shows the extent of work that students have to do, and the organising patterns they were following through teamwork. As mentioned in 5.2, the UoE looked at career orientation for the students, providing them with Entrepreneurial and Business knowledge.

The two lecturers from UoS, had differences in their approach. The first Lecturer that was in Engineering, provided a picture of trying to organise the programme as well as possible, providing the students with Entrepreneurial skills, teaching them how to be innovative, having a more personalised approach to the class for each student and showing a strong will to enable them to follow either a career or to use their skills for their own entrepreneurial activities. They were fully informed about the students' ideas, the projects that they work on and the companies of alumni, and even if the students come from different backgrounds and different levels of relation with business and Entrepreneurship, they provide them with all the knowledge and the skills they need to be creative and act Entrepreneurially. The second lecturer, that was in the Hunter Centre for Entrepreneurship did not seem to have a clear picture about the university's objectives. They taught their module in different programmes, to students who did not have a background in business, following a more general approach, based on more basic knowledge. However, the module was optional, and these students were there because they expressed an interest in it. They learned how to generate ideas and apply them into a business, putting into practice the taught knowledge. The lecturer emphasised the importance of the Entrepreneurship support that UoS provides, for the students who want to go forward and start a new venture. The position of the lecturers is in line with the presentation of the university for the different departments and follows the general idea of creating Entrepreneurs and providing all the students with the knowledge they need to start their own ventures after their studies, or in the future.

At UoD, the lecturer who teaches Entrepreneurship to engineering students, mentioned that the students are taught how to create a complete business plan and get business knowledge, so they understand how it works. Entrepreneurship is compulsory for the undergraduates, but most of the students start with no business knowledge in the postgraduate programmes and the university's main aim is to improve their employability. Their vision for the future is that students from all different backgrounds, will join UoD to actively start a business or gain

enterprising skills. It was mentioned that only a few students have been inspired from the modules over the last years, to start a business and most of them want to develop their professional career. The lecturer presented the *UoD*'s support to students through the accelerator, the competition, and the business centre, but it is not clear for the university which students are actually interested in starting a business, as they get credits from their participation in them, regardless of their end goal. They will not talk to students though about these possibilities until they are sure that they will get their degree, and it's mostly the undergraduates that can turn their career and start a business. It seems for them that the students that have started businesses were not from the programmes that included Entrepreneurship. In comparison to 5.2, the position of the university that appears in the presentations of the programmes seems to agree with the lecturer's position, at least in the Engineering school that he is referring to. It is not clear in the presentations of the programmes which modules include Entrepreneurship, but it is available for the students according to the descriptions and according to the lecturer's observations.

In UoS and UoD, the lecturers did not mention anything about guest lecturers, first-hand experience and field trips for their students, or anything more practical, as in the programmes' presentations. However, they confirmed through many examples the support that the students have on Entrepreneurial endeavours through their incubators, accelerators, and competitions.

According to the lecturers, there is an effort in some of the programmes to provide practical knowledge to students, that would be experiential and would allow them to apply the already acquired, in-depth theoretical knowledge, improving the effect of Entrepreneurship Education (Hartshorn and Hannon, 2005, Mason and Arshed, 2013, Ramsgaard and Christensen, 2018). Practical learning and reflection are tools for the programmes to become more distinctive and be able to offer more realistic promises to students on the programmes' presentations. This is reflected in the presentation of few of the programmes in 4.2, where they promise hands-on experience and work with a real Entrepreneur and/or as consultants with affiliated companies.

## 5.4 Students' Experiences

The interviews with the students reveal the perceived results of the Entrepreneurship education that the students experience in the short term, close to the end of their studies, or right after their studies' completion.

**The potential new ventures and businesses that the students could start after their participation or during the programmes**

There are a few examples of students who started with an idea during their studies (as noted by Brignall (2002)), whilst practicing their newly acquired skills on idea evaluation and innovation development, and started to try to get it forward with the help of the university provisions for Entrepreneurship. This was four out of the 14 participants, two of them out of the same programme, as shown in their code name (4.3.2, Table 9).

EB1 went through lots of ideas, mostly through their innovation class, and was able to evaluate which ideas were viable and could try in the future. He mentioned that:

> *from the 15 ideas we had within the year, we would feel confident to only take the two forward. Without having exchanged opinions with other students and lecturers in the course, that number would probably be way higher, and it would made some really, really bad ideas going forward. (EB1)*

EB2 found a company that was interested in their idea and looked for resources through Strathclyde entrepreneurial network to get it forward. TB1, TB2 and TB3 wanted to start an idea that they started working on, during one of their assignments. As they mentioned:

> *we prepared how to launch it (…)  the business model or like thinking (…)  all perspectives in the business, like the social, the legal (…) we also did like the interface of the app and how, like, where to put them, start from Glasgow (…) And the financing... (TB2)*

> *if we have an idea that (…) can be properly incubated and there is investment coming in, the university is going to support it (…) (TB1)*

LB1 wanted to start an idea they worked on during an assignment, but they could not materialise it, since all the team members included in the assignment returned home and there was no more contact to enable them to continue working on what they had started. As they explained:

> *I think we did a really good job in terms of organising the idea. We talked about the financial planning with our specialists. (…) in terms of, (…)  organisation and setting up the idea, (…) if we had the money we needed, we would start it like the next day (…) the group now is separated (…) if we were the three of us, we would think of it (…) it would be something nice to start (LB1)*

MA2 worked on an idea with the support of the Enterprise manager of *UoG* and the guidance of alumni that had started their own business too.

There are students who are clear about their career goals and are ready to take their ideas forward, and there are students who need help from the university, to be able to apply their knowledge and start a new venture. That would require them to actively apply and seek for help. The universities could make it easier for the students, by providing support to as many individuals as possible, in every possible occasion. It is possible that if the universities supported Entrepreneurial individuals in every opportunity, it would be a very strong way of advertising that could potentially provide multiple benefits on the marketing side. The resources and the actual cost that this would take, could be just a fraction of the actual benefits that the universities would reap if they showed the students that they could start their own companies solely on their support.

**Modules' content not reflected on the title**

It was noticed that there were times when the students could not depend on the description of a module as advertised, to expect what they think it will contain. There were occasions where things were different in the content, and this took the students by surprise while attending. They were not satisfied by that, as the module could be one of the reasons that they joined the course instead of choosing another one. This was a problem for the students and had an impact on them and on the credibility of the programme. It is a quality issue that the universities need to be aware of, and should approach in a different way, as in the long term it could have an impact to their reputation and credibility.

An important factor for some of the students, when choosing their preferred programme, was the programme structure, the modules, and the promises of the universities around them. The universities try to stay updated and innovate the program structure, making students to choose the master's degree (and apply for it) from the online sources. However, after the interviews with the lecturers, it seems that some of the innovating processes on curriculums is on certain level, and is mostly a change in titles, and less a real change in presentations and schedule. Four of the students talked extensively for such matters. For example, MA1 said that there was a suspicion that the content of the lectures had not changed for a long time, and that one of the lecturers had retired a long time ago, when they were teaching something that should be

updated and current, according to the market. TB1 mentioned that in the presentations some of the lecturers delivered, there were references that clearly were outdated and coming from last year's course, and under another name.

*some (courses) are just copy and paste from previous material. Even the number, the subject name and all that, was not updated in the slide deck when a lecturer was presenting sometimes. These are just small things, but I know this, some students definitely want these things. (…) was not fresh, properly (…) these are some of the things that we noticed that could be improved. (TB1)*

*I think it would be much more helpful if a lecturer tried to update the materials. Like in the cases the samples they are going to use. They can use in the module the latest one and they will be more helpful. I feel like their contents, they have not changed for a lot of time. (MA1)*

On the same programme, there was a sales lab that instead of actually having a sales orientation, (with sales techniques, handling rejection etc) it was mostly all about presentation and how to prepare an elevator pitch instead. The students' comments were that they were in a sales lab, and they were not learning how to sell, which is what it should be about when starting a business, but the lecturer was not capable of teaching this, even if that was in module's title. So instead of a sales lab it was another class on how to apply for funding. However, sales should focus on how to find customers, not investors (which is relevant to other courses). Sales are about skills that have to do with the selling process, buyer's psychology etc. This also concludes to a lot of overlap between the courses. This seems to undermine students' efforts and choosing procedures. As TB1 mentioned:

*if you are calling it a sales lab you should not be delivering pitching business ideas again, because that is already done on different courses. So, there is a lot of overlapping happening in that (…) maybe the person who organised this course was not actually forthcoming with that. (TB1)*

This seems though to be more obvious to students that demonstrate some experience. On the same programme, TB3 mentioned that the sales lab was very good and that they learned a lot about sales techniques. In this case, the knowledge can be proven misleading, as the student takes the university's word that they learn something that is relevant to what was promised. But eventually, it is something totally different, and they will potentially not realise it until they need the knowledge.

The same feedback was given for a sales lab from LB1, who mentioned that the professor was not there when the guest speaker was lecturing, and they had exams at the end of the module

on something totally different. Instead of a sales lab they talked about digital sales techniques and how to stand out online.

*the sales lab (…) did not actually (…) match my expectations (…) the professor was not there while we had the course, so it was just a guest lecturer talking about sales in general, (…) this person was really lovely and really engaging. (…) he was trying to transfer his knowledge and help us, but (…) he did not have any information about the course structure of what we had to do about our assignment. So, there was a gap in our communication (…) he was not able help us understand what the objectives of the course were. (…) I feel that I did not, (…) go really deep into sales techniques and how we should approach the whole (…) framework of sales. (…) focused on the online section of sales and not actually about sales, but about standing out from online competition, how to set up your website. (…) he was a sales consultant. He was not a digital marketing specialist (…) I was expecting to learn about sales (…) And I did not get that knowledge, to be honest. I just learned how to do Search Engine Optimisation (SEO) that I would expect to learn in a marketing course rather than a sales lab. (…) I think it was the most disappointing class that we had throughout the master's degree, because we had different expectations from what was actually delivered, and we never got that experience that we thought we would get. (…) it was a combination of setting up your own idea, set up your website, how you would sell it to customers, but we were never taught how to sell something. We were mainly taught how to present something to the market and, you know, introduce to customers. (LB1)*

It seems that the universities need to do something about it. They possibly need to make sure that they spend enough time and resources before they move to changes in the modules within a programme, or before adding a new module, delegating lecturers in the right field of knowledge. It is not appreciated by the students when they find out that the modules, they have chosen, do not demonstrate the expected content, that the knowledge is outdated, or that the lecturers seemingly modified the class, moving around their own fields of knowledge. It is clearly a problem because it seems that the students cannot depend on it. After attending, they have not been able to get the skills that they went in for, either if they understand that or not. When they know it though it demonstrates less implications for them, as they know what they have not learned. When they do not understand that they were not taught what they should, it is possible that they will only know when they will need that skill and will discover that they are not qualified.

## Overlapping

It was noticed through the interviews that in the same programmes, from the one module to the other, the students were mentioning overlapping and even identical examples and cases to describe the same concepts. This is a problem for the students that expect to get as much knowledge as possible from a programme and find out in multiple modules that they hear the

same theory, explained with the same example again and again. Repetition can possibly be normal on a specific level when teaching and cannot be avoided as some modules could possibly start from similar concepts to explain something totally different. From the side of the universities, it could mean that they would consider it good sometimes for the students to repeat some parts on similar ways to understand the topics better and from different angles, or that they add modules as electives to enhance the experience of the students and provide additional knowledge. However, when this reaches double and triple overlapping in some cases, with identical examples, the students happen to consider it as poor design of the programme and poor communication within the university. Assuming that this kind of overlapping is not intended from the side of the universities, it is possible that the design of the programmes' structure is mostly focused on the mix of knowledge that students should be taught through modules, without going into further detail and communication on their exact and detailed content. This seems to disappoint students, as instead of learning the same thing multiple times they could go forward and use the time to learn something new. When this happens to be combined with the selection of lecturers in a field of knowledge that is not totally qualified for the teaching of a specific class, then even if the title is unique the content could be similar with other modules of the same programme.

Overlapping is an issue that students from different courses seem to experience, and it was mentioned in some form within seven of the interviews; with EB1, EB2, IA1, IA3, MA1, MA2 and TB1. EB1 mentioned double and possibly triple overlapping between the three elective and core Entrepreneurship related modules. Specifically, they mentioned an example from the creativity class; a lesson with hats and the meaning of the different colours, which was identically used again in another class. EB2 who was on the same programme, had a different prospective regarding the core module *Entrepreneurship, Innovation and commercialisation* and the elective module *Creativity and Innovation*. He said that:

> *a lot of things that were said about innovation in the one module were repeated in the other, but because you picked that course, you sometimes cannot really tell if it is going to be the same thing. (…) I do not know if the university actually know what is being taught in all of them. (EB2)*

IA1 felt that there were more courses than needed and sometimes instead of adding to each other, they were overlapping to a certain level, while IA3 mentioned that there was a lot of overlapping but they were probably supposed to do so, as the modules were combined in the end.

*they were all combined so there was a lot of overlapping. But these two are more theory, which I think did not apply so much. (…) entrepreneurial finance (…) maybe the one that has combined all three (IA3)*

TB1 talked about a lot of overlapping in the Sales Lab, which did not contain what it was promising on the module title to deliver, and its content was modified to something similar, closer to the digital marketing side of the topic. This caused overlapping against other courses that had to talk about this field, and the student understands that:

*if you are calling it a sales lab you should not be doing pitching business ideas again, because that is already done on different courses. So, there is a lot of overlap happening in that. I feel that maybe the person who organised this course was not actually forthcoming with that. (TB1)*

Thus, overlapping seems to be mostly found between elective courses, and core courses, and gives the students the impression that the university does not know what is being taught in each class. In some cases, it seems that there is some overlapping which is expected to exist, as the modules tend to combine material from several courses, or act as part of a final module that combines certain knowledge. Based on most of the views expressed by the students, it seems that the image portrayed about the universities' module design and presentation of content, is not what expected.

It seems that the universities should consider modifying the ways they design and check their programmes, their structure, and their content. They should consider creating routines to make them able to control overlapping and include only the necessary partial overlapping and avoid duplicate content and unnecessarily repeated parts. From the students' point of view, it seems that there are ways to avoid overlapping on a certain level, by checking the content of the modules in advance, and not to choose an elective module when the modules seem similar. However, this would help the students only up to a certain level, since most of the aforementioned ways of helping with overlapping cannot be avoided, due to being part of the curriculum.

## The advanced knowledge is frequently shorter than expected when choosing a programme

Another issue that was observed while conducting the interviews, was that for some of the students there was a great appreciation of only a part of the modules within their programme. It seems that many of the programmes contain three categories of modules. The ones that

consist of the core of the programme and support the content to justify the programme title, the modules that provide side knowledge that is useful for this type of studies, usually added as elective modules too, and the modules that are included as part of the curriculum to ensure that all the students acquire the same level of knowledge, before moving on to the higher-level modules. Adding more modules of fundamental knowledge though can noticeably make the programmes a lot shorter on actual knowledge that the programmes deliver, and useful curriculum length. The specialised knowledge sometimes does not cover big part of the studies; this is reflected on the feedback from the students with some work experience and who have joined the programmes for this additional knowledge. In three of the programmes, all the eight students who participated in the interviews, mentioned aspects that support this position.

MA1 mentioned that in their programme, students that had a background in specialised subjects like finance and accounting, found many modules very easy and the taught material too general. All their courses were laying a theoretical foundation and only two of them had a practical aspect.

> *some students, have a bachelor's degree in specialised subject like finance and accounting. Thus, they might find some sectors to be easy for them, and then they think that what the lecturers say is too general, making the course not as helpful as they expected. (MA1)*

MA2 who also had some work experience, mentioned that their programme could have been a bit harder and more demanding, but was *"a bit simple"* instead. For the students with some experience, the material was basic and was intended for people who did not have management experience. They agree that they *"had to cope with"* modules that were only about theoretical knowledge and that the programme was mostly for people without any previous knowledge or experience on management.

> *I think the financial analysis, the marketing management can... and when you can be (…) a bit more theoretically and practically in depth, I think marketing management is just basic. The course you are doing is pretty fundamental (…) I have done marketing before, I have got a bit of experience in the family business. So, I think these are stuff I have already done. It is just the theory side of it. (MA2)*

IA1, IA2 and IA3 agreed that their programme had modules that did not seem that useful or well presented. IA1 mentioned that there were more modules than needed, and they had courses that were fully theoretical, with many lecturers just reading through slides and asking for questions. IA2 agrees that these modules, usually on the first semester, were seemingly

there to ensure that students will be on the same level. IA3 talked about temporary acquired knowledge, useful only to pass the exam.

> *if you asked me what I learned from that course, that I could apply to a future career or to an entrepreneurial setting after university, I would not be able to tell you, sort of forgotten. A lot of it was not too important in my mind. It was more of a case of remembering it to pass the exam. (IA3)*

TB1 mentioned that students had been accepted with minimum requirements and from any background, right after their bachelor, when others, like them, had work experience. Although he believes he acquired useful knowledge, he says that the programme did not exceed his expectations. Agreeing with TB3, they said that the programme should be more specialised. TB3 spoke highly of a few modules, but mentioned that others, were a repetition of already acquired knowledge and were not well presented, despite their good concept. For TB2 some of the modules were too theoretical, with no mentioned practical application and not relevant.

Many respondents speak fondly of two or three core modules included in their masters programme, but they also spoke of other modules as being not relevant to the main targets of the programmes. Some of them mentioned that a few non-core modules were just included in the programme for additional support, containing background theory and basic knowledge to fulfil the students' schedule and credits. It is possible that by adding more specialised modules or by improving the content of the existing ones, it could improve the quality of the programmes themselves.

For the universities this could prove to be an issue in the long term, as it would potentially decrease their competitive advantage. Having a curriculum that is only half good, or half effective, as described by the students, can have implications on students and on their feedback. There is a chance that by improving the clarity and the actual knowledge that a programme delivers, it will become more focused and better positioned within its field.

Choosing modules to ensure that all the students are on the same level means that the recruitment process should possibly be given more resources and be stricter in order to avoid that kind of preparation and be able to deliver more specialised knowledge within the time given. It could be proven more beneficial in terms of useful knowledge, if all the accepted students had more unified characteristics when recruited. Either more advanced, or more basic, for students with more work experience, or for students that need to enhance their theoretical knowledge, in order to adjust the taught material accordingly. It would potentially bring

interesting and meaningful results if the universities could follow a programme design logic, taking into account the students' views and needs, based on how useful and how interesting each part would be when taught, aiming to keep the students alert and interested throughout as much possible of the programme length.

## More focused programmes – A new type of programmes & fighting oversimplification

According to the feedback from the students who are considering starting a venture at some point in their life, the universities need to consider what these students need within a programme; what is the right environment, with minimum distractions, that can develop their ideas and apply the knowledge through more practical examples or workshops. The universities will have to interact with feedback (Lorz et al., 2013) and separate the courses delivering general knowledge for students of all disciplines and with no prior experience in business, from the courses that should be bespoken for individuals who have business experience and join the programme to acquire the tools to enable them to start their own business. Additionally, according to the information the students provided, what seems to be missing from the curriculums, is ways to explore the potential of all the business ideas. Even the existing competitions and incubators give an opportunity only to the best ideas and plans to go forward. The second or third best ideas, although still achievable, are not being accepted and do not go forward.

Many of the students that participated in the interviews, from different programmes, mentioned that the various levels of the students that are accepted in the programmes affected their programme in terms of taught knowledge extent, quality, and complexity. The lack of working experience and motivation that comes by attending directly after their bachelor can be seen from their more experienced fellow students as a barrier. As mentioned by MA1. Many of the students said that the requirement criteria for been accepted in the courses, as per the recruitment process, were not focused on Entrepreneurship characteristics but were mostly based on previous education performance. Eight of them did not come from business related degrees and six more came from business related degrees, so this confirms a mixture of backgrounds. 12 out of the 14 had some working experience, but four of them, from different programmes each, reported that most of their classmates did not have any working experience and had their masters directly after their bachelor. For example, VC1 mentioned that:

*a lot of students on this course have come immediately (after the completion of their) bachelor's (degree). In my opinion, in a course like (…) Entrepreneurship (…) so it is good to have some experience to get the most out of the course (…) one thing that was disappointing to me was the students in the course (…) I did not get into Imperial as they had the proper filtering system (…) when we talk about specialised masters it is important to have the right mix of backgrounds. (VC1)*

TB1 mentioned that:

*a lot of my peers in my cohort (…) are quite young (…) maybe I have a bit more experience than them (…) but in an academic setting sometimes that doesn't really matters … they have different strengths (…) a lot of things that they learned academically from their undergrad (…) I have the creativity kind of mindset and growth mindset, but when it comes to a lot of the academic technical exam based, I do not think I do (…) there needs to be more tight criteria set from the university, for students to come. (TB1)*

For MA1:

*most fellow students are directly enrolling in this program after their bachelor's degree. (…) they did not have much working experience either. And they are not motivated. So, it is difficult to get anything from fellow students (…) most of them do not care about the course at all (…) some students have a bachelor's degree in specialized subject like finance and accounting. So, they may find some sectors are pretty easy for them. And then they think that what the lecturers say is too general and (…) their course is not as helpful as expected. (…) would be much more helpful if a lecturer tried to update the material taught. (…) They can use (…) in the module the latest one and they will be more helpful. I feel like their contents, they have not changed for a lot of time. (…) my 2$^{nd}$ master in in Oxford and does only 12 students (…) there is only 12 students in my class and each of us have individual tutor. (MA1)*

For IA1:

*the students should participate more (…) we have 54 students, maybe 10 would participate in the class (…) sometimes they are not confident enough to speak (…) if they ask more questions, probably you get more knowledge, you exchange with other students, so I think it is very crucial (…). (IA1)*

Having students in the same class, with vastly different levels of interest in Entrepreneurship, and with big difference between them in the levels of previously acquired knowledge, in the taught fields or prerequisites, made the classes to start from the basics and from levels of knowledge that should be considered as a prerequisite, or to slow down the class in general in order to reach an adequate level to explain more complicated concepts. The background and the aims of the students varied on a level that the class was providing a lot less than its potential. This seemed though to accelerate the students that had less knowledge and experience and

reducing the optimal level of knowledge that more experienced students would be able to absorb. The students that were more experienced were seeking more specialization and felt that they were slowing down for the rest of the students to catch up. For example, MA2 said that:

> *I think it (the programme) can be a bit harder. I think the course is a bit simple (…) a bit basic, probably because of others who have no management experience (…) The course (module) delivered is pretty fundamental things (…) I have done marketing before (…) So I think these are stuff I have already done. It is just the theory side of it. (MA2)*

EB2 mentioned that:

> *the course is quite easy and it takes things from the basics. It is very easy for you to understand both sides (Business and Engineering). (EB2)*

TB1 said that:

> *the lecturer could expand a bit more - in terms of depth (…) but there was not. (…) some things that is a bit more below my expectations, but I was not expecting too much anyway. (TB1)*

Another implication when recruiting students from different fields is that some of the students are being taught courses that they already happen to know well from their previous education (e.g., basic accounting). They report that this takes valuable time that they could use to learn something more useful for them. This shows again that universities tend to provide postgraduate studies that are the same for everyone and only have minimum requirements. Adopting a universal strategy may be a less rough way but running a specialized programme with higher requirements could probably provide greater outcomes for the students and the university in total as a result. (e.g., *Introduction to Finance* versus *Advance Finance* on *Entrepreneurship Innovation &Technology – UoS*). It seems though that there is the possibility that if the universities were choosing only the students that are really the target of a specific programme, then there would not be enough money to maintain the programmes and some of them would only have a few students, like in *Environmental Entrepreneurship* in *UoS*, where there were only five students on this given intake.

Many universities mention in their requirements that they need entrepreneurial individuals when they only choose the students according to their basic requirements. For example, in the aims of *UoG* (*IBE*), and *UoS*, it was mentioned that:

*the programme is designed for students with talent, ambition, and entrepreneurial flair (UoG – IBE)*

*This course is designed for students who want to start a new enterprise, those who want to take over the management of an existing business, and those who are aiming for leadership positions (UoS – all BAs)*

In this case it seems that they only make claims for advertising reasons, and it is the students that have to read this and apply for this programme. But it does not seem that they can guarantee that their fellow student will read this and will be the same. This way, even the students that meet these characteristics find themselves in a class with a knowledge diversity and gap that could affect their studies, their outcome, and possibly their potential.

The lecturers on the other hand, seemed to appreciate the recruitment process and provided similar feedback with the students mentioning that everyone have their chance in the programmes, if they meet basic criteria. This contradicts the universities' claims on Entrepreneurship in the cases when the total of the students and their combined potential is mentioned. It seems that when the universities provide general knowledge on Entrepreneurship, the students that will achieve something more than their fellow students are still using what they learned but they strongly depend on their own background, will and determination.

When the students within the same programme have different levels of education and different levels of pre-existing knowledge on the taught subject, it means that the university cannot have a unified teaching programme on a high level of specialization. When the university want to be inclusive, it seems that the only thing achieved is that they cannot perform on the maximum when teaching the classes. They tend to simplify the way they teach and explain things, and include more simple versions of the taught subjects, to bring the students that do not have this knowledge, up to speed. They consume time that could be used to reach a higher level of specialization for students that already know more than the basics.

One of the programmes that only recruited low numbers of students was the *UoS* programme of *Environmental Entrepreneurship MSc,* that was only taught to five student participants for the academic year when this research was conducted. However, the data indicated a noticeable level of interaction between the students and the lecturers, and high quality results, based on the way that the students commented on their experience, their interaction with their lecturers and with each other, and the opportunities they had throughout the academic year. It is

interesting to note that a programme of Environmental Entrepreneurship had such low recruitment levels but yet high satisfaction levels regarding interaction and student opportunities.

If the universities were interested in a higher level of specialisation, even regardless of the student's background, they should possibly put minimum knowledge requirements, even if the students demonstrated this knowledge through exams or interviews, instead of showing just their previous qualifications. There are no data in this research on how and if the universities would risk the level of participation or not, but based on the outcome in *Environmental Entrepreneurship* in *UoS*, that only had five students for this year, the feedback from the students about the quality and targeting of their programme was very highly appreciated. On the other hand, it seems useful for the programmes when students that are more experienced help students that are less experienced, but it seems that the feedback from the more experienced students in these cases that were not prepared for this type of situation risks the reputation of the programmes.

A solution for the universities could be to design their programmes more distinctively, to alter flexibly according to their recruitment processes. This could include more specific characteristics for the students and considering more specific cover letters, exams, and/or interviews when possible, while making their requirements clearer, tighter and more specific. This would align with Pittaway and Cope's (2007) suggestion of strategic implementation through well assessed feedback and with keeping the programmes' aspects and components as clear as possible (Maritz and Brown, 2013). What seems to be totally missing, according to the aforementioned needs of the students, is a differentiated type of class that will replicate an incubator style programme for every student that will be accepted. This conciseness and clarity seems to be what is missing from what the universities currently provide.

However, there are various approaches to Entrepreneurship Education (Hoppe et al., 2017), and evaluating entrepreneurship programmes, and choosing an appropriate method, evaluating criteria, and measuring their effectiveness, is not a straightforward process and can bring difficulties (McMullan et al., 2001, Henry et al., 2003, Henry et al., 2005b). Nonetheless, when the universities provide a wide skill set to the students to cover all the possibilities of employment after their studies, this can be so wide that the Universities are teaching Entrepreneurship in a general way with no specific aims or results in mind, thus, no specific learning goals and methods (Weber et al., 2014). Education should possibly have a wider

purpose than business formation (Botham and Mason, 2007), but there is no specific program in Scotland that provides only Entrepreneurial skills, only Intrapreneurial skills, or only new venture planning, design and managing skills for new businesses. As mentioned above, acting entrepreneurially requires a wide skill set and a combination of attributes in an individual, and such persons are more likely to become Entrepreneurs (Lazear, 2005). In practice, providing a wide skill set should possibly be more focused and take place over some time or different levels of education (Kott et al., 2015), as covering all the possibilities influences entrepreneurship courses and courses including entrepreneurship modules, making their purposes wider and less definite.

## With no experience in the market the students will not start a new venture

Entering the new venture world is a procedure that needs experience and the students that do not demonstrate previous experience do not seem willing to take any risks directly after their studies.

Students that already had some experience in business, family businesses, or their own businesses and ventures seemed that they were already thinking their next step, appreciating how their programme helped them go forward, by getting additional knowledge. The students that had close experience in businesses (i.e., from relatives etc.) but not their own, students with different types of business ventures in their background in other countries, and students that wanted to start their own business with no previous experience, were still looking for some experience in the market in the employment sector, to understand better how things work in the local market. Even if some universities claim that the students will be able to start their own businesses, it seems that the students still need to adapt in the real world and feel that they need at least a few years of hands-on training after finishing their studies, to apply the theory in real situations and concepts, and learn further technical details. So, it seems that there is not necessarily an intention to acquire skills "for" enterprise without acquiring skills that can be used "in" enterprise (Taatila, 2010).

Until they start their own business many of the students would like to first get some form of working experience, some in their home country (TB2), in the UK (IA1, IA2, IA4, LB1, MA1, NC1), abroad (IA3), or work in their family business in their home country and learn through it (TB3).

As VC1 suggested, when it is about Entrepreneurship *"it is good to have some experience to get the most out of the course"*. TB2 believes that:

> *most of us, cannot start a business right, right away, but need to gain some connection;*
> *to gain more experience to do that later. (TB2)*

Even the five students that chose their programme specifically because they thought it could provide them with the knowledge to start their own business (i.e., EB1, TB3, IA2, IA4, MA1), feel that they need some work experience first after attending their programme, before trying to start their own business. This is the same for the 12 students of the programmes that provided a level of practical experience through consulting projects (i.e., VC1, EB1, EB2, TB1, TB2, TB3, IA1, IA2, IA3, IA4, LB1, NC1), that wanted to go deeper into the discipline of Entrepreneurship, to understand the field, get knowledge (Hartshorn and Hannon, 2005) and potentially start a business. Even for the programmes that do not provide practical experience that the students were expecting, the students were asking for it. But this does not mean that the students who had practical experience feel that they can start their business right away.

For the six students who already had their own businesses and wanted to get the knowledge to continue eventually in business in the proper way (i.e., VC1, TB1, IA1, MA1, NC1, IA2), some of them still consider that they could take some work experience too in the local market to work on their new skills, in case that their first plans will not work (i.e., NC1 and TB1 plan to go into incubators through their universities, to implement their ideas). TB1 started their programme with an open-minded perspective and even if they had their ventures before, they thought about a placement as a corporate consultant, or in academia. They are closer to the process of creative destruction on a personal growth level (Barringer and Bluedorn, 1999), as they are willing to unlearn things and start with a fresh mind to accept new knowledge on how they should do things. MA1 thinks that their programme will help them both to get employed and continue with their business. They said that:

> *the skills are transferrable, but it takes time, and it requires our own working*
> *experience. (MA1)*

and believes that the students could take some work experience and can use their acquired skills after a few years; this knowledge could work well as a base for them for the future.

LB1 also believes that the programme:

*would probably be much more beneficial for people who have had something in their minds already, because when you have an idea and you work on it, you can make it better as time goes by. (…) it is more difficult, for example, for me, (to adapt to an entrepreneur's way of thinking) because I did not have that background and that entrepreneurial kind of mindset before, but it is still useful (the programme). (LB1)*

This shows that they consider work experience as a prerequisite to continue after studies. Regardless of the type and the provisions of the programme - having instead of a dissertation to present a full-scale business plan (EB2, LB1), or having hands-on real-life experiences and an internship (IA4), own work experience seems to be irreplaceable for most, in the way that the programmes currently work.

It seems though that some of the students still have to do this even if they have sufficient experience because they come from other markets and countries where things do not work the same. Entrepreneurship and an Entrepreneurial mindset are always about learning and adapting (Lazear, 2005). It seems that knowledge on Entrepreneurship works a bit differently on every student, affected by different factors, and during their studies they can understand more about themselves and their future career and reflect on their strengths and weaknesses. Starting a new venture is a career decision that can be affected by new knowledge, as new knowledge can provide new perspectives and needs. Thus, it does not seem that there is a strong connection between the short-term plans of an individual before attending a course and the short-term plans after they attend. It seems that it is more beneficial and efficient for students to look at the big picture and have long term goals, as their short-term needs may change according to their previous attributes and skills and the skills and knowledge that they managed to acquire throughout their studies.

When looking at the work experience that a student should have, or should get after their studies, it could possibly work better for the universities to be clearer in what the students would and would not be able to do, if they do not demonstrate specific qualities. It possibly also depends on the recruitment process to consider a few issues on an application level, to avoid giving hope for aspects that the students could expect but the universities do not intent or would not practically be able to teach or transfer. Keeping the intentions as clear as possible, by designing the learning environment to provide entrepreneurial competencies for use "for" or "in" enterprise (Taatila, 2010), would potentially make the applicants create a clearer, more achievable plan, when applying for a programme and apply by intending to bring a specific mindset that will not demonstrate open ends for potential disappointment. The universities

could possibly identify and acknowledge such issues and improve the design of the programmes, improving their targeting on student categories.

If the universities intend to create effective Entrepreneurial individuals who will demonstrate the possibility and the ability to start new ventures shortly after their studies, they would possibly have to follow more practical and hands-on tactics and put through some research on the skills that they should focus on transferring to the students throughout their studies. Starting a new venture for the students seems to be a process that depends on practical, psychological, and other background factors, and the universities should weight their own intentions and expected results. If they wish to increase the possibility for the students to attempt it, it could possibly be involved as a part of the curriculum and the core tasks of a programme, having a level of adaptation in a real-world environment, with the university following and supporting the students in their endeavours through an academic perspective.

## 5.5  Skills related issues

During this research, there were discoveries on how the students felt about their changes on a skill level. It is noted that there is a range of fluctuations on their perceived changes on their skills depending on their background. Where they apply, their working experience, their previous studies and knowledge, their family background and their proximity to family businesses showed different kinds of strengths and weaknesses that influenced the absorption of knowledge and the level of critique, reflection and self-evaluation on the outcomes of their studies.

There was in average a general increase on the skills levels for most of the students in all the programmes, in line with Mwasalwiba (2010) positive impact of Entrepreneurship Education on students, but there are still a lot that made no difference for the students and a few that experienced that attending the programmes had a rather negative impact on their future, after their studies. Below, the outcomes on the skills and their relationship with the students' backgrounds and status are examined.

The data that are used to prove the discussion points are still subject to the fact that the participants in the interviews were people that wanted to help and are interested in the subject of Entrepreneurship. They reported sporadically that many of their classmates did not have similar qualities. For example, IA1 reported for their classmates low participation, low interest,

and low communication due to language barriers along with TB1. MA1 reported for them no clear plans for the future and low networking qualities, and LB1 a high rate of returning to their home countries.

*I think the students should participate more. Of course we have the language barrier (…) sometimes the students, they are very quiet and the professor is trying to get information from us (…) Only a few used to talk and express their ideas. (…) I do not know if it is a problem with the English level and this kind of stuff, but sometimes (…) they are not confident enough to speak. So when you were in a class like this you want to exchange information. At least, what I was thinking that was coming to like a university abroad (…) Regarding the lectures, (…) some were nice because the professor was like asking us, (…) like falling us to talk. And this is very motivating because (…) you prepare yourself before class (…) And most of the time probably the majority of the students were just like on their cell phones (…) this is very frustrating, you know, (…) you want to engage, you want to exchange information regarding the course. (IA1)*

*their English is not that great. So, they cannot communicate well. So, if it becomes a challenge when it comes to group work, because we have a lot of group work (…) I believe that some kind of filtering process should be in place. I know maybe they have called properly, but communication-wise… (TB1)*

*I think a lot of foreign students at this age, like graduate after bachelor's degree, they do not have the idea of what to do. This is why they will take the advice of parents or even friends (…) I believe most of my fellow students in this program, they are trying to buy themselves some time to enjoy traveling before work because they families support this. So, they just go (…) Not much thinking about that. (MA1)*

The students seem to experience the courses differently and focus on the things that are more important for them, personally. It can be assumed that if some of the students experienced improvement of a skill, then the skill and the provisions were available for the rest of the students on the same programme too, given the student's circumstances and level of readiness to accept this knowledge on the way it is taught. All the comments that refer to personal development have been separated and the data that have been used refer to everything that is related to the studies. Students seem to perceive and express all the skills slightly differently, with small variations. This will be analysed further in the below discussion, along with the relevant data from the repertory grids.

## Students Perceived Skills Improvement

Students reported various levels of skills improvement during the interviews. This is both during the interview procedures and on the repertory grids that were filled right after. All the data and their analysis are being presented on Table 18 and Table 19 in the Appendix. The students

mention that they experienced an improvement in their skills overall after attending their programme, contrary to the suggestions of O'Connor et al. (2012) and Farhangmehr et al. (2016) about the possibility that Entrepreneurship education may not be related with improving Entrepreneurship skills and motivation. There were many skills that were improved highly in comparison with others, for many of the students, when other skills did improve but only for a few. Some of the skills did not have this broad repercussion but they were mentioned highly from the students, showing great importance and a vital role of them within their programme.

During the interviews the presentation skills and pitching (50% of the students), the overall confidence (35.7% of the students) and the Entrepreneurial skills (35.7% of the students) prevailed in students answers, followed by Creativity, Communications skills and Innovation Capability development (28.6% of the students). The most popular of the skills through, which is the presentation skills, was only mentioned by half of the interviewees. For both the confidence and confidence to start a business and the overall skillset, there were three students (21.4%) from different programmes each, that talked highly of them, as these skills were considered to have strongly improved and contributed to their development.

*Figure 6 - Total perceived change on skills after attending the programmes*
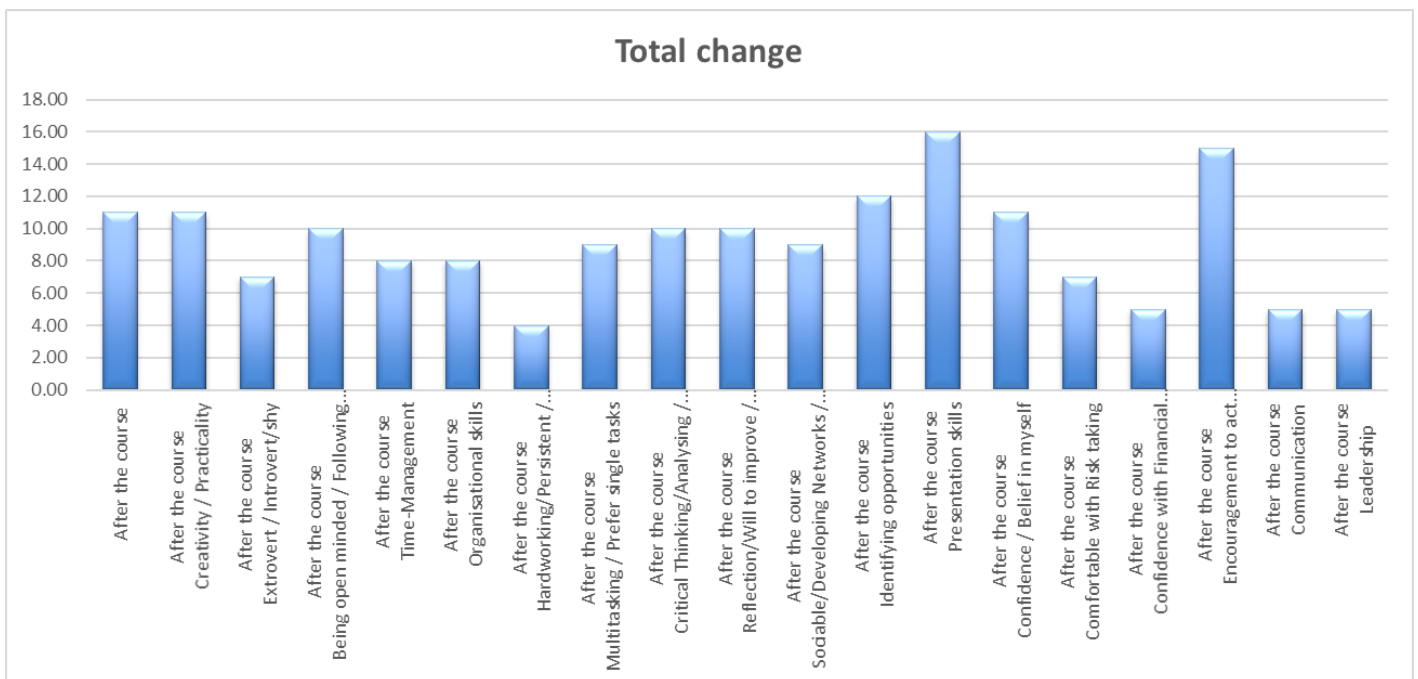


Figure 6 shows the total perceived change on skills after attending the programmes, in comparison to their skills strength before attending, with the students rating from one to five

during the repertory grids phase (See Appendix, Table 19 for the more extended version of this figure). In the repertory grids, which were created along with the interviews, the presentation skills have the highest increase rate among students during their studies, with 78.5% of the students that agree with 1.45/5 increase points per positive student (ippps) and no negative results. One point of increase in a scale of five means that a student considers the skill to improve. Rates higher than one means that there are students that consider this skill was increased even further for them. The presentation skills are followed by the encouragement to act Entrepreneurially, with 85.7% of the students that agree and 1.25 ippps, Opportunity Identification with 71.4% and 1.2 ippps and Confidence with 71.4% and 1.1 ippps. Creativity again follows with 64.4% of the students and 1.22 ippps, communication skills with 67% of the students and 1.25 ippps and open mindedness with 57.1% of the students and 1.25 ippps. Critical Thinking and Reflection were on the same levels with open mindedness too. Critical Thinking with 64.3% and 1.11 ippps, and Reflection with 57.1% and 1.25 ippps. These seem in line with the suggestion of Politis (2008) for education to focus on the development of certain skills (i.e., creativity, critical thinking, and reflection), to enhance the ability of graduates to develop entrepreneurial knowledge throughout their professional lives.

From the above skills, the presentation skills which has the highest ranking could be considered a skill that any student in any field could improve during their programme. Based on that, the fact that it is the presentation skills that is mentioned mostly overall, it could be an indicator that the average level of the programmes that provide Entrepreneurship knowledge could be mostly about general knowledge and not specialised. However, presenting and pitching are crucial skills for students that want to start their own ventures too.

The rest of the skills seem to be vital for individuals with Entrepreneurial characteristics and seem to follow a similar strength sequence and statistics in both the results of the repertory grids and as they were mentioned within the interviews. Confidence, Entrepreneurial skills and encouragement, Creativity, Communication, Innovation and Open Mindedness seem to be the skills that the universities provide on a more successful level than others and most of the students perceive that they acquire.

This does not mean that the other skills that have achieved lower scores are not important. They are only less mentioned and do not show a clear connection with the strength of acquisition from the students in both the interviews and the repertory grids. Starting with critical thinking, reflection, developing networks, multitasking, extroversion, risk taking and a

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few more, they did have a lower impact on the repertory grids and were less mentioned throughout the interviews.

During the interviews, for the confidence to start a new business and the improvement of the overall skillset it was mentioned above that there were three students for each, from different programmes that mentioned them as strongly improved with a strong perceived contribution in their development. The same appears for Reflection, with two students, and nine more skills with just one student for each. These were presentation skills, time management, internationalisation, multitasking, willingness to take risks, market research, market strategy, understanding how business works and effectiveness and related mindset.

With the exception of NC1, that appreciated the reflection for self-improvement, the rest of the skills that were greatly appreciated, were mentioned strongly by a specific small group of students (see 4.3.2, Table 10). A few things that these students consider as common treats is that they have similar goals since the time that they chose their programme, they chose their programme based on specific knowledge that it could provide them with and appear high levels of appreciation for the useful knowledge that they received. Even if they had a few things that they did not have, they give value and they seem to have taken advantage of every possible aspect that they could. These are EB1, IA2 and LB1, who talked highly of 5, 3 and 5 strongly improved skills respectively. They are all good in their speech and presentation, they have a mind that retains information in detail, are very descriptive in their speech, provided the feeling that they improved many skills during their studies making good use of every aspect they could, with high self-reflection and feedback levels when comparing with other students. Even if they do not have personal experience with Entrepreneurship, except from IA2, who has attempted briefly for a venture and had exposure to a family business, they all feel that they learned how to innovate, be Entrepreneurial and would like to start a new venture in the future. In conclusion, they went into their programmes with the will to improve and get the skills to start a business in the future. NC1, who had a business before, wants to start a business in the future. They would like though to work first, like LB1 to get experience in the market.

IA4 and IA3, highly appreciated the overall skillset and the confidence to start a business respectively, along with EB1 and LB1. IA4 and IA3 would also like to get some work experience first and then start a new venture in the future. They both consider the knowledge they got from their studies as crucial for that, along with EB1 and LB1. It can be noted though that students from the same programmes (e.g., IA2, IA3, IA4) did not necessarily appreciate or get

the same skills from their programmes. However, it seems that even if the results are not immediate for the graduates, acquiring Entrepreneurial skills incite a positive attitude for students to start a new venture in the future (Storen, 2014).

The above show that when the universities accept individuals with previous knowledge or look for specific skills and knowledge to improve, in the programme, there are better results, and higher appreciation and understanding for their content. Overall, skills improvement seems to be in good levels, but it could be more organised and clearer, based on the different kinds of students, to match the graduates needs for entrepreneurial education (Matlay and Solomon, 2008). The universities do not examine these separately to identify if they achieved their goals through their programmes. They only look in the whole picture, if each student has reached an adequate level overall, through their grades. There is a possibility that if the universities monitored the skills that the students get through their studies, there could be meaningful improvements in the content and the design of the programmes, and the students would possibly show a more unified appreciation for more specific skills instead of showing the current level of dispersion.

## Skills that did not change during their studies

During the repertory grids procedure, it was shown that for each of the reported skills there are students who mentioned that there were no noticeable changes for them, after attending the programme. This is something that normally would be statistically expected for a number of students and a number of skills, as individuals present different qualities and backgrounds, and different aspects are affected during their studies. However, there was a considerable number of skills that have shown as many zero results as positive results to similar numbers of students. This shows that there is possibly an amount of knowledge within the programmes that while it is useful for some of the students, it can be indifferent for others.
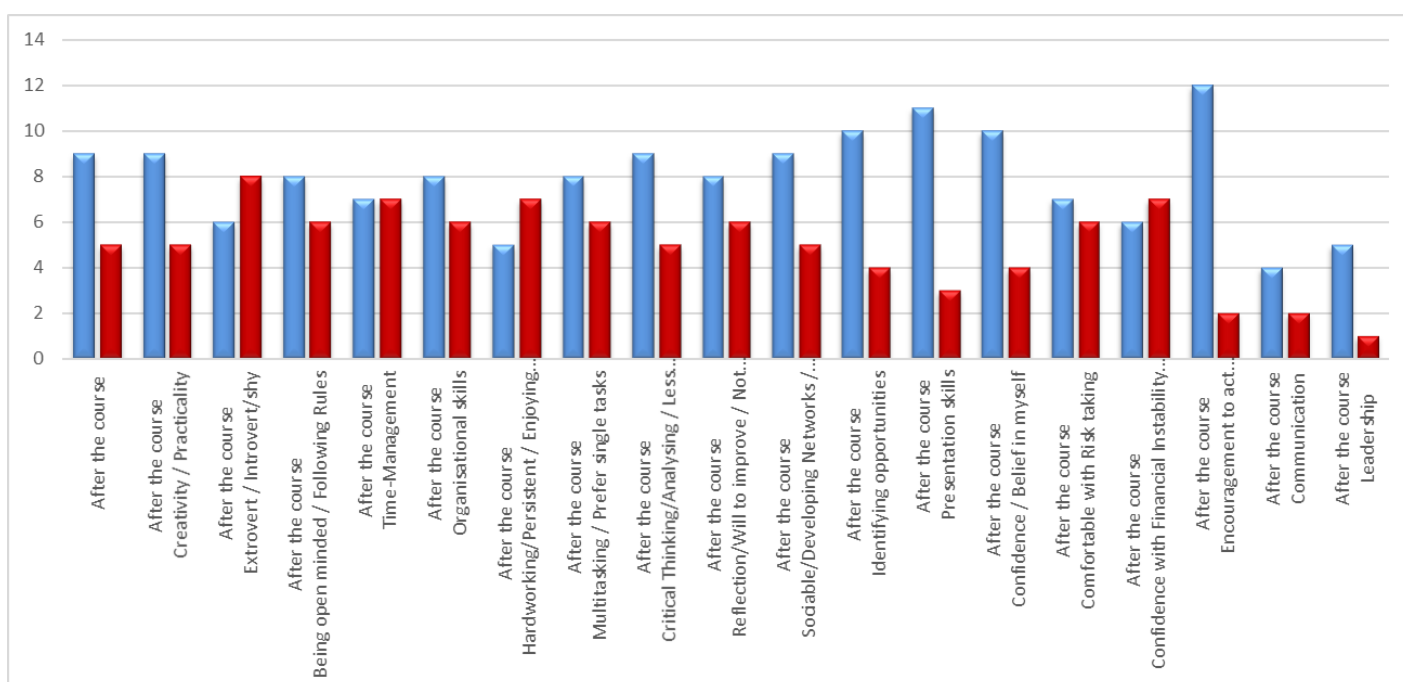
Figure 7, shows in blue the number of students who reported positive results after attending their programmes, and in red the number of students who supported there was no significant change in their acquired knowledge for each of the skills (See Appendix, Table 19 for the more extended version of this figure). Confidence with Financial Instability, Extroversion and Persistency were the skills that showed more zero results than positive results. Time management showed the same amount of zero and positive results on students, while Risk taking, Reflection, Multitasking Organisational Skills, and Open-mindedness showed up to 25% zeros lower than the positive ones.

For many students who supported the position that there was no improvement in their skillset, it seems that they were considering that they were already on a good level in some of the skills. For Confidence with Financial Stability IA1, IA2 and MA1 perceived to be higher already after their undergraduate studies. Their common features were that they already had their own businesses before, and that they will first get some working experience after their studies before attempting their next venture. For MA2, NC1, EB2 and LB1 their level of confidence with financial instability was lower and their programme did not help them change it. MA2 and LB1 think that their programme in some parts was a bit generic. Except LB1, all had exposure in a family business and except NC1, they all participated in some kind of business simulation or competition, but all of them have worked on ideas and would like to start a business in the

future, with no previous experience on that. It seems that for the confidence with financial instability it is the aspects of the background of the students that count the most and the cases of increase are lower than the cases of students that did not show any impact. The students who experienced a positive outcome after their studies (i.e., VC1, IA3, IA4, TB1, TB2, TB3) seem that they had in common that they had the chance to work as consultants with real clients, most of them into the internationalisation aspect, having the entrepreneur as a point of contact. All of them had working experience before, VC1 and TB1 in their own ventures too, but they all had highly practical experience through their studies. This significant impact was expected for both the students and the businesses (Fukugawa, 2005, Ridder and van der Sijde, 2003, Wani et al., 2004, Brindley and Ritchie, 2000, Ucbasaran et al., 2001, Arnold et al., 2002, McLarty, 2003, Pittaway and Thedham, 2005, Stewart and Knowles, 2000, Afolabi et al., 2017). All the students had to go through the creation of a full business plan too, in different levels. It seems though that all the students that experienced an improvement have been brought up to similar perceived levels that the other students (i.e., with zero change) were considering that they already are.

For Extroversion, EB1, EB2, IA2, IA4 and TB1 consider that they are already extroverts, and on their perceived ideal level of extroversion that someone should have and that their programme did not make a difference. It is the same for TB2 and TB3, with the ideal condition on a lower level, closer to the middle and to introversion. Only IA3 mentioned a little higher ideal condition, but still remained on the same level after their studies. For these students, extroversion seems to be mostly a character attribute, that supersedes any content of studies. All the students that showed a positive result through their studies demonstrated a lower initial level of extroversion, being closer to introversion or neutral. Most of them came from a family background that raised them as introverts until their first studies.

For Persistency, there were students (i.e., EB1, IA1, TB1, TB2, TB3) that were considering themselves already hardworking, and already in the ideal situation for them, or close to it, that was a hardworking way of life. MA2 and VC1 that showed no change appreciated a more balanced life, while their perceived ideal seemed to be a hardworking culture too. Similarly, it seems that for these students it is a character treat that was improved during their first studies during their undergraduates, except TB1, TB2 and TB3 that seem to had the same perceived level of hardworking culture from their family background. MA1, IA2, IA3, IA4 and LB1 that experienced an improvement on this skill did not have any change during their undergraduate

studies. Only for IA4 it seems that they had a change in both phases and after their programme they perceived to reach their ideal level, which is the highest on the persistence side.

For Time Management, it is a similar situation, where there is either the upkeep of the skill that the students improved at an earlier stage in their life (i.e., MA1, VC1, EB1, IA2, IA4, TB1, TB3), or an improvement after participating in the programme (i.e., MA2, NC1, EB2, IA1, IA3, TB2, LB1). The only difference for this skill is that most of the students agree that the ideal situation would be the highest level (5) of time management. Most of the first group that had a zero change on this skill are the more Entrepreneurial individuals that already had experience in their own ventures or considerable work experience.

This is also in line with Kott et al. (2015), as these could be features grown in earlier stages of their life that effectively supported their higher education and entrepreneurial initiatives in the long term.

It seems that for the skills that some of the students mentioned no difference after attending their programmes, for them it can be a character or perception feature, or a feature that was improved in an earlier stage in their life, even if that is their previous studies, or previous business ventures and experience. This could possibly mean that this category of skills (i.e., Confidence with Financial Instability, Extroversion, Persistency, Time management, Risk taking, Reflection, Multitasking, Organisational Skills, and Open-mindedness) demonstrate a higher dependency on the experience in working life, the life choices and self-awareness that each person builds through their studies or their working experience. It seems that the universities help the students that have not developed these features yet, through the knowledge and structure that they provide, but they cannot help much further once the students decide their ideal personal level.

The skills strength that the students perceive as ideal can be far from how they have acquired that skill, or far from how they wish to acquire the skill (Figure 8). This shows that these students demonstrate a level of self-awareness and know what they can do, what they cannot do, and what are their limits and strengths. It also shows that there is always a balance and a very strong skills can be not necessarily ideal.

*Figure 8 - Total perceived change on skills after attending the programmes vs ideal situation*
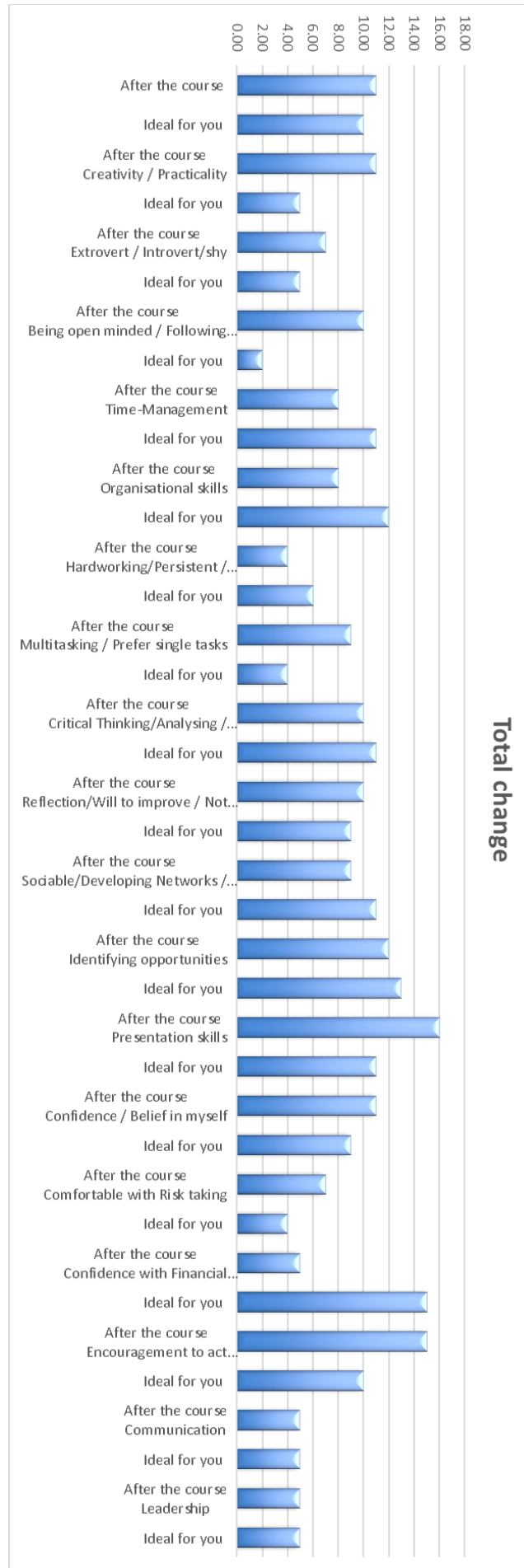
In all the skills there is a change on the numbers from the situation of the students after the programmes, up to the ideal skills acquisition which is marked as "*ideal for you*". This means that as the students rated themselves higher on a skill after they attended a programme when comparing with before, they also rated higher in average the ideal situation and strength for a skill when comparing with the way that they feel themselves that they acquired the same skill after attending the programme.

## Skills with a negative impact throughout studies

In some cases, there was a negative impact on some skills after attending a programme (Figure 9), as some previous research has also shown (Oosterbeek et al., 2010, Lorz et al., 2013, Nabi et al., 2018) (See Appendix, Table 19 for the more extended version of this figure). This was demonstrated through the negative numbers in analysis that came out from the repertory grids. A few of the students seemed to indicate that after attending their programme they appreciated that they should keep balance in their life and become less hardworking, instead of using their studies to learn how to focus and be persistent. Other students referred to their relationship with risk taking and of how comfortable they were with financial instability, and now that they are more informed, they would be more cautious and less careless in their future actions. These could be indications that entrepreneurial education should still possibly consider its structure and its effectiveness to optimize its results and avoid adverse results on the graduates' entrepreneurial mindset (Piperopoulos and Matlay, 2012).

There were skills that students were expecting to acquire based on the information they had from the programme but did not acquire until the end of their studies. TB3 and EB1 were expecting to get financial skills; TB2 time management skills and international communication and teamworking skills; TB1 business development and selling skills; MA2 marketing skills; NC1 and LB1 leadership skills; EB1, TB3 and LB1 management skills; EB1 intellectual property and business protection knowledge skills and TB3 general business overview skills.

Figure 9 - Negative perceived results on skills after attending a programme
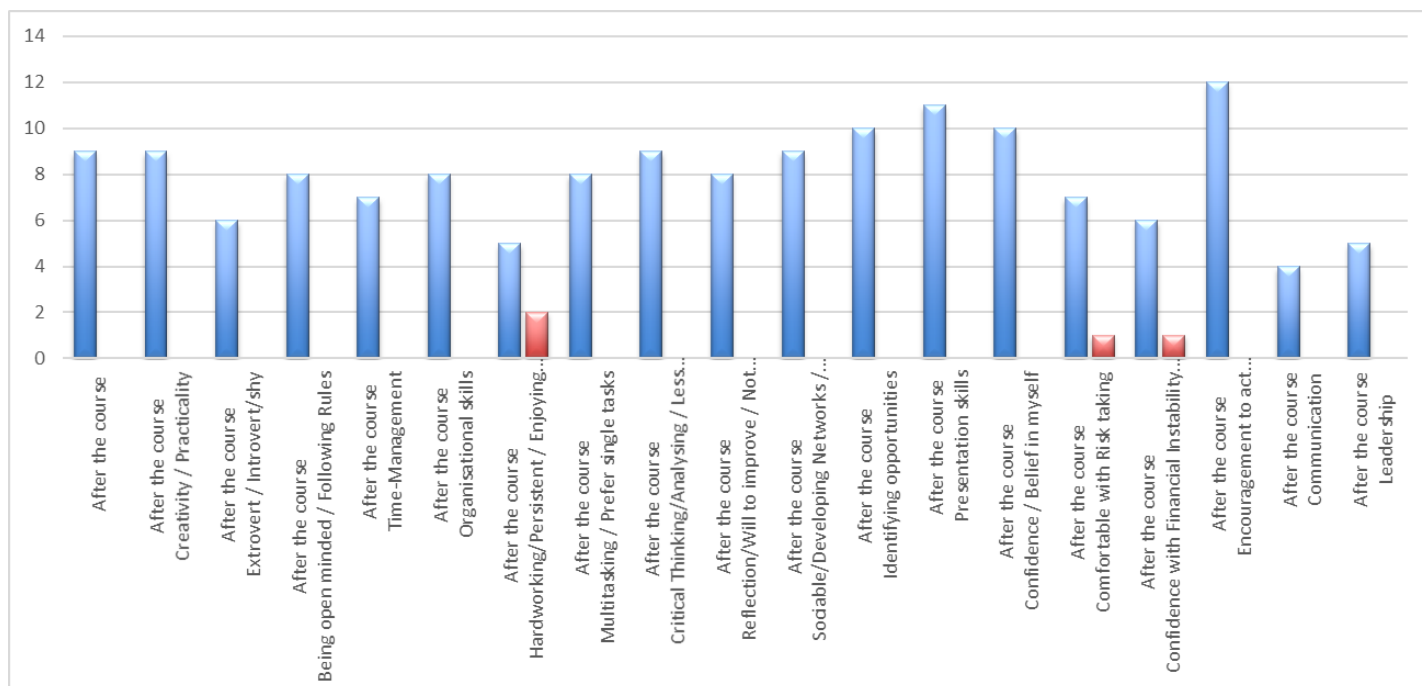
## 5.6 Importance of this research for Entrepreneurship Education

Through this research I have gained more detailed insights than I had previously held into the context of Entrepreneurship Education. I uncovered issues about the universities' mindsets about Entrepreneurship Education and how they could present themselves and recruit students. There was mismatch between these mindsets and students' expectations, as I had suspected, but I had not anticipated the extent of the mismatch in the range of aspects that the data uncovered. The findings indicated that the universities must be aware that they have this mindset, and that it might not always be the best way to approach and support students. These mindsets have implications for the programmes' context, designs, and the students' actual insinuation into the Entrepreneurial environment and reality.

It seems that there are practical implications; The universities need to engage in more academic research to understand what students currently need from Entrepreneurship programmes, which may have changed over the years because the context has change for Entrepreneurs, following the different ways to be Entrepreneurial and the ever changing factors that influence the context, e.g. international reach and faster electronic communication. The students require a contemporary context for their study and development of Entrepreneurial activity. The universities need to update their programmes constantly to remain in touch with

the contemporary text. To achieve this, they need to interact and engage in ongoing research with the students, as it seems unlikely they would be able to manage to carry this out adequately without using some form of feedback.

Another suggestion is that the universities should be more open to developments in the programme design, involving the students, to create a unique experience of studies. Updated programmes would need to be a lot more flexible to allow for the very different backgrounds of the students who want to do Entrepreneurship Education programmes. Perhaps if they focussed more on students' needs in order to develop the programmes, one of the things that they could do is to offer something broader and more generic as a core that could then allow for different pathways and to allow the students to tailor their studies despite coming from a range of backgrounds and having a variety of needs. In this way the students would be able to design what they are going to get. In order to do that, the universities would need to be more Entrepreneurial themselves in the ways that they envisage their programmes. Surprisingly, with the level of diversity that we observed in this research between the students' attributes, backgrounds and future plans, the only way that the students can get a programme that meets their needs, seems to be by their involvement in the programmes' design.

Casson (1982) remarked that in his time, there were only a few academic studies on Entrepreneurship Education and that many of the academics who had undertaken the studies had ended up leaving academia and becoming Entrepreneurs themselves. In the present day there is much more research about Entrepreneurship Education as indicated in the literature chapter but much of this is carried out by business education academics and many of the lecturers on Entrepreneurship programmes are business academics. It would therefore seem appropriate if much stronger links could be made with successful Entrepreneurs outside of the university to have more involvement in Entrepreneurship Education programmes. Some of the universities are already doing this to a certain level through the Entrepreneur-in-residence programme. But this research indicates that it would be useful to broaden this link to enhance the opportunities for practical experience for entrepreneurship education students. Overall, the universities need to develop their practices if their aim is to provide the best learning environment for their entrepreneurship students.

Furthermore, to proceed with this research, the researcher needed information about all the Entrepreneurship related programmes and modules in Scotland. As this was not already available, this research was an opportunity to provide such a list of all the universities that

offer Entrepreneurship as a programme, or as a module within other programmes. This information can potentially be useful for other researchers as well as for prospective students and keeping these lists updated would help in keeping track of developments in the evolution of Entrepreneurship Education.

Throughout this chapter I have attempted to use the findings and the analyses of the findings to try to find answers to the research questions that were posed both in the introduction and after considering existing research and literature. It has been interesting to also find other important and useful ideas emerging from the data that were not anticipated in the early days of the research but have enriched the discussion and widened the scope of the results that have been identified. All of this leads to the overall position that I can take in the conclusions chapter to follow where I can reflect on the outcome of my research as well as on the impact of the process on me as a research student.

# 6  CONCLUSIONS

## 6.1  Introduction

Arriving at this concluding chapter of my research has been an important point of reflection for me, both on the overall considerations of my research topic and the conduct of the study and on the impact that carrying out the research has had on me personally and as a member of the research community of my university. I have been able to engage with the lecturers and students who have responded and therefore assisted in my efforts to address my research questions, and I have also worked closely with academic and student colleagues in my university providing me with experience of engaging with a research community. By completing my thesis research, I have arrived at a position to make suggestions, make a statement of impact, and suggest where the research might be useful. I can present how I have developed as a researcher, suggest future research that could be done in the same and similar areas of interest, what the limitations of this research were and how I could potentially contribute further to the field.

## 6.2  Concluding points of the research study

My research has provided me with answers to my research questions, as discussed in the previous chapter, that have equipped me with clear understanding of the status of entrepreneurship in higher education. This has emerged in the ways in which it is considered and offered in Higher Education prospectuses, the attitudes and approaches of the lecturers delivering the related courses and programmes and also the expectations of students as applicants and as they complete their programmes.

The status of entrepreneurship education is related to the mindset that has developed and been perpetuated by both the institutional marketing of the subject to attract students and in the lecturers' perceptions of their roles in this process and in relation to those students who select their institution for their studies.

There is a clear need for more flexibility in the institutions' visions and purposes in setting up entrepreneurship educational provision.  Flexibility of attitude would also be recommended for

lecturers with a main finding of the research amounting to the need for institutions and lecturers of entrepreneurship education to be a good deal more entrepreneurial in their own right to make better choices and decisions and to recognise wider opportunities to develop their provision.

### 6.2.1 Impact of this research

It is not all people that have access to higher education. Becoming an entrepreneur is not a journey through higher education only, where people must be capable of operating in an academic environment. Higher education is not the only way to become an entrepreneur and start new ventures, nor is it likely to be the most common route to acquiring entrepreneurial knowledge and skills, but it can possibly provide a good level of informed and methodical steps to provide a potential Entrepreneur with a more sophisticated and in depth understanding of the implications of their actions and the procedures and risks involved. It can equip them with tools that will potentially help them along the way to making complex decisions and potentially innovate more effectively when needed.

There are other ways too that people can become Entrepreneurs, learn about Entrepreneurship, and gain entrepreneurship skills, that do not involve higher education, but can be proven effective and require longer experience based processes. Some of these routes include practical learning with other Entrepreneurs; by starting a new venture; undertaking a family business; developing Entrepreneurial capital gradually through family; or through organizations that support the development of new ventures such as Scottish Enterprise and Business Gateway in Scotland. These are particularly popular support organisations in Scotland that can support anyone aspiring to entrepreneurship whatever their route into the endeavour.

However, my area of particular interest, as outlined in the introduction to my thesis, has been with routes to entrepreneurship that are supported by academic study at Scottish Universities. Several of Scotland's higher education institutions offer programmes, or courses within programmes, that offer opportunities to students wishing to study or support their wider learning by accessing these Entrepreneurship learning opportunities. I have, however, discovered several differences in the ways in which the universities promote and teach aspects of Entrepreneurship and there is still an experimental feeling in the field, as the ways of teaching and the structure of the Entrepreneurship related modules within the programmes differ. The academic courses are useful for the Entrepreneurship field as they provide the

students with condensed knowledge on a wide range of aspects, preparing them for future endeavours. However, not all of the knowledge imparted is necessarily relevant for the first parts of a new venture. When starting and running a business or later in their careers, there would be moments when this knowledge should be used for important decisions along the way, and these would be the potential times that someone would be able to distinguish between the decision makers that had an academic background and the ones that followed a more practical route, so overall it could be beneficial and justifiable to focus on the academic routes for Entrepreneurs.

This research provided a broad picture of the Entrepreneurship related programmes and modules within Scottish higher education at the specific period of accessing it, presenting and categorizing them by their way of including Entrepreneurship, their aims and their Entrepreneurship support and provisions, and showing their differences in their approaches and levels of inclusivity. Each of the universities approach Entrepreneurship a bit differently, include it in different ways within their programmes, such as within business schools or integrated within other fields, with some being closer than others to becoming a mindset and being included in every possible relevant area of study. They provide various types of support, presenting the support to students either from the beginning or only when they are potentially interested and able to take advantage of it.

From the data gathered from the lecturers, it was discovered that the main aim of the universities is to develop the Entrepreneurial mindset of the students, and it is not necessary to start or to show how to start new ventures. Not all the lecturers are perfectly informed about the aims of their university for their module and their programme but that does not necessarily mean that they are not part of a bigger plan of the university for the specific programme. They showed that Entrepreneurship gradually becomes a field of knowledge, but it tends to get simplified the broader the requirements get during the recruitment process of a programme. For each of the programmes, the lecturers had a unique approach on teaching and approaching students and their needs, but it showed that it is mostly the circumstances and the aims of each student that determine their future plans.

Some weak points of the programmes emerged through interaction with the students, related to the mismatch of the titles and of the content of some of the modules and the overlapping between other modules, directing attention to possible issues in the design and the organization of the programmes, the programmes' content and their structure. Because of the wide

inclusivity during the recruitment process there is a sense that the advanced knowledge within each programme could be developed and extended more under different circumstances. Oversimplification could be avoided by improving the recruitment process and potentially by designing programmes that are more distinctively based on more focused needs. A few of the students did seem to develop ideas and action plans during the programmes, using the support of the universities at some level, where applicable, but it was made clear by the students that, without experience in the market, most of the students would not feel confident to start a new venture.

On the skills side, it is shown that there is an overall increase in the Entrepreneurship related skills of the students throughout their higher education. However, some skills remained underdeveloped mostly because of the students' previous experience and circumstances being difficult to overcome and a few were affected negatively after attending an Entrepreneurship related programme, mostly because of the realization of factors that the students had not considered.

### 6.2.2  Limitations of this research

During the research there were things that could have been done in a potentially better way, but certain limitations dictated the most feasible and achievable ways to carry out this research.

**Practical Limitations – personal**

One type of limitations while carrying out the research were the personal limitations, due to personal circumstances. I had to balance carefully to allocate time for research due to my own Entrepreneurial endeavors. This demonstrates an ironic side, but I had to balance the research with the fact that I was building my own business and had to participate in the research as a part time researcher.

Another influencing, and completely unpredictable factor, was the impact of the COVID-19 pandemic. As a student, it changed the way I was operating and the places that I could work from. Most of the interviews had been done but some had to be conducted by video calls, so I had to adapt to achieve the best possible results and to maintain reliability. Because of the COVID-19 pandemic there was also some major impact on my business. Like everyone workoing

on research, I had to balance it and drastically change the way of operating, in order to survive and thrive.

**Practical limitations - external influences**

There were also many research related limitations. When organizing the data collection, I was struggling to be valid and reliable. While the procedure to recruit participants started well, with promising results on the initial phase, it later proved difficult to find enough people for the interviews. I had to communicate with as many people as possible in each department to achieve the necessary permissions and be granted access to potential respondents. Many people were not available at all for this first stage and even for those people who were replying, they could only advertise my request to a limited extent. It was then at the discretion of the available potential participants to communicate, was dependent on their willingness to be part of my research and constituted a certain amount of mere luck for me if my request would be noticed and that they would then have some time to reply. Eventually I managed to obtain a sufficient number of willing participants to be able to proceed. Overall, there was a range of responses by different people in different circumstances and I managed to get as extended, broad and multisided information as possible to make the best possible use of the data and thereby limit the impact of this particular limitation.

## 6.3  Personal development from writing the thesis

This research started as a personal question and interest on the topic but has also achieved tangible results that have practical applications for people who may want to follow Entrepreneurship courses. As a researcher I have also achieved personal results during the process and the completion of it. Having an extended idea about the meaning of Entrepreneurship for every university, and how the universities promote and use Entrepreneurship may lead to different options for further research and further involvement on an academic level. Now I understand the elements on the structure and the design of Entrepreneurship programmes, the needs and intentions of the students and the lecturers and the topics involved. In combination with my business experience this research helped me understand how the world works from perspectives that I had not considered.

During my masters in 2010 at *The University of Strathclyde* I went through a structured and intense programme in international management (*MIM*) that involved Entrepreneurship related

parts. Something that my BSc in Economics also did. When starting my own importing business in 2012 and while following the whole new venture creation process, I started wondering how my studies had specifically helped me on this. On undertaking this PhD thesis, I had the advantage of having completed these two degrees to understand some of the workings of academic programmes but being part of the School of Education Graduate Study Programme at the *University of Glasgow* provided me with, and led me through, many stages of development for undertaking research-based study. I was then able to make informed decisions about the type of research required to take forward my study. I have improved my knowledge of Entrepreneurship education and my general knowledge on multiple aspects of higher education in Scotland. By learning how to be a researcher I understand now the difference between a possibility or an opinion and the facts that come out of an interview's outcomes. After conducting this research, I can put my thoughts, questions, and intentions into writing in order to follow a methodical procedure and achieve valid, reliable and meaningful results. My ongoing experience of being an entrepreneur myself most certainly provided relevant practical experience. I have therefore been following two distinct tracks which were complementary and provided for me a unique opportunity as well as keeping me extremely busy.

## 6.4 Further research

The outcomes of this research have many aspects, through the views of the universities, the lecturers and the students, and the results could be used to continue with further research on each aspect separately. From each part of the discussion topics, further research could derive that could potentially contribute in their respective fields. Combining the respective perspectives of the students, the lecturers, and the universities, creates a multi-faceted picture that has the potential to provide substantially more information in every argument, and helps in achieving the most informed solution.

The listing of all the universities based on their Entrepreneurship programmes, modules and provisions, and their positioning on each of them, could potentially be useful to universities to know their position within the field in comparison with other universities. It could be used by the lecturers to obtain a clearer picture of what their module and their programme want to achieve, and their position within the wider Entrepreneurship landscape. For the students it could be an indicator of their chosen university's aims and a tool to help them to have a clearer picture of what they should expect and what is offered in the market, in order to make an informed decision when choosing a programme of study. This list would need to be updated

regularly and improved to provide historical data of the development and improvement of Entrepreneurship education in Scotland, to show how it evolves, and to help on the improvement of the field, indirectly promoting healthy competition.

The comparison of the views of the lecturers and the students could lead to further research on the ways that the programmes operate and how they can be improved and enhance their position within the international marketplace. Having a clearer picture on the aims and the procedures of the programmes helps to understand how they focus on the topic and how the students perceive their processes. Further research on the programmes' structure and modules could be done to increase effectiveness and reflect better the aims of the universities, considering also research on the ways that the universities choose the levels of the offered knowledge based on their recruitment process. This would essentially provide ways to improve their effectiveness and the student analogy, with the potential to proceed on including research on the financial viability of the universities based on their choices between these options. Further research on alumni careers would also potentially show the effect the university had on them, possibly in comparison with individuals that did not follow the academic way.

The outcomes that the students provided regarding their pursuit for practical experience and deeper and more extended advanced knowledge, showed that from a different point of view, research could be undertaken on the alternative ways that people could learn about Entrepreneurship, how to be entrepreneurial and have access to Entrepreneurial knowledge and the acquisition of such characteristics, as compared to the academic, higher education, route. This kind of research could also potentially lead to the academic path being open to the provision choices that could include more practical elements and become more inclusive. Similarly, further research into acquired skills levels could lead to the inclusion of the lecturers' input and the development of the programmes' procedures being directed more towards specification of desired results for each programme. This could satisfy a need to include ways to record the students' improvement and track their progress on the specific skills throughout their attendance on courses to help on the development of specific skills that the universities would be able to advertise and suggest to students before joining their programme.

The procedure of this research could be replicated after a period of some years to evaluate any longer-term changes in students' needs or universities' positions with regards to promoting entrepreneurship education in rapidly changing business environments. Following the period between my master's study  in 2010-2011 and my own thesis related research, where the

interviews took place in 2019 and 2020, it can already be seen that there have been considerable differences in the programmes available, their structure, the ways that the lecturers perceive Entrepreneurship, the integration of Entrepreneurship modules within other fields, and the support that the universities provide to the students through more improved and newly developed Entrepreneurship provisions (e.g., Entrepreneur-in-residence). A regular review would be useful, to track their further improvement and development.

## 6.5  Moving forward after completion of PhD study

Having reached a point of completing my thesis ready for submission, I have been considering ways in which I can move forward and find the best way of building on both the results of my research study and the benefits of reaching this level of academic research ability. I hope to be able to continue with academic study and academic work. Using the findings as well as the further suggested research ideas, as in 6.4, I could work on writing academic articles in the area of business education that I hope could be of interest to academic journals, and contribute further in the field of Entrepreneurship education. I plan to use my existing data to produce at least one article manuscript in this connection. I am particularly interested to carry out longitudinal study relating to my thesis research topic to reexamine how things have developed and compare the results for both the universities and the students in a way that would be comparable to the results of this research. Perhaps a two-year cycle would be an appropriate timescale.

Building on both my business experience and my newly acquired research experience I would be willing to work with academics and HE departments on a consulting basis if I could be helpful to the universities by conducting reviews on their curricula, their support structures, their procedures, or any of their needs around Entrepreneurship education, using data from both the universities and their recent students. This could work as an instrument for their further improvement and potentially assist their needs for further development.

There is also a possibility to do additional research on the different routes that people choose to learn Entrepreneurship other than the university. If this kind of opportunity came along it would allow me to do research on the paths that Entrepreneurship can be taught, how they compare with the university and how the universities could adapt to potentially cover more needs, using additional tools or adding more courses and levels and become more inclusive.

This part could apply into various fields that might consider Entrepreneurship knowledge, understanding and skills to be important in their fields.

Having done this research by doctoral thesis, I believe that I could now make use of the comparison between the views of the lecturers and the students, giving me an understanding of the ways that the programmes operate and how they could communicate and strengthen their positions further. My involvement could potentially include the programmes' structure and potential modules' additions and improvement to increase effectiveness and reflect the aims of the universities more effectively. Additionally, it would be interesting for me to do applicable research on the amount of the advanced knowledge that the universities include in the programmes. Keeping in mind the interest of the academic sector and its constant development and strengthening, I would want to explore the development and the possible effectiveness of different types of programmes that would be more practical but would still be on an academic basis. Based on this, I believe that I am now also able to consider opportunities in an academic setting. I could offer myself to contribute to courses, be involved in Entrepreneurship programmes and potentially make suggestions in structural and design level, perhaps as an associate tutor, if the opportunities become available, and indeed, a move to an academic position would be attractive as I ponder how to move forward from the building up and possibly passing on stages of my entrepreneurial activities.

At a more practical level, I could set up a consultative package that I could offer by give talks to students or prospective students about Entrepreneurship education related topics within available programmes. Combining with and using my experience as a businessperson this research puts me between students and the universities, being able to join the Entrepreneurship support of a university or to act as a student consultant about the existing programmes and the academic support that is involved in each of them. Based on the aims, their wanted results and the circumstances of each student, I could act as a career coach, consulting on the ways they might work to achieve their desired results.

By bringing the views of the universities, the lecturers, and the students together, and having a clear picture of what are the possible and more frequently expressed aims for each of them, a consultancy project be designed, to consult with each of the parties, based on what they would want to achieve. This could be an internal position within a university, or in a form of an external consultancy project or organisation, to achieve impact to multiple universities and their programmes.

There is also, of course, a rich seam of research potential in all of the other non-academic opportunities available to aspiring entrepreneurs which deserve to be evaluated and promoted as part of a broad scenario that aims to help individuals to succeed as well as to contribute to the country's growth in a wider way.

In conclusion, I now find myself in a position of needing to think about my future steps in an entrepreneurial manner that fits with my new academic and research aspirations.

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# 8 Appendix

*Table 12 - Interview Structures*

aims, scope, and method, and were asked to sign a consent form regarding the use of the data they are going to provide. They were also informed that in the end of the interview they could provide their contact details for further communication (if needed) and feedback.

## Interview for Lecturers/Directors

Sample questions – unstructured interview (appx 30-45 minutes)

- Which courses do you teach?
- What would you say each of the courses offer to the students on an Entrepreneurship perspective? Does the university promote the aspect of Entrepreneurship?
- What are the means they use for promotion?
- Why do students choose these courses? Is Entrepreneurship an important aspect for them?
- What are the attributes of the students you accept on the course?
- Do you intent to transfer Entrepreneurial skills to your students?
- If yes, please name a few. Which are the tools you use to achieve that?
- What is your view on Entrepreneurship? What is Entrepreneurship for you?
- How do you perceive the students' view on Entrepreneurship courses? What do they expect from a course?
- You think that the students' background has an effect on the way they accept information?
- Do you collect data for alumni's careers?

## Interview for Students

Sample questions – unstructured interview (appx 45-60 minutes)

- Which Entrepreneurship course do you study/have you studied?
- Please describe the selection procedure. What were the elements that drew your attention to the specific course? Was Entrepreneurship an important aspect for you?
- Tell me a few things about yourself and your background.
- What is the outcome you expect/expected from your studies on Entrepreneurship when choosing the course?
- Did the course meet your expectations?
- What skills did you expect to acquire through studies on Entrepreneurship?
- Which skills do you feel you have acquired until now?
- What is Entrepreneurship for you?

- Would you consider yourself an Entrepreneurial individual?
- What are your aims after your studies?
- Please name the key stages of your life that had an effect on your skill set and the way you perceive your environment.

**Repertory grid:**
- How important do these different periods (elements) are for you?
- Please think about the different skills you earned along the way. Which of them are related with the Entrepreneurship course?
- (Choosing 3 random elements) Please name an Entrepreneurship related skill that you have earned or has been affected between these periods of your life. - In what way are two of these alike and at the same time different from the third?

  Please rate each period from 1 (stronger) to 5 (weaker) and characterize yourself in relation to the skill. Please rate the rest of the elements too.

  (This will continue in sets of 3, and the interviewee will not be allowed to repeat constructs/skills. Normally 8-12 constructs should be elicited per interview).
- The interviewer will give feedback on the research and will discuss the interviewee's grid.

*Table 13 - Repertory Grids on Student Skills*

Please mark from 1 to 5 (1 less strong attribute - 5 very strong attribute)

| 5 | Family Background / Character | up to Studies prior to the course | After the course | Ideal for you | 1 |
|---|---|---|---|---|---|
| Confident | | | | | Not Confident |
| Creativity | | | | | Practicality |
| Extrovert | | | | | Introvert/shy |
| Being open minded | | | | | Following Rules |
| Time-Management | | | | | - |
| Organisational skills | | | | | - |
| Hardworking/Persistent | | | | | Enjoying leisure balance |
| Multitasking | | | | | Prefer single tasks |
| Critical Thinking/Analysing | | | | | Less critical / driven by opinion |
| Reflection / Will to improve | | | | | Not reflective |
| Sociable / Developing Networks | | | | | Not sociable |
| Identifying opportunities | | | | | Not identifying opportunities |
| Presentation skills | | | | | - |
| Confidence / Belief in myself | | | | | Not confident |
| Comfortable with Risk taking | | | | | Safe choices |
| Confidence with Financial Stability | | | | | Confidence with Financial Instability |
| Encouragement to act Entrepreneurially | | | | | Not encouraged |
| Communication | | | | | - |
| Leadership | | | | | - |

## Table 14 - Entrepreneurship courses in Scotland

| Entrepreneurship courses today (Programmes or contained within other disciplines) | Entrepreneurship modules |
|---|---|
| **University of St. Andrews - UoSA** | |
| Finance and Management MSc ; Human Resource Management Mlitt ; International Business Mlitt ; Management Mlitt ; Marketing Mlitt | *Entrepreneurship and Business Development (optional) (common optional modules)* *Entrepreneurship, Innovation and Creativity (optional) (common optional modules)* |
| Information Technology with Management MSc | Entrepreneurship and Business Planning (optional) |
| | Entrepreneurship, Innovation and Creativity (optional) |
| Management MA (Hons) ; Management BSc (Hons) | *Entrepreneurship and Small Business Development (optional) (common optional modules)* |
| More optional modules available toUndergraduate and Masters courses along with the above (available in their module catalogue but not clearly for specific | Enterprise and Creativity ; Enterprise and Entrepreneurship ; Management Economics and Entrepreneurship ; Making Music 3 |
| **University of Glasgow - UoG** | |
| Business & Management MA, BSc, LLB | Entrepreneurship |
| MBA Master of Business Administration | Entrepreneurial finance (optional) |
| Management MRes | Entrepreneurial finance (optional) ; Digital Entrepreneurship (optional) |
| Financial Technology MSc | Digital Entrepreneurship |
| International Business and **Entrepreneurship** MSc (renamed as International Business MSc since '20 - '21) | Entrepreneurial finance for SMEs ; International entrepreneurship and innovation ; International Business and Entrepreneurship in Emerging economies (optional) ; Market Analysis for New Venture Creation |
| Management with **Enterprise** and Business Growth MSc | Business planning |
| Music Industries MSc | Entrepreneurship and Placement Pathways |
| MASTER OF GLOBAL BUSINESS MGB | Entrepreneurial finance for SMEs ; International entrepreneurship and innovation |
| GLOBAL MARKETS, LOCAL CREATIVITIES (ERASMUS MUNDUS INTERNATIONAL MASTER) IntM | Creative cities: intervention models and entrepreneurial dynamics ; Immigrant entrepreneurship ; Entrepreneurship and capitalism in Latin America ; Social entrepreneurship in Latin America and the emerging world (optional) |
| **University of Aberdeen - UoA** | |
| Business Management MA ; Law with options in Accountancy, LLB | Accounting and Entrepreneurship |
| International Business Management MSc | Entrepreneurship in Practice ; New Venture Creation |
| MBA, MBA Finance, MBA Energy Management | Entrepreneurship in Practice ; Managing Change and Innovation ; New Venture Creation |
| Marketing Management MSc | Business Model Innovation |
| Precision Medicine and Pharmacological Innovation MSc | Entrepreneurship, Innovation and Commercialisation |
| **University of Edinburgh - UoE** | |
| Business and Geography MA ; Business and Law MA ; Business Management MA ; Business with Decision Analytics MA ; Business with Marketing MA ; Business with Strategic Economics MA ; Accounting and Business MA ; Accounting and Finance MA ; Finance and Business MA ; International Business MA | *Innovation and Entrepreneurship (Y2) (optional) ; Business Simulation (Y2) (optional) ; (common optional modules)* |
| Business with **Enterprise** and Innovation MA | Business Research Methods I: Introduction to Data Analysis and Innovation and Entrepreneurship (Y2) ; Business Simulation (Y2) (optional) ; The Entrepreneurial Manager (Y3) ; Entrepreneurship and New Venture Creation and Business Research Methods II: Applications and Analysis (Y3) ; Social and Sustainable Entrepreneurship (Y4) ; Enterprise Consultancy Project (Y4) ; dissertation on a topic closely linked to enterprise and innovation (Y4) |
| Master of Business Administration MBA **Entrepreneurship** and Innovation MSc | Entrepreneurial Leadership ; Entrepreneurial Finance ; Entrepreneurship and New Venture Creation in Context ; Introduction to Accounting for Entrepreneurs ; Managing Innovation in Context ; The Entrepreneurship and Innovation Landscape ; Innovation Management in Practice (optional) ; Venture Management and Growth in Practice (optional) ; Entrepreneurial Leadership in the Social and Sustainable Enterprise (optional) ; Technology Entrepreneurship and Commercialisation (optional) |
| **University of Strathclyde (Glasgow) - UoS** | |
| Accounting and Business **Enterprise** BA (Hons) | *Entrepreneurship Theory & Practice (Y1)* |
| Business Analysis and Technology and Business **Enterprise** BA (Hons) | *Creativity & Innovation Management (Y2)* |
| Business **Enterprise** BA (Hons) / and Business Law / and Economics / and Finance / and Hospitality and Tourism Management / and Human Resource Management / and Management / and Marketing | *New Venture Planning (Y2) ; Entrepreneurial Capital & Resources (Y3) ; Venture Management Strategy & Growth (Y3) ; Venture Management in Practice (Y4) ; International Entrepreneurship (Y4) ; Issues & Trends in Entrepreneurship (Y4) ; Family Business Theory & Practice (Y4)* |
| **Entrepreneurial** Management and Leadership MSc | *Creativity & Innovation Development ; Introduction to Entrepreneurial Finance ; Advanced Entrepreneurial Finance ; Entrepreneurial Management and Leadership ; Mindset Lab ; Sales Lab ; Issues & Trends in Entrepreneurship, Innovation & Technology* |
| **Entrepreneurship**, Innovation and Technology MSc | (common core modules) ; Social Entrepreneurship ; New Venture Creation ; Virtual incubator project |
| Environmental **Entrepreneurship** MSc | Client-Based Environmental Entrepreneurship In Practice ; Entrepreneurship, Innovation & Commercialisation ; New Venture Creation ; Creativity & opportunity development (optional) ; Entrepreneurial leadership & resource management (optional) |
| Satellite Applications with Data Science MSc | Entrepreneurship, Innovation & Commercialisation ; New Venture Planning ; Individual Project - Business Plan / Start-up establishment |
| Technology Ventures with Digital Manufacturing MSc | *Innovation and Entrepreneurship (Y1) ; Business Models and Strategy (Y1) ; Legal Issues in New Venture Creation (Y1) ; Enterprise Innovation (Y1) ; Financial Fundamentals for New Ventures* |
| Technology Ventures with Systems Engineering Management MSc | *(common core modules) plus* ; Business Simulation Methods (Y2) (optional) |
| Technology Ventures with Design Engineering MSc | *(common core modules) plus* ; Enterprise Resource Planning (Y2) (optional) |
| **Entrepreneurship** PhD | |
| International Business Management with **Enterprise** MA (Hons) | International Entrepreneurship (Y4) ; Business Venturing (Y3) |
| | No Entrepreneurship courses - uses Entrepreneurship on its values taught through other Leadership, Finance and Management courses |
| Brewing and Distilling with **Entrepreneurship** MSc | Entrepreneurship and Creativity ; Entrepreneurial Venturing ; Research project with element of enterprise/entrepreneurship |
| Translating with **Entrepreneurship** MSc / for Business with **Entrepreneurship** MSc | Entrepreneurship *(common core module)* |
| **University of Dundee** | |
| Management and International Human Resource Management MSc ; Management, Strategy and Leadership MSc ; Management and **Entrepreneurship** MSc | *Understanding Entrepreneurship in a Global Context  (common core module)* |
| International Business and **Entrepreneurship** MSc ; Biomedical and Molecular | *Practising Entrepreneurship: Starting Your Business (common core module)* |

*Innovation and Entrepreneurship (Y1) ; Business Models and Strategy (Y1) ; Legal Issues in New Venture Creation (Y1) ; Enterprise Innovation (Y1) ; Financial Fundamentals for New Ventures (common core modules) plus ; Business Simulation Methods (Y2) (optional)*
*(common core modules) plus ; Enterprise Resource Planning (Y2) (optional)*

| | |
|---|---|
| **Entrepreneurship** PhD | |
| **Heriot-Watt University (Edinburgh)** | |
| International Business Management with **Enterprise** MA (Hons) | International Entrepreneurship (Y4) ; Business Venturing (Y3) |
| Business Strategy, Leadership and Change MSc | No Entrepreneurship courses - uses Entrepreneurship on its values taught through other Leadership, Finance and Management courses |
| Brewing and Distilling with **Entrepreneurship** MSc | Entrepreneurship and Creativity ; Entrepreneurial Venturing ; Research project with element of enterprise/entrepreneurship |
| Translating with **Entrepreneurship** MSc / for Business with **Entrepreneurship** MSc | Entrepreneurship (common core module) |
| **University of Dundee** | |
| Management and International Human Resource Management MSc ; Management, Strategy and Leadership MSc ; Management and **Entrepreneurship** MSc | *Understanding Entrepreneurship in a Global Context (common core module)* |
| International Business and **Entrepreneurship** MSc ; Biomedical and Molecular Sciences with **Entrepreneurship** MSc | *Practicing Entrepreneurship: Starting Your Business (common core module)* |
| International Business and Strategy MSc | Understanding Entrepreneurship in a Global Context (optional) |
| Industrial Engineering and Management MSc / and International Finance MSc | *No Entrepreneurship courses - uses Entrepreneurship on its content taught through other Leadership, Finance and Management courses* |
| **University of Stirling - UoST** | |
| Business Studies BA (Hons) | Entrepreneurship (Y3) ; Entrepreneurship (Y4) |
| Accelerated Graduate LLB Law | No Entrepreneurship courses - uses Entrepreneurship on its content through external industry speakers and interactive seminars |
| Business and Management MSc | Entrepreneurship, Theory & Practice ; Managing Entrepreneurial and Family Businesses (optional) |
| Strategic Sustainable Business MSc | Entrepreneurship, Theory & Practice (optional) |
| Social **Enterprise** MSc | No Entrepreneurship courses - uses Entrepreneurship on its content taught through other Enterprise courses |
| **The Open University - TOU** | |
| Business Management BA (Hons) ; Computing & IT and Business BSc (Honours) - (core) / and a 2nd subject BSc (Honours) ; Innovation and **Entrepreneurship** MPhil / PhD | Exploring innovation and entrepreneurship (Stage 2 - optional) |
| Postgraduate Diploma in Business Administration ; Master of Business Administration MBA ; Master of Business Administration MBA - Technology Management | Entrepreneurship in context (optional) / Entrepreneurship: experience and perspective (optional) |
| **Edinburgh Napier University** | |
| Business Management with **Entrepreneurship** BA (Hons) | Exploring Entrepreneurship (Y1) ; Creativity, Innovation & Enterprise (Y2) ; Starting a New Business (Y3) ; Entrepreneurial Consultancy Project (Y3) |
| Business Administration (**Entrepreneurship**) MBA ; Business Management (**Entrepreneurship**) MSc | *New Venture Planning ; (common core module)* |
| International Festival & Event Management with **Entrepreneurship** BA (Hons) | Starting a New Business (Y3) ; Entrepreneurial Consultancy Project (Y4) |
| Business & **Enterprise** In Sport BA (Hons) ; Business Management BA (Graduate Apprenticeship) | *Creativity, Innovation and Enterprise (Y2) (common core module)* |
| Popular Music BA (Hons) | Music Industries and Entrepreneurship (Y3) |
| Medical Biotechnology MSc | Business and Bioethics |
| Law LLB (Hons) | Exploring Entrepreneurship (Y1 - optional) |
| Motion Graphics MA ; Lighting Design MA ; Heritage and Exhibition Design MA | *Research Projects and Entrepreneurship (Trimester 2 - Optional) (common optional module)* |
| Design for Interactive Art & Experiences MA ; Product Design Making MA | Design for Makerspaces (optional) ; Research Projects and Entrepreneurship (Trimester 2 - Optional) |
| Ecotourism MSc | Entrepreneurship and Natural Area Development |
| **The Robert Gordon University - RGU** | |
| Business Innovation and **Entrepreneurship** MSc | Entrepreneurship Contexts ; Business and Innovation ; Enterprise Creation |
| Business and Management MSc | Enterprise Creation |
| **Glasgow Caledonian University - GCU** | |
| International Business BA (Hons) | Entrepreneurship for Business, Society & the Professions (L3) |
| International Management and Business Development MSc | Entrepreneurship |
| International Supply Chain Management BA (Hons) | The Enterprise Value Challenge (Y3) ; Management of Innovation and Creativity (Y4) |
| Business and Management BA (Hons) | Entrepreneurship for Business, Society & the Professions (L3) ; Management of Innovation and Creativity |
| Social Innovation MSc | Global Social Entrepreneurship |
| More optional modules available to Undergraduate and Masters courses along with the above, with Entrepreneurship or including Entrepreneurship elements (available in their module catalogue but not clearly for specific programmes) | Entrepreneurship & Innovation (L5) ; Entrepreneurship for Business, Society & the Professions (L3) ; Entrepreneurship in Developing Organisations (L3) ; Entrepreneurship: Theory & Practice (L5) ; Global Social Entrepreneurship & Enterprise (L4) ; Entrepreneurship & Innovation for Social Impact (L3) ; Business Start-Up (L5) ; Business Continuity Management & Planning (L3) ; New Venture Creation (L3) ; Emerging Business Ventures (L4) ; Entrepreneurship: Creativity & Innovation ; Entrepreneurial Leadership (L1) ; Applied Business Planning & Strategy (L4) |
| **University of Abertay (Dundee) - UoAT** | |
| Social **Entrepreneurship** MSc by Research / Mphil / PhD | |
| **Queen Margaret University (Edinburgh)** | |
| Business Management BA (Hons) | Entrepreneurship (Y1) |
| Business Management with **Enterprise** BA (Hons) | Entrepreneurship (Y1) ; Entrepreneurial Finance (Y3) ; New Enterprise Creation (Y3) ; Critical Issues in SME & Family Business (Y4) |
| Business Management with Finance BA (Hons) | Entrepreneurship (Y1) ; Entrepreneurial Finance (Y3) |
| Business Management with Marketing BA (Hons) | Entrepreneurship (Y1) ; New Enterprise Creation (Y3) |
| International Management and Leadership with Family and Smaller **Enterprises** MSc | Business Consultancy ; Business Incubation Programme |
| Acting and Performance BA (Hons) ; Acting for Stage and Screen BA (Hons) | No Entrepreneurship courses - uses Entrepreneurship on its values, with similar courses |
| **University of the West of Scotland - UWS** | |
| Business BA (Hons) | No Entrepreneurship courses |
| **University of the Highlands and Islands - UHI** | |
| Global **Entrepreneurship** PGCert | Entrepreneurial mind-set for growth ; Developing an innovative business model |
| | *No Entrepreneurship courses - uses Entrepreneurship on its values, with similar innovation, growth and opportunity courses* |

*Entrepreneurship (Y3) (common core module)*

| | |
|---|---|
| **University of the Highlands and Islands - UHI** | |
| Global **Entrepreneurship** PGCert | Entrepreneurial mind-set for growth ; Developing an innovative business model |
| MBA Business Administration (Resilience) / (Executive) / (Aviation) / (Environment) | *No Entrepreneurship courses - uses Entrepreneurship on its values, with similar innovation, growth and opportunity courses* |
| Business and Management BA (Hons) | Entrepreneurship (Y3) ; Innovation and enterprise (Y4) |
| Architectural Technology BSc (Hons) | Architectural entrepreneurship (Y4) |
| Audio Engineering BSc (Hons) ; Music Business BA (Hons) ; Popular Music BA (Hons) | *Entrepreneurship (Y3)  (common core module)* |
| Interactive Media BSc (Hons) | Small business planning (Y3) ; Entrepreneurship and portfolio development (Y4) |
| Accounting and Finance BA (Hons) | Entrepreneurship (Y3) ; Small business planning (Y3) |
| Adventure Tourism Management BA (Hons) | Developing entrepreneurial effectiveness (Y3) ; Research and plan a new business venture (Y4) |
| Golf Management BA (Hons) | Developing Entrepreneurial Effectiveness (Y3) ; Innovation and enterprise (Y4) |
| Professional Golf BA (Hons) | Developing Entrepreneurial Effectiveness (Y3) ; Small business planning (Y3) |
| Sports Management BA (Hons) | Small business planning (Y2) ; Entrepreneurship and Social Enterprise (Y3) ; Innovation and enterprise (Y4) |
| Drama and Production BA (Hons)  ; Creativity, Leadership and **Enterprise** MA | *No Entrepreneurship courses - uses Entrepreneurship on its values, with similar  innovation, growth and opportunity courses* |
| **Royal Conservatoire of Scotland - RCS** | |
| Musical Theatre MA | The Creative, Entrepreneurial Artist - 2019-20 |
| School of Music - Level 1 BA modules | Business Skills 1 - 2018-19 ; Business Skills 2 - 2018-19 |
| School of Music - Level 3 BA modules | Business Skills 3 - 2018-19 |
| School of Music - Level 4 BA modules | Professional Project: The Musician As Entrepreneur - 2019-20 ; Professional Project: Innovation Lab - 2019-20 ; Business Project - 2018-19 ; Arts Leadership And Fundraising 2 - New Business Start-ups - 2018-19 |

*Table 15 - Entrepreneurship courses in Scotland by module*

| **Modules with Entrepreneurship or including Entrepreneurship elements** | **Programmes with Entrepreneurship today** |
|---|---|
| **University of St. Andrews - UoSA** | |
| Entrepreneurship and Business Development (optional) | Finance and Management MSc ; Human Resource Management Mlitt ; International Business Mlitt ; Management Mlitt ; Marketing Mlitt |
| Entrepreneurship, Innovation and Creativity (optional) | Information Technology with Management MSc |
| Entrepreneurship and Business Planning (optional) | |
| Entrepreneurship and Small Business Development (optional) | Management MA (Hons) ; Management BSc (Hons) |
| Enterprise and Creativity ; Enterprise and Entrepreneurship ; Management Economics and Entrepreneurship ; Making Music 3 | *More optional modules available to a range of Undergraduate and Masters courses along with the above* |
| **University of Glasgow - UoG** | |
| Entrepreneurship | Business & Management MA, BSc, LLB |
| Entrepreneurial finance (optional) | MBA Master of Business Administration ; Management Mres |
| Digital Entrepreneurship (optional) | Management MRes ; Financial Technology MSc (core) ; International Business and Entrepreneurship MSc (core) |
| Entrepreneurial finance for SMEs ; International entrepreneurship and innovation ; International Business and Entrepreneurship in Emerging economies (optional) ; Market Analysis for New Venture Creation | International Business and Entrepreneurship MSc |
| Business planning | Management with Enterprise and Business Growth MSc |
| Entrepreneurship and Placement Pathways | Music Industries MSc |
| Entrepreneurial finance for SMEs ; International entrepreneurship and innovation | Master of Global Business MGB |
| Creative cities: intervention models and entrepreneurial dynamics | |
| Immigrant entrepreneurship | * Global Markets, Local Creativities (Erasmus Mundus International Master) IntM ; Provided from other Non-Scottish Universities in Collaboration with Glasgow University |
| Entrepreneurship and capitalism in Latin America | |
| Social entrepreneurship in Latin America and the emerging world (optional) | |
| **University of Aberdeen - UoA** | |
| Accounting and Entrepreneurship | Business Management MA ; Law with options in Accountancy, LLB |
| Entrepreneurship in Practice ; New Venture Creation | International Business Management MSc ; MBA, MBA Finance, MBA Energy Management |
| Managing Change and Innovation | MBA, MBA Finance, MBA Energy Management |
| Business Model Innovation | Marketing Management MSc |
| Entrepreneurship, Innovation and Commercialisation | Precision Medicine and Pharmacological Innovation MSc |
| Innovation and Entrepreneurship (Y2) (optional) | Business and Geography MA |
| Business Simulation (Y2) (optional) | Business Management MA ; Business and Law MA ; Business with Decision Analytics MA / with Marketing MA / with Strategic Economics MA ; Accounting and Business MA / and Finance MA ; Finance and Business MA ; International Business MA |
| Business Research Methods I: Introduction to Data Analysis and Innovation and Entrepreneurship (Y2) ; The Entrepreneurial Manager (Y3) ; Entrepreneurship and New Venture Creation and Business Research Methods II: Applications and Analysis (Y3) ; Social and Sustainable Entrepreneurship (Y4) ; Enterprise Consultancy Project (Y4) ; Dissertation on a topic closely | |

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| Accounting and Entrepreneurship | Business Management MA ; Law with options in Accountancy, LLB |
| Entrepreneurship in Practice ; New Venture Creation | International Business Management MSc ; MBA, MBA Finance, MBA Energy Management |
| Managing Change and Innovation | MBA, MBA Finance, MBA Energy Management |
| Business Model Innovation | Marketing Management MSc |
| Entrepreneurship, Innovation and Commercialisation | Precision Medicine and Pharmacological Innovation MSc |
| **University of Edinburgh - UoE** | |
| Innovation and Entrepreneurship (Y2) (optional) | Business and Geography MA |
| Business Simulation (Y2) (optional) | Business Management MA ; Business and Law MA ; Business with Decision Analytics MA / with Marketing MA / with Strategic Economics MA ; Accounting and Business MA / and Finance MA ; Finance and Business MA ; International Business MA |
| Business Research Methods I: Introduction to Data Analysis and Innovation and Entrepreneurship (Y2) ; The Entrepreneurial Manager (Y3) ; Entrepreneurship and New Venture Creation and Business Research Methods II: Applications and Analysis (Y3) ; Social and Sustainable Entrepreneurship (Y4) ; Enterprise Consultancy Project (Y4) ; Dissertation on a topic closely linked to enterprise and innovation (Y4) | Business with Enterprise and Innovation MA |
| Entrepreneurial Leadership | Master of Business Administration MBA |
| Entrepreneurial Finance ; Entrepreneurship and New Venture Creation in Context ; Introduction to Accounting for Entrepreneurs ; Managing Innovation in Context ; The Entrepreneurship and Innovation Landscape ; Innovation Management in Practice (optional) ; Venture Management and Growth in Practice (optional) ; Entrepreneurial Leadership in the Social and Sustainable Enterprise (optional) ; Technology Entrepreneurship and Commercialisation (optional) | Entrepreneurship and Innovation MSc |
| **University of Strathclyde (Glasgow) - UoS** | |
| Entrepreneurship Theory & Practice (Y1) | Accounting and Business Enterprise BA (Hons) |
| Creativity & Innovation Management (Y2) | Business Analysis and Technology and Business Enterprise BA (Hons) |
| New Venture Planning (Y2) ; Entrepreneurial Capital & Resources (Y3) ; Venture Management Strategy & Growth (Y3) ; Venture Management in Practice (Y4) ; International Entrepreneurship (Y4) ; Issues & Trends in Entrepreneurship (Y4) ; Family Business Theory & Practice (Y4) | Business Enterprise BA (Hons) / and Business Law / and Economics / and Finance / and Hospitality and Tourism Management / and Human Resource Management / and Management / and Marketing |
| Creativity & Innovation Development | Entrepreneurial Management and Leadership MSc |
| Introduction to Entrepreneurial Finance ; Advanced Entrepreneurial Finance ; Entrepreneurial Management and Leadership ; Mindset Lab ; Issues & Trends in Entrepreneurship, Innovation & Technology ; Sales Lab ; Social Entrepreneurship ; Virtual incubator project | Entrepreneurship, Innovation and Technology MSc |
| New Venture Creation | Entrepreneurship, Innovation and Technology MSc ; Environmental Entrepreneurship MSc |
| Client-Based Environmental Entrepreneurship In Practice ; Entrepreneurship, Innovation & Commercialisation ; Creativity & opportunity development (optional) ; Entrepreneurial leadership & resource management (optional) | Environmental Entrepreneurship MSc |
| Entrepreneurship, Innovation & Commercialisation ; New Venture Planning ; Individual Project - Business Plan / Start-up establishment | Satellite Applications with Data Science MSc |
| Innovation and Entrepreneurship (Y1) | Technology Ventures with Systems Engineering Management MSc |
| Business Models and Strategy (Y1) | Technology Ventures with Design Engineering MSc |
| Legal Issues in New Venture Creation (Y1) ; Enterprise Innovation (Y1) ; Financial Fundamentals for New Ventures (Y1) | Technology Ventures with Digital Manufacturing MSc |
| Business Simulation Methods (Y2) (optional) | Technology Ventures with Systems Engineering Management MSc |
| Enterprise Resource Planning (Y2) (optional) | Technology Ventures with Design Engineering MSc |
| **Heriot-Watt University (Edinburgh) - HWU** | |
| International Entrepreneurship (Y4) | International Business Management with Enterprise MA (Hons) |
| Business Venturing (Y3) | International Business Management with Enterprise MA (Hons) |
| Entrepreneurship and Creativity ; Entrepreneurial Venturing ; Research project with element of enterprise/entrepreneurship | Brewing and Distilling with Entrepreneurship MSc |
| Entrepreneurship | Translating with Entrepreneurship MSc / for Business with Entrepreneurship MSc |
| **University of Dundee - UoD** | |
| Understanding Entrepreneurship in a Global Context | International Business and Entrepreneurship MSc / and Strategy MSc (optional) ; Management and International Human Resource Management MSc ; Management, Strategy and Leadership MSc ; Management and Entrepreneurship MSc ; Biomedical and Molecular Sciences with Entrepreneurship MSc (optional) |
| Practicing Entrepreneurship: Starting Your Business | International Business and Entrepreneurship MSc ; Management and Entrepreneurship MSc ; Biomedical and Molecular Sciences with Entrepreneurship MSc (optional) |
| **University of Stirling - UoST** | |
| Entrepreneurship (Y3) ; Entrepreneurship (Y4) | Business Studies BA (Hons) |
| Entrepreneurship, Theory & Practice | Strategic Sustainable Business MSc (optional) ; Business and Management MSc |
| Managing Entrepreneurial and Family Businesses (optional) | Business and Management MSc |
| **The Open University - OU** | |
| Exploring innovation and entrepreneurship (Stage 2) | Computing & IT and Business BSc (Honours) ; Business Management BA (Hons) (optional) ; Computing & IT and Business and a 2nd subject BSc (Honours) (optional) |
| Entrepreneurship in context (optional) | Postgraduate Diploma in Business Administration ; Master of Business Administration MBA |
| Entrepreneurship: experience and perspective (optional) | Postgraduate Diploma in Business Administration ; Master of Business Administration MBA - Technology Management |
| **Edinburgh Napier University - ENU** | |
| Exploring Entrepreneurship (Y1) | Business Management with Entrepreneurship BA (Hons) ; Law LLB (Hons) (optional) |
| Creativity, Innovation & Enterprise (Y2) | Business Management with Entrepreneurship BA (Hons) ; Business & Enterprise In Sport BA (Hons) ; Business Management BA (Graduate Apprenticeship) |
| Starting a New Business (Y3) ; Entrepreneurial Consultancy Project (Y3) | Business Management with Entrepreneurship BA (Hons) ; International Festival & Event Management with Entrepreneurship BA (Hons) |
| New Venture Planning | Business Administration (Entrepreneurship) MBA ; Business Management (Entrepreneurship) MSc |
| Music Industries and Entrepreneurship (Y3) | Popular Music BA (Hons) |
| Business and Bioethics | Medical Biotechnology MSc |

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| Exploring innovation and entrepreneurship (Stage 2) | Computing & IT and Business BSc (Honours) ; Business Management BA (Hons) (optional) ; Computing & IT and Business and a 2nd subject BSc (Honours) (optional) |
| Entrepreneurship in context (optional) | Postgraduate Diploma in Business Administration ; Master of Business Administration MBA |
| Entrepreneurship: experience and perspective (optional) | |

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| **Edinburgh Napier University - ENU** | |
| Exploring Entrepreneurship (Y1) | Business Management with Entrepreneurship BA (Hons) ; Law LLB (Hons) (optional) |
| Creativity, Innovation & Enterprise (Y2) | Business Management with Entrepreneurship BA (Hons) ; Business & Enterprise In Sport BA (Hons) ; Business Management BA (Graduate Apprenticeship) |
| Starting a New Business (Y3) ; Entrepreneurial Consultancy Project (Y3) | Business Management with Entrepreneurship BA (Hons) ; International Festival & Event Management with Entrepreneurship BA (Hons) |
| New Venture Planning | Business Administration (Entrepreneurship) MBA ; Business Management (Entrepreneurship) MSc |
| Music Industries and Entrepreneurship (Y3) | Popular Music BA (Hons) |
| Business and Bioethics | Medical Biotechnology MSc |
| Design for Makerspaces (optional) | Design for Interactive Art & Experiences MA ; Product Design Making MA |
| Research Projects and Entrepreneurship (Trimester 2 - Optional) | Motion Graphics MA ; Lighting Design MA ; Heritage and Exhibition Design MA ; Design for Interactive Art & Experiences MA ; Product Design Making MA |
| Entrepreneurship and Natural Area Development | Ecotourism MSc |
| **The Robert Gordon University - RGU** | |
| Entrepreneurship Contexts ; Business and Innovation | Business Innovation and Entrepreneurship MSc |
| Enterprise Creation | Business Innovation and Entrepreneurship MSc ; Business and Management MSc |
| **Glasgow Caledonian University - GCU** | |
| Entrepreneurship for Business, Society & the Professions (L3) | International Business BA (Hons) ; Business and Management BA (Hons) |
| | |
| Entrepreneurship | International Management and Business Development MSc |
| The Enterprise Value Challenge (Y3) | International Supply Chain Management BA (Hons) |
| Management of Innovation and Creativity (Y4) | International Supply Chain Management BA (Hons) ; Business and Management BA (Hons) |
| Global Social Entrepreneurship | Social Innovation MSc |
| Entrepreneurship & Innovation (L5) ; Entrepreneurship for Business, Society & the Professions (L3) ; Entrepreneurship in Developing Organisations (L3) ; Entrepreneurship: Theory & Practice (L5) ; Global Social Entrepreneurship & Enterprise (L4) ; Entrepreneurship & Innovation for Social Impact (L3) ; Business Start-Up (L5) ; Business Continuity Management & Planning (L3) ; New Venture Creation (L3) ; Emerging Business Ventures (L4) | not specified programmes - Business and Management |
| Entrepreneurship: Creativity & Innovation | not specified programmes - School of Engineering and Built Environment |
| Entrepreneurial Leadership (L1) | not specified programmes - Glasgow School for Business and Society |
| Applied Business Planning & Strategy (L4) | not specified programmes - SCWBE |
| **Queen Margaret University (Edinburgh)** | |
| Entrepreneurship (Y1) | Business Management BA (Hons) / with Enterprise / with Finance / with Marketing |
| Entrepreneurial Finance (Y3) | Business Management with Enterprise BA (Hons) / with Finance |
| New Enterprise Creation (Y3) | Business Management with Enterprise BA (Hons) / with Marketing |
| Critical Issues in SME & Family Business (Y4) | Business Management with Enterprise BA (Hons) |
| **University of the West of Scotland - UWS** | |
| Leadership and Entrepreneurial Skills | not specified programmes - School of Health and Life Sciences |
| **University of the Highlands and Islands - UHI** | |
| Entrepreneurial mind-set for growth ; Developing an innovative business | Global Entrepreneurship PGCert |
| Entrepreneurship (Y3) | Business and Management BA (Hons) ; Audio Engineering BSc (Hons) ; Music Business BA (Hons) ; Popular Music BA (Hons) ; Accounting and Finance BA (Hons) |
| Innovation and enterprise (Y4) | Business and Management BA (Hons) ; Golf Management BA (Hons) ; Sports Management BA (Hons) |
| Small business planning (Y3) | Interactive Media BSc (Hons) ; Accounting and Finance BA (Hons) ; Professional Golf BA (Hons) ; Sports Management BA (Hons) (Y2) |
| Architectural entrepreneurship (Y4) | Architectural Technology BSc (Hons) |
| Entrepreneurship and portfolio development (Y4) | Interactive Media BSc (Hons) |
| Developing Entrepreneurial Effectiveness (Y3) | Adventure Tourism Management BA (Hons) ; Golf Management BA (Hons) ; Professional Golf BA (Hons) |
| Research and plan a new business venture (Y4) | Adverture Tourism Management BA (Hons) |
| Entrepreneurship and Social Enterprise (Y3) | Sports Management BA (Hons) |
| **Royal Conservatoire of Scotland - RCS** | |
| The Creative, Entrepreneurial Artist - 2019-20 | Musical Theatre MA |
| Business Skills 1 - 2018-19 | School of Music - Level 1 modules |
| Business Skills 2 - 2018-19 | |
| Business Skills 3 - 2018-19 | School of Music - Level 3 modules |
| Professional Project: The Musician As Entrepreneur - 2019-20 ; Professional Project: Innovation Lab - 2019-20 ; Business Project - 2018-19 ; Arts Leadership And Fundraising 2 - New Business Start-ups - 2018-19 | School of Music - Level 4 modules |

*Table 16 - Entrepreneurship courses in Scotland and their aims*

| Programmes with Entrepreneurship today | Employability (I) or New Venture too (II) | Aims *(Italics means common for all programmes* - incubators/societies/organisations presented in the aims, in brackets & bold on top for each university) |
|---|---|---|
| **University of St. Andrews** | | **[Entrepreneurs Society]** |
| Finance and Management MSc ; Human Resource Management Mlitt ; International Business Mlitt ; Management Mlitt ; Marketing Mlitt | II II II II II | *Alumni from (…) the School of Management* **have secured employment** *in the fields of (…) the financial services industry. Includes module, where "students will collaborate to* **design a business model and then plan for a start-up business.** |
| Information Technology with Management MSc | I | (…) provides (…) knowledge and the analytical and critical skills needed to manage the information and communication technologies that underpin all successful business practice. |
| Management MA (Hons) Management BSc (Hons) | N/S N/S | *knowledge of international trends and develop interpersonal and transferable skills, (…) an orientation towards creativity and innovation (…) Entrepreneur Society promotes and nurtures entrepreneurship (…) including talks by fellow students who have started their own business alongside their studies.* |
| **University of Glasgow** | | |
| Business & Management MA, BSc, LLB | I | opportunity to take the ILM accredited Professional Skills Programme, (…) to **develop the attributes you need to excel in your career** (…) Recent graduates have (…) jobs in **public and private sectors** as (…) |
| MBA Master of Business Administration | II | empower you with crucial skills (…) knowledge (…) networking opportunities (…) to **accelerate your career**, either as a **manager within the private, third or public sector, or in developing your own entrepreneurial ambition**. |
| Management MRes | I | theoretical knowledge of your chosen specialist research topic in management, (…) and (…) skills necessary to **become a successful management researcher or analyst**. |
| Financial Technology MSc | I | focus on soft-skill development, (…) management and entrepreneurship, woven throughout the various programme modules. (…) hard financial skills and soft interpersonal capabilities (…) **a rounded skillset valued by industry.** |
| International Business and Entrepreneurship MSc | II | designed for students with talent, ambition and **entrepreneurial flair**, who would like to develop a career in international business development, international entrepreneurship or venture management. (…) **developing entrepreneurial skills for business start-up and management skills for the international market place**. Our alumni have either **set up their own business, worked in SMEs**, consultancy or multinational companies (…) in a management capacity. |
| Management with Enterprise and Business Growth MSc | | leadership potential and the ability to adapt to changing circumstances. **Potential career prospects** (…) human resources, marketing and various management roles. Recent graduates have gone on to **work for companies (…)** |
| Music Industries MSc | II | emphasis on work-based learning (…) arranged placements in **existing music companies** (…) **supervised music entrepreneurship projects** (…) Recent graduates work as Head of Publisher Services (…) label services manager (…) Royalties Administrator (…) lecturer (…) **self-employed artists and music entrepreneurs**. |
| Master of Global Business MGB | II | put theory into practice (…) **develop a start–up plan for a business with international potential** (…) knowledge needed for successful global new business ventures (…) innovation and entrepreneurial environment (…) range of opportunities (…) **employment market**. Alumni (…) **own business, SMEs, consultancy or multinational** (…) |
| Global Markets, Local Creativities (Erasmus Mundus International Master) IntM | I | (…) focusing on creative and cultural economies/industries, urban ecosystems that foster entrepreneurship, creativity, innovation, and business cultures (…) reflect on the relationship between (…) local cultures of entrepreneurship that have innovated at the local level to remain globally competitive (…) theoretical grounding in international business and the global economy (…) think critically about the respective roles of individuals, firms, cities, regions, nations and supra-national bodies in determining and shaping the world in which we live (…) academic analysis and practical engagement (…) well-rounded skills and experiences (…) active and informed graduates capable of **operating at strategic levels in NGO and third-sector agencies, local economic development organisations, policy analysis and lobbying groups and corporations,** or of undertaking further study. |
| **University of Aberdeen** | | **[Entrepreneurial Society]** |
| Business Management MA | II | (…) **wealth of career opportunities** over a wide spectrum of industries (…) fundamentals of starting and running **their own businesses** (…) determine the viability and prospect of starting (or growing) their own small business (…) how to (…) capture, create and use accounting information (…) develop practical and analytical skills through a problem-solving approach to accounting-related aspects of business performance reporting and control (…) |
| Law with options in Accountancy, LLB | I | courses in finance, risk and investment, financial markets and regulation, alongside accounting and entrepreneurship (…) specialist knowledge of the law as it applies to the business world (…) wide variety of career options within the legal professions (…) wide range of careers (…) business, finance, banking (…) media, teaching, governmental bodies (…) |
| International Business Management MSc | II | **develop your career in the private or public sector, a multinational or SME** (…) build commercial awareness and gain a deep understanding of the challenges and trends facing global business leaders (…) **contribute quickly and effectively to your chosen employer** (…) creativity, enterprise, innovation and entrepreneurship (…) to **develop, shape, and build new ventures** (…) **strengthen your own entrepreneurial perspective.** |
| MBA, MBA Finance, MBA Energy Management | II | offer **potential employers** the crucial characteristics and skills (…) creativity, enterprise, innovation and entrepreneurship (…) to **develop, shape, and build new ventures of their own** (…) **strengthen your own entrepreneurial perspective.** |
| Marketing Management MSc | I | (…) advanced knowledge of marketing strategies, principles, models, theories and practices, and pick up a practical skill-set that is **directly applicable to the workplace** across a wide range of sectors (…) business development and the application of new business models. (…) explore the tools, techniques and theories used by successful business developers (…) for those interested in **strengthening their skills for identifying and evaluating business opportunities**. |
| Precision Medicine and Pharmacological Innovation MSc | | **career in the commercial or academic life sciences** (…) industry linked placement as your main project (…) cover aspects of commercial innovation and entrepreneurial skills, together with the principles (…) between genetics and pharmacology (…) theoretical and practical training (…) to the optimisation of future clinical research and therapeutic practice. (…) understanding of statistical methods used to evaluate the efficacy and cost-effectiveness of new treatments, and direct experience of how all of these techniques are applied. |

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| Management MSc | | deep understanding of the challenges and trends facing global business leaders (...) **contribute quickly and effectively to your chosen employer** (...) creativity, enterprise, innovation and entrepreneurship (...) to **develop, shape, and build new ventures** (...) **strengthen your own entrepreneurial perspective.** |
| Marketing Management MSc | I | (...) advanced knowledge of marketing strategies, principles, models, theories and practices, and pick up a practical skill-set that is **directly applicable to the workplace** across a wide range of sectors (...) business development and the application of new business models. (...) explore the tools, techniques and theories used by successful business developers (...) for those interested in **strengthening their skills for identifying and evaluating business opportunities**. |
| Precision Medicine and Pharmacological Innovation MSc | I | **career in the commercial or academic life sciences** (...) industry linked placement as your main project (...) cover aspects of commercial innovation and entrepreneurial skills, together with the principles (...) between genetics and pharmacology (...) theoretical and practical training (...) to the optimisation of future clinical research and therapeutic practice. (...) understanding of statistical methods used to evaluate the efficacy and cost-effectiveness of new treatments, and direct experience of how all of these techniques are applied. |
| **University of Edinburgh** | | |
| Business Management MA ; Business and Geography MA / and Law / with Decision Analytics / with Marketing / with Strategic Economics ; Finance and Business MA ; International Business MA | I I I I I I | *combine academic knowledge with transferable skills in order to* **enhance employability**. *(...) will help you develop the necessary personal and professional competences required to* **work across a range of roles central to contemporary business** *(...) choice of careers open (...) including management, consulting, finance, marketing and human resources.* |
| Business with Enterprise and Innovation MA | II | study of public, private and not-for-profit organisations, (...) their management practices and processes, and the changing external environment in which they operate (...) help you understand **the venture creation process** (...) |
| Accounting and Finance MA Accounting and Business MA | I I | **become a qualified accountant** *through a traineeship (...) also* **choose a career** *in taxation, finance or banking. Some (...) pursue employment in management positions in the public and private sectors.* |
| | | (...) **build a career** within or outside the commercial world. (...) studying (...) management practices and processes for managing |
| Master of Business Administration MBA | I | (...) prepare participants to **progress with confidence into leadership roles in this new world** (...) deepen (...) understanding of how businesses and markets work; **instil a passion for business improvement, innovation and entrepreneurial action** to help participants lead in the **growth or creation of new business opportunities**; develop participants' ability to think strategically (...) understand their leadership strengths and weaknesses and provide support for improvement. |
| Entrepreneurship and Innovation MSc | II | develop the knowledge and skills to identify and screen opportunities, (...) **within new and established organisations** (...) range of careers (...) **venture founders, managers of innovation within existing organisations**, or (...) agencies (...) |
| **University of Strathclyde (Glasgow)** | | [Hunter Centre for Entrepreneurship] |
| Accounting and Business Enterprise BA (Hons) ; Business Analysis and Technology and Business Enterprise BA (Hons) ; Business Enterprise BA (Hons) / and Business Law / and Economics / and Finance / and Hospitality and Tourism Management / and Human Resource Management / and Management / and Marketing | II II II II II II II II II II | *creation of wealth, creativity and resourcefulness and exploiting change. (...) designed for students who want* **to start a new enterprise**, *those who want to* **take over the management of an existing business and those who are aiming for leadership positions** *(...) Graduates specialising in business enterprise develop the skills to* **set up their own business and the entrepreneurial mindset and business skills required by organisations**. |
| Entrepreneurial Management and Leadership MSc | II | roles (...) **establishing a startup; working in an entrepreneurial ecosystem support role; taking over a family business; working for a high-growth SME**; taking a leadership role in a large corporation; working for a leading consultancy (...) **think and act entrepreneurially** |
| Entrepreneurship PhD | N/S | |
| Entrepreneurship, Innovation and Technology MSc | II | roles (...) **establishing a startup; working in an entrepreneurial ecosystem support role; taking over a family business; working for a high-growth SME** (...) highly practical programme that will help budding entrepreneurs **conceive and crystallise their ideas about their venture start-up or new business project** (...) how to combine theoretical knowledge with a special focus on developing the applied skills required to **engage successfully in entrepreneurial activity**. (...) will work in groups to take your business idea to the next level (...) develop an innovative business opportunity and pitch to a panel of investors (...) you'll possess both the mindset and skills to **'think and act entrepreneurially'**. (...) opportunity to engage with a dynamic innovation ecosystem through business competitions, guest lectures, knowledge exchange projects and field visits (...) |
| Environmental Entrepreneurship MSc | II | develop skills that'll allow you to **launch new ventures**, strategies, products, and technologies that address society's environmental and natural resource problems. (...) **not only for those graduates who see their future in small and medium sized enterprises.** (...) employment in large companies who need employees who can think entrepreneurially (...) |
| Satellite Applications with Data Science MSc | II | specialist skills in satellite applications (...) enhance your skill sets (...) **become a global entrepreneur**. (...) data science and **entrepreneurship skills, requiring you to register a new business while studying for the MSc** and to develop a business plan to support it (...) provides the skills to exploit the knowledge gained by **creating and growing a new company of your own**, **or if you prefer to meet the global industrial demand for highly-qualified people in the area** (...) |
| Technology Ventures with Systems Engineering Management MSc / with Design Engineering / with Digital Manufacturing | II II II | Companies (...) **recruit from our department** (...) Many DMEM graduates **become entrepreneurs** (...) provide them with this necessary experience to stand out when c**ompeting for graduate jobs or the experience needed for launching their own technology venture** (...) strong position to **seek employment** (...) *you'll be supported down the exciting and challenging path to become a tech entrepreneur, teaching you the skills to* **start your own business or launch a venture within a large corporation** *(...)* |
| International Business Management with Enterprise MA (Hons) | | equips students for employment in the **business support sector, and for enterprising careers in self-employment, business ownership, or as entrepreneurial employees in existing firms**. |
| Business Strategy, Leadership and Change MSc | | understand how to think strategically and be a successful leader (...) equip you with theoretical tools and practical skills you need to forge a successful career **as an entrepreneur or in a range of senior management positions**. |

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| **Heriot-Watt University (Edinburgh)** | | |
| International Business Management with Enterprise MA (Hons) | II | equips students for employment in the **business support sector, and for enterprising careers in self-employment, business ownership, or as entrepreneurial employees in existing firms**. |
| Business Strategy, Leadership and Change MSc | II | understand how to think strategically and be a successful leader (…) equip you with theoretical tools and practical skills you need to forge a successful career **as an entrepreneur or in a range of senior management positions.** |
| Brewing and Distilling with Entrepreneurship MSc | II | provide (…) key transferable professional skills which will provide **entry to careers** in these industries, including **private entrepreneurial ventures** (…) Graduates (…) will possess the skills to assess and address both technical and entrepreneurial challenges as they arise in the industry. |
| Translating for Business with Entrepreneurship MSc | II | *foster an interest in generating ideas, to develop (…) understanding of the commercial world and to learn to apply the necessary skills to undertake* **enterprising activities, whether in the context of independent entrepreneurship or within** |
| Translating with Entrepreneurship MSc | II | **existing organisations**. |
| | | provide the education and skills required to work as a professional translator in a variety of professional contexts. (…) |
| **University of Dundee** | | **[Centre for Entrepreneurship]** |
| International Business and Entrepreneurship MSc / and Strategy MSc | I | *responds directly to* **employers' needs and prioritises team work**, *research and data analysis, report writing, presentations and multi-cultural interaction.* |
| Management and International Human Resource Management MSc ; Management, Strategy and Leadership MSc ; Management and Entrepreneurship MSc | II II II | *gain the management and leadership skills needed to manage: -* **the business or even your own business** *- people and their performance - crises and change - projects and the associated risks (…) Learn from case studies and real-life projects how to put the latest academic thinking and business strategies into practice. Hear from industry professionals as part of our guest lectures and engage with fellow students and business minded individuals through our Centre for Entrepreneurship, and* **set up your own business**. |
| Industrial Engineering and Management MSc / and International Finance MSc | I I | *(…) the right set of project management and problem solving skills (…) Graduates will find* **employment in national and international industries** *and will be capable of applying transferable skills manufacturing projects and industrial research and development (…) take up leading roles in industry and entrepreneurship nationally and internationally.* |
| Biomedical and Molecular Sciences with Entrepreneurship MSc | I | provides the framework which can set you on the path to careers embracing options (…) **work in small and large multinational companies** in the biosciences sphere, or to continue in academic research (…) modern marketing practices (…) and how to apply these in a biotechnology industry (…) he knowledge and skills you'll develop in research will be supplemented by the business acumen you'll gain (…) will explore leadership and decision making, (…) **business start-ups** (…) opportunity to develop your business skills during a bio-business project (…) to a real life project. (…) mix of knowledge and skills are what (…) industries are looking for **in their future employees** (…). |
| **University of Stirling** | | |
| Business Studies BA (Hons) | II | seeks to directly enhance your opportunities through a range of specialist career services (…) active participation in **supporting start-ups, small businesses and student entrepreneurship** – connections that directly benefit you (…) |
| Accelerated Graduate LLB Law | I | develop your commercial awareness (…) draw on your own experience, external industry speakers and interactive seminars to **enhance your business skills and develop entrepreneurship which is sought after by employers**. |
| Business and Management MSc | I | aim to **create industry leaders, managers and entrepreneurs**, (…) use of business analytics tools and critical thinking abilities. (…) better and informed decision making (…) emphasis on entrepreneurship, innovation and strategic management. (…) appreciation of corporate social responsibility, ethical decision making and managing change. |
| Strategic Sustainable Business MSc | I | immersed in the **practical aspects of sustainable business**, acquiring skills, knowledge and expertise on sustainability management by working with real-world organisations. (…) you'll have an in-depth understanding of sustainable management and its opportunities and challenges. |
| Social Enterprise MSc | I | aimed at **professionals working within** social enterprises, (…) and those wishing to **develop a career** or an interest (…) |
| **The Open University** | | |
| Business Management BA (Hons) ; Computing & IT and Business BSc (Honours) / and a 2nd subject BSc | II II II | wide-ranging introduction to innovation and entrepreneurship. (…) examine **different forms** of innovative and entrepreneurial practice (…) at different scales, (…) opportunities to develop subject-related skills by creating your own 'visual essay' (…) online negotiation activity, researching and presenting a case study (…) working with a small team of students to **develop your own proposal for an innovative entrepreneurial venture.** |
| Postgraduate Diploma in Business Administration ; Master of Business Administration MBA / - Technology Management | I I I | *Employers value postgraduate business (or MBA) qualifications (…) employers want practical experience, a thorough grasp of business, and the ability to lead at a strategic level. (…) students studying postgraduate business qualifications (or MBA) can expect their salary to increase, and have a positive* **impact on their career progression, as well as bring improvements to their organisation or business.** |
| **Edinburgh Napier University** | | |
| Business Management with Entrepreneurship BA (Hons) | II | combines a broad range of academic theory (…) with the **latest applied thinking in the field of entrepreneurship**. (…) will prepare you for a range of projects and careers (…) **or for venturing out on your own.** |
| Business Administration (Entrepreneurship) MBA | I | (…) Designed to deliver accessible, creative and flexible postgraduate (…) education, (…) **focusing on entrepreneurship** (…) will build on your work experience (…) to combine your MBA with a specialism in entrepreneurship (…). |
| Business Management (Entrepreneurship) MSc | II | (…) learn how to plan new ventures and manage innovation and be equipped with the practical skills and expertise to advance your career. (…) help you set off on your journey. (…) gain a sound theoretical grounding (…) with a focus on entrepreneurship and stimulate an enquiring, analytical approach to several subject areas (…) will widen the application of your (…) skills to include **a range of career routes including starting your own business.** |
| | | |
| Business & Enterprise In Sport BA (Hons) | | ability to identify, reflect upon and access opportunities for enterprise within the world of sport, and take advantage of experience, contacts and sporting profile to **support enterprising endeavours** more widely. |
| Business Management BA (Graduate Apprenticeship) | | Develop your effective business and management skills by balancing theory with your day-to-day work (…) put learning into practice and will solve problems on real projects in your workplace, applying your learning (…) |
| Popular Music BA (Hons) | N/S | achieve a high level of musical competence and fluency with an option to specialise in composition, guitar, bass, drums, keyboard, voice, and production. (…) extend your critical, **entrepreneurial, and creative abilities** (…) |
| Medical Biotechnology MSc | N/S | address themes that influence the success of any biotechnology venture (…) through the development of a novel business |

| Programme | Level | Description |
|---|---|---|
| (Entrepreneurship) MBA<br>Business Management<br>(Entrepreneurship) MSc | | will build on your work experience (…) to combine your MBA with a specialism in entrepreneurship (…). |
| International Festival & Event Management with Entrepreneurship BA (Hons) | II | (…) **to add value to your career** prospects (…) offers excellent preparation for careers to management level in public, private and charity sectors (…) **also prepare you for self-employment**. |
| Business & Enterprise In Sport BA (Hons) | II | ability to identify, reflect upon and access opportunities for enterprise within the world of sport, and take advantage of experience, contacts and sporting profile to **support enterprising endeavours** more widely. |
| Business Management BA (Graduate Apprenticeship) | I | Develop your effective business and management skills by balancing theory with your day-to-day work (…) put learning into practice and will solve problems on real projects in your workplace, applying your learning (…) |
| Popular Music BA (Hons) | N/S | achieve a high level of musical competence and fluency with an option to specialise in composition, guitar, bass, drums, keyboard, voice, and production. (…) extend your critical, **entrepreneurial, and creative abilities** (…) |
| Medical Biotechnology MSc | N/S | address themes that influence the success of any biotechnology venture (…) through the development of a novel business concept (…) **Business models and plans** - comparison of large corporate vs SMEs, mature companies vs start-ups; Regulatory framework governing management of risk (…) **you will work on a business plan** |
| Design for Interactive Art & Experiences MA | II | develop making skills for **entrepreneurial opportunities** in circular economies |
| Product Design Making MA | II | will work in the context of localised (re)manufacture and "manu-digi-facture", **seeking out entrepreneurial and/or social development opportunities**. (…) develop making skills for **entrepreneurial opportunities in circular economies**. |
| Ecotourism MSc | II | (…) to give those involved in green tourism the ecological background to inform their management decisions (…) to **develop a business** that will develop an environmentally sustainable product (…) Identify the implications of (…) developing a business or product (…) Apply design thinking to problem solving (…) **Design a business or development** based on an issue (…) appraise (…) process **of developing your business or product** |
| **The Robert Gordon University (Aberdeen)** | | |
| Business Innovation and Entrepreneurship MSc | II | (…) designed to support you, (…) with effective tools and techniques (…) to business success. (…) will develop your understanding of the business environment and the challenges experienced in different entrepreneurial contexts including family and social enterprises. It will expose you (…) entrepreneurship, innovation and strategic decision-making. (…) review and manipulate a range of analytical tools to support strategic decision-making and develop skills necessary to supporting the **creation of a business**. (…) develop your appreciation (…) entrepreneurship (…) development of technology oriented business solutions and their commercialisation. |
| Business and Management MSc | II | (…) review and manipulate a range of analytical tools to support strategic decision-making. (…) develop (…) business economics and (…) managing the finances **of an organisation** (…) develop skills necessary to the **creation of a business**. |
| **Glasgow Caledonian University** | | **[UHatch (incubator), Enactus GCU] (+ uses the word Entrepreneurial in every BA & MSc page)** |
| International Business BA (Hons) | I | (…) Research-based teaching and live casework cover core subjects (…) explore real examples of professional practice (…) The leadership, entrepreneurial and responsible management skills (…) (for) your **career**. |
| International Management and Business Development MSc | I | With business development skills (…) graduates are positioned for **successful employment** (…) Develop competence in change management and entrepreneurship (…) committed to producing graduates and professionals who can make a positive impact. (…) Enhances your knowledge and decision making (…) to develop businesses in new and innovative ways. (…) **builds an appreciation of the need for an entrepreneurial mind-set** across different contexts (…) |
| International Supply Chain Management BA (Hons) | I | In addition to specialist knowledge, you'll develop your **entrepreneurial thinking**, your IT skills and the people skills crucial to successfully implementing strategy and change in organisations. |
| Business and Management BA (Hons) | II | business school graduates are highly regarded. **Working around the world**, they form a community of proficient, entrepreneurial, confident, responsible and **capable leaders, owners and management consultants.** |
| Social Innovation MSc | I | governmental employees (…) to develop a flourishing environment for social businesses, (…) to aspiring social entrepreneurs (…) reflects the needs of students who intend **to work within** (…) and for students of a more academic vocation (…) provide a breadth of knowledge and understanding of social innovation. |
| **University of Abertay (Dundee)** | | |
| Social Entrepreneurship MSc / Mphil / PhD | I | *prepare you for a career  **as a researcher and academic, as well as a diverse range of professions*** |
| **Queen Margaret University (Edinburgh)** | | |
| Business Management BA (Hons) / with Enterprise / with Finance / with Marketing | I<br>I<br>I | *(…) theoretical business knowledge and (…) the  **practical experience you need to make your professional mark from day one** . (…) gain a deep understanding of the nature and core functions of businesses (…) manage resources (…) environmentally sustainable (…) successful entrepreneur (…) (after two years of general study) decide to focus.* |
| International Management and Leadership with Family and Smaller Enterprises MSc | II | Our graduates take with them enhanced employability and confidence whether they **obtain a position with a** multinational organisation, work within the public sector, **create their own business**, gain employment in the third sector or go on to further studies. |
| Acting and Performance BA (Hons) ; Acting for Stage and Screen BA (Hons) | I<br>I | *combine intensive actor training with modules that will expand your skills to include (…) devising  **and creative entrepreneurship** . (…) provide the training you require to pursue a career in acting but will also provide you with the skills required for a  **diverse range of careers within**  the creative and cultural industries.* |
| **University of the West of Scotland** | | |
| Business BA (Hons) | I | designed to equip you with the **skills employers need**. (…) offers an excellent grounding in business and enterprise (…) **understanding of how to manage and develop a business**. (…) flexibility to tailor your degree to your interests |
| Global Entrepreneurship PGCert | | Aimed at **existing business professionals and new and early stage entrepreneurs** (…) designed to support the strengthening and development of your entrepreneurial mind-set and leadership skills, (…) graduates of the programme (…) demonstrate enhanced global leadership and entrepreneurial capabilities (…) providing practical and applied knowledge (…) to **grow and develop your business** as well as build your confidence and leadership skills. It will support you to become increasingly responsive and exploit emerging opportunities in the dynamic global economy. |
| MBA Business Administration (Resilience) / (Executive) / (Aviation) / (Environment) | | *emphasis on ethical and responsible leadership and management, (…) focus on  **developing executive excellence**  for the global future. Embracing innovation, entrepreneurship and technology, (…) key values: Ethical awareness, Cultural, readiness, Future readiness, Identifying growth and opportunity* |
| Business and Management BA (Hons) | | **careers** in the following areas: Graduate management (…), Public and private sector (…), Administrative (…), Voluntary organisations, **Self-employment** (…) |
| Architectural Technology BSc (Hons) | | consider a career as a graduate architectural technologist within private (…), local government (…) large building firms. |

| (Hons) ; Acting for Stage and Screen BA (Hons) | | *entrepreneurship . (…) provide the training you require to pursue a career in acting but will also provide you with the skills required for a diverse range of careers within the creative and cultural industries.* |
|---|---|---|
| Business BA (Hons) | I | |

| **University of the Highlands and Islands** | | |
|---|---|---|
| Global Entrepreneurship PGCert | II | Aimed at **existing business professionals and new and early stage entrepreneurs** (…) designed to support the strengthening and development of your entrepreneurial mind-set and leadership skills, (…) graduates of the programme (…) demonstrate enhanced global leadership and entrepreneurial capabilities (…) providing practical and applied knowledge (…) to **grow and develop your business** as well as build your confidence and leadership skills. It will support you to become increasingly responsive and exploit emerging opportunities in the dynamic global economy. |
| MBA Business Administration (Resilience) / (Executive) / (Aviation) / (Environment) | I I I | *emphasis on ethical and responsible leadership and management, (…) focus on developing executive excellence for the global future. Embracing innovation, entrepreneurship and technology, (…) key values: Ethical awareness, Cultural, readiness, Future readiness, Identifying growth and opportunity* |
| Business and Management BA (Hons) | II | **careers** in the following areas: Graduate management (…), Public and private sector (…), Administrative (…), Voluntary organisations, **Self-employment** (…) |
| Architectural Technology BSc (Hons) | I | consider a career as a graduate architectural technologist within private (…), local government (…) large building firms. |
| Audio Engineering BSc (Hons) | I | **range of jobs** in sound production in the music and entertainment industry (…) |
| Interactive Media BSc (Hons) | II | encourage your creativity and entrepreneurial qualities (…) (give) solid theoretical and technical understanding (…) equipped to think creatively; (…) knowledge in (…) key technical areas; and have the confidence and ability to **enter a workplace environment, become self-employed or form a start-up company.** |
| Adventure Tourism Management BA (Hons) | II | knowledge and skills that are transferable (…) UK or international adventure sector. (…) **Start and build your own Adventure Tourism business,** working in events organisation, **working in** NGOs and NGBs (…) |
| Golf Management BA (Hons) | II | *careers as a golf club secretary or manager (…) in golf tourism or entrepreneurship (…) complete a dissertation (…) and* |
| Professional Golf BA (Hons) | II | *present a plan for a new business venture.* |
| Sports Management BA (Hons) | II | jobs **in public, private and voluntary organisations** (…) **potential to become local entrepreneurs with business start-ups** (…) **present a plan for a new business venture** |
| Drama and Production BA (Hons) | I | focus on devising, production and entrepreneurship skills, (…) trained to be performers, practitioners, producers and researchers. (…) **Theoretical, practical and entrepreneurial approaches to performance** |
| Creativity, Leadership and Enterprise MA | II | Tailored to the emerging **creative leader and entrepreneur** working from their home studio or workshop in a rural environment |
| **Royal Conservatoire of Scotland** | | |
| Musical Theatre MA | II | *Graduates (…) are innovative self-starters with an inherent entrepreneurial spirit . (…) subject to one great advantage* |
| School of Music - Level 1 BA modules / Level 3 BA modules / Level 4 BA modules | II II II | *over entrepreneurs from other fields of business; their line of work is a risk from the beginning. (…) multi-disciplinary approach is designed to develop entrepreneurial skills and artistic collaboration to ensure career longevity in the competitive creative industries (…) artists (are) natural entrepreneurs out of necessity .* |

*Table 17 - Scottish Universities and Entrepreneurship Support*

| Programmes with Entrepreneurship today | Page | Facebook | Aim |
|---|---|---|---|
| **University of St. Andrews** | | | |
| University Strategy | https://www.st-andrews.ac.uk/about/governance/university- | | To be entrepreneurial in our culture is to see potential in existing and future activity and to translate that into action and application. |
| Entrepreneurship Centre | https://edencampus.st-andrews.ac.uk/entrepreneurship-centre/ | | to enable start-ups to become strong, scalable and sustainable companies that make a positive contribution to society. (...) to inspire and enable entrepreneurship. It will support the full entrepreneurial journey (...) empowerment of aspiring entrepreneurs through to the creation and development of early-stage ventures, all the way to small and medium-size enterprise growth. |
| Entrepreneurs Society (Students) | https://entrepreneurssociety.wixsite.com/entrepreneurs | /entrepreneurssoc | to promote and nurture entrepreneurship in the St Andrews community and beyond |
| **University of Glasgow** | | | |
| Glasgow University Startup Society | | /UofGStartup | to nurture the entrepreneurial community of students, staff, alumni, and beyond. |
| Entrepreneurship Society (Students) | https://www.glasgowstudent.net/clubs/listings/entrepreneurship-society/ | /GUESociety | educate students about entrepreneurship, develop their business acumen and inspire them to pursue entrepreneurship as a career path. To help form, share and improve ideas, find talented individuals to join start-ups, develop and improve the skills necessary for entrepreneurship and facilitate networking among entrepreneurial students from different degree areas |
| Innovation; Student Enterprise; Start-up support | https://www.gla.ac.uk /explore/meetglasgow/innovation /myglasgow/students/enterprise /myglasgow/students/enterprise/support | | to spread the city's reputation for innovation worldwide; to develop cutting-edge research into new products and processes, powering their bottom lines; to nurture start-ups, spin-outs and other entrepreneurial activity |
| **University of Aberdeen** | | | |
| Aberdeen Business Enterprise Society | https://www.ausa.org.uk/societies/society/abes/ | /ABESociety | Entrepreneurship Boosting, Knowledge Exchange and Mixing and Matching |
| Carreers - Enterprise and Entrepreneurship | https://www.abdn.ac.uk/spe/careers/skills-attributes/enterprise-entrepreneurship.php /graduateattributes | | Enterprise and Entrepreneurial skills are highly valued by employers as they will will enable you to seize opportunities, be creative and develop problem solving skills. It is one of the 19 Graduate Attributes which the University hopes that you will have developed by the end of your studies. Get involved ; Starting a Business ; Competitions |
| **University of Edinburgh** | | | |
| Entrepreneurship Club (Business School) | https://www.business-school.ed.ac.uk /eclub/ /event/welcome-to-eclub | /EClubEDI | meet, network and learn from each other. The Club can signpost you to resources available to staff, students and researchers to pursue their entrepreneurial ambitions. |
| Edinburgh Innovations | https://edinburgh-innovations.ed.ac.uk/ | | to benefit society and the economy by helping researchers, students and industry drive innovation. We seek opportunities, we build partnerships, we make the journey easy, and we add value at every stage. |
| Entrepreneurs Society | https://www.edentsoc.uk/ | /edentsoc | to inspire, connect and develop future entrepreneurial leaders at university |
| **University of Strathclyde (Glasgow)** | | | |
| Hunter Centre for Entrepreneurship | https://www.strath.ac.uk/business/huntercentreforentrepreneurship/ | | To engaging in, and drawing from, our world-class research to inform the design and delivery of a growing portfolio of programmes. To contribute to the global community of scholars in the areas of entrepreneurship, innovation and strategy through high-quality publications and by being at the heart of the Global Entrepreneurship Monitor (GEM) research programme, an annual assessment of levels of entrepreneurial activity and participating in the Global University Entrepreneurial Spirit Students' Survey (GUESSS). |
| Strathclyde Business Network | http://www.strathbn.co.uk/ | /strathbn/ | to facilitate the development of sustainable relationships with industry, for the students of Strathclyde. Builds initiatives designed to foster knowledge sharing, facilitate discussion and enable networking opportunities with the most experienced business professionals in the industry. |

| | | | |
|---|---|---|---|
| Strathclyde Inspire | https://www.strath.ac.uk/workwithus/strathclydeinspire/ | /strathinspire | Empowering you to embrace entrepreneurship and transform your life and the lives of others. Supports and encourages entrepreneurship in all its forms, so whether students, staff and graduates want to explore their entrepreneurial potential, have an idea for a business, or are considering commercialising their research, Strathclyde Inspire will support them at every stage of their journey. |
| Strathclyde Business Network | http://www.strathbn.co.uk/ | /strathbn/ | to facilitate the development of sustainable relationships with industry, for the students of Strathclyde. Builds initiatives designed to foster knowledge sharing, facilitate discussion and enable networking opportunities with the most experienced business professionals in the industry. |
| **Heriot-Watt University (Edinburgh)** | | | |
| Enterprise Team | https://www.hw.ac.uk/uk/business/entrepreneurship.htm | | offer expert advice for start-ups and University spin-outs across a range of business-related activities including funding options, intellectual property, finance, sales and marketing support.<br><br>The team encourages entrepreneurial talent amongst staff and students with start-up surgeries and boot camps on successful enterprise creation. |
| **University of Dundee** | | | |
| Centre for Entrepreneurship | https://www.dundee.ac.uk/entrepreneurship/ | /UoDEnterprise | To develop entrepreneurial skills and pursue new business ideas. To firstly improve the self-reliance and employability of the University's students, staff and recent graduates by developing their enterprise skills. And secondly, to support those who wish to embark on the journey of starting their own business. |
| **University of Stirling** | | | |
| Entrepreneur-in-residence | https://www.stir.ac.uk/news/2020/05/university-appoints-its-first-entrepreneur-in-residence/ | | to further support students, alumni, and staff to achieve their start-up business ambitions. |
| LEEP Society (Leadership, Entrepreneurship, Employability & Personal Finance) | https://www.stirlingstudentsunion.com/clubssocieties/societies/9030/ | /StirLEEP | to learn specialised skills ; to openly discuss unusually great ambitions without judement and surrounded by likeminded individuals |
| **The Open University** | | | |
| Careers and Employability - Becoming an Entrepreneur | https://help.open.ac.uk/what-is-an-entrepreneur | | To provide general guidance |
| Entrepreneurs Society | https://www.oustudents.com/entrepreneurs-society | /groups/921756337909808/ | to create a melting pot of ideas and viewpoints. |
| **Edinburgh Napier University** | | | |
| Entrepreneurs in Residence | https://www.napier.ac.uk/about-us/news/entrepreneurs-in-residence | | to mentor, inspire and support students and academics with entrepreneurial goals and ideas |
| Entrepreneurial Community | https://www.napier.ac.uk/research-and-innovation/business-and-innovation-hub/entrepreneurial-community | | to support students, alumni, and staff to develop the enterprise skills required to capture opportunities, develop their ideas, and to start businesses; to connect companies with or invest in the spin-outs, start-ups, entrepreneurs, freelancers, and global changemakers. |
| **The Robert Gordon University (Aberdeen)** | | | |
| Centre for Entrepreneurship | https://www3.rgu.ac.uk/about/schools-and-departments/aberdeen-business-school/centre-for-entrepreneurship/the-centre-for-entrepreneurship? | | to inspire the students to explore the world of entrepreneurial opportunity and to develop their enterprising mindsets |
| Innovation@RGU | https://www.rgu.ac.uk/business-innovation/innovation-rgu | | help drive innovation and support new enterprises to create impact and contribute to Scotland's economic prosperity |
| UHatch (incubator) | https://www.gcu.ac.uk/uhatch/ | | to assist entrepreneurial students, graduates and staff members to bring their concept from an idea to reality. |
| Careers - Enterprise & Entrepreneurship | https://www.gcu.ac.uk/careers/studentsgraduates/careerplanning/enterpriseentrepreneurship/ | | To provide general guidance |
| Enactus CGU (Students) | https://www.enactusgcu.co.uk/ | /EnactusGCU | Enactus students apply business concepts to develop community outreach projects that improve the quality of life and standard of living for people in need. |

| **Glasgow Caledonian University** | | | |
|---|---|---|---|
| UHatch (incubator) | https://www.gcu.ac.uk/uhatch/ | | to assist entrepreneurial students, graduates and staff members to bring their concept from an idea to reality. |
| Careers - Enterprise & Entrepreneurship | https://www.gcu.ac.uk/careers/studentsgraduates/careerplanning/enterpriseentrepreneurship/ | | To provide general guidance |
| Enactus CGU (Students) | https://www.enactusgcu.co.uk/ | /EnactusGCU | Enactus students apply business concepts to develop community outreach projects that improve the quality of life and standard of living for people in need. |
| **University of Abertay (Dundee)** | | | |
| Enterprise Centre | https://www.abertay.ac.uk/business/bell-street-ventures/ | | to work with Abertay students and recent graduates, using different tools and techniques, and make them think creatively and practically about how best to approach their idea and make it a reality. Whether they want to start a business, change the world or work as a freelancer. |
| **Queen Margaret University (Edinburgh)** | | | |
| Business Innovation Zone (BIZ) | https://www.qmu.ac.uk/services-for-business-and-industry/business-innovation-zone/ | | providing workshops, events, one to one support and guidance along with access to some of the Universities facilities for staff, students and graduates. |
| SHIFT summer school | https://shiftintoyourfuture.com/ | | to deliver specialist events and resources to budding creative entrepreneurs, freelancers, artists, designers, producers and performers. |
| **University of the West of Scotland** | | | |
| Support for Entrepreneurs - Careers | https://www.uws.ac.uk/current-students/developing-your-career/support-for-entrepreneurs/ | | direction and support to set up in business from the Commercialisation team |
| **University of the Highlands and Islands** | | | |
| CREATE & CREATE Entrepreneurship Project | https://www.inverness.uhi.ac.uk/business-and-training/create/   https://www.inverness.uhi.ac.uk/research/centre-for-remote-and-sustainable-communities/projects/create-entrepreneurship-project/ | | to inspire, encourage and support students, staff and the community to come up with a business idea and develop the knowledge, skills and motivation needed to realise their potential through enterprise. |
| **Royal Conservatoire of Scotland** | | | |
| Make It Happen | https://www.rcs.ac.uk/research/exchange/make-it-happen-2020-21/   https://www.rcs.ac.uk/research/exchange/make-it-happen-fund/   https://www.rcs.ac.uk/review/rise-of-the-enterprising-artist/ | | to help you get ideas, projects, companies, and collaborations off the ground and into the world. The workshop series support students, and alumni, develop professional skills, access funding, set up their career as a freelancer or launch a creative project or business. |
| SHIFT summer school | https://shiftintoyourfuture.com/ | | to deliver specialist events and resources to budding creative entrepreneurs, freelancers, artists, designers, producers and performers. |
| | | | |
| **Joined** | | | |
| Scottish Entrepreneurship (UoSA, UoG, UoE) | | /ScotEntNet | to increase innovation and collaboration |
| SHIFT summer school | https://shiftintoyourfuture.com/ | | to deliver specialist events and resources to budding creative entrepreneurs, freelancers, artists, designers, producers and performers. |
| (RCS, QMU, Glasgow School of Art) | | | |

## Table 18 - Repertory grid - vertical analysis

| | 5 | Family Background / Character | up to Studies prior to the course | After the course | Ideal for you | Variation | 1 | Sum | Average | Max vs Ideal |
|---|---|---|---|---|---|---|---|---|---|---|
| MA1 | Confident | 2 | 3 | 4 | 5 | | Not Confident | 9 | 3 | 1 |
| MA1 | Creativity | 2 | 3 | 4 | 5 | | Practicality | 9 | 3 | 1 |
| MA1 | Extrovert | 1 | 2 | 4 | 5 | | Introvert/shy | 7 | 2,33 | 1 |
| MA1 | Being open minded | 3 | 3 | 4 | 5 | | Following Rules | 10 | 3,33 | 1 |
| MA1 | Time-Management | 3 | 3 | 3 | 5 | | - | 9 | 3 | 2 |
| MA1 | Organisational skills | 2 | 3 | 3 | 5 | | - | 8 | 2,67 | 2 |
| MA1 | Hardworking/Persistent | 2 | 2 | 3 | 3 | | Enjoying leisure balance | 7 | 2,33 | 0 |
| MA1 | Multitasking | 3 | 3 | 4 | 5 | | Prefer single tasks | 10 | 3,33 | 1 |
| MA1 | Critical Thinking/Analysing | 2 | 3 | 4 | 5 | | Less critical / driven by opinion | 9 | 3 | 1 |
| MA1 | Reflection / Will to improve | 2 | 3 | 4 | 5 | | Not reflective | 9 | 3 | 1 |
| MA1 | Sociable / Developing Networks | 2 | 3 | 3 | 5 | | Not sociable | 8 | 2,67 | 2 |
| MA1 | Identifying opportunities | 2 | 3 | 4 | 5 | | Not identifying opportunities | 9 | 3 | 1 |
| MA1 | Presentation skills | 2 | 4 | 4 | 5 | | - | 10 | 3,33 | 1 |
| MA1 | Confidence / Belief in myself | 3 | 4 | 5 | 5 | | Not confident | 12 | 4 | 0 |
| MA1 | Comfortable with Risk taking | 2 | 3 | 4 | 4 | | Safe choices | 9 | 3 | 0 |
| MA1 | Confidence with Financial Instability | 3 | 4 | 4 | 5 | | Confidence with Financial Stability | 11 | 3,67 | 1 |
| MA1 | Encouragement to act Entrepreneurially | 2 | 3 | 4 | 4 | | Not encouraged | 9 | 3 | 0 |
| MA1 | Communication | | | | | | - | | | |
| MA1 | Leadership | | | | | | - | | | |
| MA2 | Confident | 2 | 3 | 4 | 5 | | Not Confident | 9 | 3 | 1 |
| MA2 | Creativity | 2 | 2 | 3 | 4 | | Practicality | 7 | 2,33 | 1 |
| MA2 | Extrovert | 1 | 3 | 4 | 4 | | Introvert/shy | 8 | 2,67 | 0 |
| MA2 | Being open minded | 3 | 3 | 4 | 4 | | Following Rules | 10 | 3,33 | 0 |
| MA2 | Time-Management | 3 | 3 | 4 | 5 | | - | 10 | 3,33 | 1 |
| MA2 | Organisational skills | 2 | 3 | 4 | 5 | | - | 9 | 3 | 1 |
| MA2 | Hardworking/Persistent | 2 | 3 | 3 | 5 | | Enjoying leisure balance | 8 | 2,67 | 2 |
| MA2 | Multitasking | 3 | 4 | 4 | 5 | | Prefer single tasks | 11 | 3,67 | 1 |
| MA2 | *Critical Thinking/Analysing* | 4 | 4 | 4 | 5 | | Less critical / driven by opinion | 12 | 4 | 1 |
| MA2 | Reflection / Will to improve | 3 | 3 | 4 | 5 | | Not reflective | 10 | 3,33 | 1 |
| MA2 | *Sociable / Developing Networks* | 2 | 3 | 4 | 5 | | Not sociable | 9 | 3 | 1 |
| MA2 | Identifying opportunities | 2 | 2 | 4 | 5 | | Not identifying opportunities | 8 | 2,67 | 1 |
| MA2 | Presentation skills | 3 | 3 | 4 | 5 | | - | 10 | 3,33 | 1 |
| MA2 | *Confidence / Belief in myself* | 2 | 3 | 4 | 5 | | Not confident | 9 | 3 | 1 |
| MA2 | Comfortable with Risk taking | 2 | 2 | 3 | 4 | | Safe choices | 7 | 2,33 | 1 |
| MA2 | Confidence with Financial Instability | 3 | 3 | 3 | 4 | | Confidence with Financial Stability | 9 | 3 | 1 |
| MA2 | Encouragement to act Entrepreneurially | 2 | 3 | 4 | 5 | | Not encouraged | 9 | 3 | 1 |
| MA2 | Communication | 2 | 3 | 4 | 5 | | - | 9 | 3 | 1 |
| MA2 | Leadership | 3 | 3 | 3 | 5 | | - | 9 | 3 | 2 |
| VC1 | Confident | 2 | 3 | 4 | 5 | | Not Confident | 9 | 3 | 1 |
| VC1 | Creativity | 2 | 3 | 4 | 5 | | Practicality | 9 | 3 | 1 |
| VC1 | Extrovert | 2 | 3 | 4 | 5 | | Introvert/shy | 9 | 3 | 1 |
| VC1 | Being open minded | 2 | 4 | 4 | 5 | | Following Rules | 10 | 3,33 | 1 |

| ID | Characteristic | | | | | | | Sum | Avg | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *myself* | | | | | | | | | |
| MA2 | Comfortable with Risk taking | 2 | 2 | 3 | 4 | | Safe choices | 7 | 2,33 | 1 |
| MA2 | Confidence with Financial Instability | 3 | 3 | 3 | 4 | | Confidence with Financial Stability | 9 | 3 | 1 |
| MA2 | Encouragement to act Entrepreneurially | 2 | 3 | 4 | 5 | | Not encouraged | 9 | 3 | 1 |
| MA2 | Communication | 2 | 3 | 4 | 5 | | - | 9 | 3 | 1 |
| MA2 | Leadership | 3 | 3 | 3 | 5 | | - | 9 | 3 | 2 |
| VC1 | Confident | 2 | 3 | 4 | 5 | | Not Confident | 9 | 3 | 1 |
| VC1 | Creativity | 2 | 3 | 4 | 5 | | Practicality | 9 | 3 | 1 |
| VC1 | Extrovert | 2 | 3 | 4 | 5 | | Introvert/shy | 9 | 3 | 1 |
| VC1 | Being open minded | 2 | 4 | 4 | 5 | | Following Rules | 10 | 3,33 | 1 |
| VC1 | Time-Management | 2 | 3 | 3 | 5 | | - | 8 | 2,67 | 2 |
| VC1 | Organisational skills | 2 | 3 | 3 | 5 | | - | 8 | 2,67 | 2 |
| VC1 | Hardworking/Persistent | 2 | 3 | 3 | 5 | | Enjoying leisure balance | 8 | 2,67 | 2 |
| VC1 | Multitasking | 2 | 3 | 4 | 5 | | Prefer single tasks | 9 | 3 | 1 |
| VC1 | Critical Thinking/Analysing | 2 | 3 | 4 | 5 | | Less critical / driven by opinion | 9 | 3 | 1 |
| VC1 | Reflection / Will to improve | 2 | 4 | 4 | 5 | | Not reflective | 10 | 3,33 | 1 |
| VC1 | Sociable / Developing Networks | 2 | 3 | 4 | 5 | | Not sociable | 9 | 3 | 1 |
| VC1 | Identifying opportunities | 2 | 4 | 4 | 5 | | Not identifying opportunities | 10 | 3,33 | 1 |
| VC1 | Presentation skills | 2 | 3 | 4 | 5 | | - | 9 | 3 | 1 |
| VC1 | Confidence / Belief in myself | 2 | 4 | 4 | 5 | | Not confident | 10 | 3,33 | 1 |
| VC1 | Comfortable with Risk taking | 2 | 4 | 4 | 5 | | Safe choices | 10 | 3,33 | 1 |
| VC1 | Confidence with Financial Instability | 2 | 2 | 3 | 5 | | Confidence with Financial Stability | 7 | 2,33 | 2 |
| VC1 | Encouragement to act Entrepreneurially | 2 | 4 | 4 | 5 | | Not encouraged | 10 | 3,33 | 1 |
| VC1 | Communication | | | | | | - | | | |
| VC1 | Leadership | | | | | | - | | | |
| NC1 | Confident | 3 | 3 | 3 | 4 | | Not Confident | 9 | 3 | 1 |
| NC1 | Creativity | 4 | 4 | 4 | 4 | | Practicality | 12 | 4 | 0 |
| NC1 | Extrovert | 1 | 1 | 2 | 3 | | Introvert/shy | 4 | 1,33 | 1 |
| NC1 | Being open minded | 3 | 4 | 4 | 4 | | Following Rules | 11 | 3,67 | 0 |
| NC1 | Time-Management | 2 | 3 | 4 | 5 | | - | 9 | 3 | 1 |
| NC1 | Organisational skills | 3 | 2 | 3 | 4 | | - | 8 | 2,67 | 1 |
| NC1 | Hardworking/Persistent | 4 | 4 | 3 | 4 | | Enjoying leisure balance | 11 | 3,67 | 0 |
| NC1 | Multitasking | 3 | 2 | 4 | 5 | | Prefer single tasks | 9 | 3 | 1 |
| NC1 | Critical Thinking/Analysing | 2 | 2 | 2 | 5 | | Less critical / driven by opinion | 6 | 2 | 3 |
| NC1 | Reflection / Will to improve | 2 | 3 | 5 | 5 | | Not reflective | 10 | 3,33 | 0 |
| NC1 | Sociable / Developing Networks | 2 | 3 | 4 | 5 | | Not sociable | 9 | 3 | 1 |
| NC1 | Identifying opportunities | 3 | 3 | 4 | 5 | | Not identifying opportunities | 10 | 3,33 | 1 |
| NC1 | Presentation skills | 3 | 4 | 4 | 5 | | - | 11 | 3,67 | 1 |
| NC1 | Confidence / Belief in myself | 3 | 3 | 3 | 4 | | Not confident | 9 | 3 | 1 |
| NC1 | Comfortable with Risk taking | 4 | 4 | 3 | 4 | | Safe choices | 11 | 3,67 | 0 |
| NC1 | Confidence with Financial Instability | 2 | 2 | 2 | 5 | | Confidence with Financial Stability | 6 | 2 | 3 |
| NC1 | Encouragement to act Entrepreneurially | 3 | 3 | 4 | 5 | | Not encouraged | 10 | 3,33 | 1 |
| NC1 | Communication | 2 | 3 | 3 | 5 | | - | 8 | 2,67 | 2 |
| NC1 | Leadership | 2 | 3 | 4 | 5 | | - | 9 | 3 | 1 |
| | | | | | | | | | | |
| EB1 | Creativity | 3 | 3 | 3 | 3 | | Practicality | 9 | 3 | 0 |
| EB1 | Extrovert | 2 | 4 | 4 | 4 | | Introvert/shy | 10 | 3,33 | 0 |
| EB1 | Being open minded | 3 | 2 | 2 | 3 | | Following Rules | 7 | 2,33 | 0 |
| EB1 | Time-Management | 3 | 4 | 4 | 4 | | - | 11 | 3,67 | 0 |
| EB1 | Organisational skills | 4 | 4 | 4 | 5 | | - | 12 | 4 | 1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Financial Stability | | | |
| NC1 | Encouragement to act Entrepreneurially | 3 | 3 | 4 | 5 | Not encouraged | 10 | 3,33 | 1 |
| NC1 | Communication | 2 | 3 | 3 | 5 | - | 8 | 2,67 | 2 |
| | | | | | | | | | |
| EB1 | Confident | 3 | 4 | 4 | 4 | Not Confident | 11 | 3,67 | 0 |
| EB1 | Creativity | 3 | 3 | 3 | 3 | Practicality | 9 | 3 | 0 |
| EB1 | Extrovert | 2 | 4 | 4 | 4 | Introvert/shy | 10 | 3,33 | 0 |
| EB1 | Being open minded | 3 | 2 | 2 | 3 | Following Rules | 7 | 2,33 | 0 |
| EB1 | Time-Management | 3 | 4 | 4 | 4 | - | 11 | 3,67 | 0 |
| EB1 | Organisational skills | 4 | 4 | 4 | 5 | - | 12 | 4 | 1 |
| EB1 | Hardworking/Persistent | 3 | 4 | 4 | 4 | Enjoying leisure balance | 11 | 3,67 | 0 |
| EB1 | Multitasking | 2 | 2 | 3 | 2 | Prefer single tasks | 7 | 2,33 | -1 |
| EB1 | Critical Thinking/Analysing | 2 | 3 | 4 | 4 | Less critical / driven by opinion | 9 | 3 | 0 |
| EB1 | Reflection / Will to improve | 1 | 3 | 4 | 5 | Not reflective | 8 | 2,67 | 1 |
| EB1 | Sociable / Developing Networks | 3 | 3 | 4 | 5 | Not sociable | 10 | 3,33 | 1 |
| EB1 | Identifying opportunities | 2 | 4 | 4 | 5 | Not identifying opportunities | 10 | 3,33 | 1 |
| EB1 | Presentation skills | 2 | 3 | 4 | 5 | - | 9 | 3 | 1 |
| EB1 | Confidence / Belief in myself | 2 | 3 | 3 | 5 | Not confident | 8 | 2,67 | 2 |
| EB1 | Comfortable with Risk taking | 5 | 5 | 5 | 4 | Safe choices | 15 | 5 | -1 |
| EB1 | Confidence with Financial Instability | 5 | 5 | 2 | 5 | Confidence with Financial Stability | 12 | 4 | 0 |
| EB1 | Encouragement to act Entrepreneurially | 1 | 4 | 4 | 5 | Not encouraged | 9 | 3 | 1 |
| EB1 | Communication | | | | | - | | | |
| EB1 | Leadership | | | | | - | | | |
| EB2 | Confident | 5 | 3 | 5 | 5 | Not Confident | 13 | 4,33 | 0 |
| EB2 | Creativity | 3 | 2 | 4 | 4 | Practicality | 9 | 3 | 0 |
| EB2 | Extrovert | 4 | 4 | 4 | 4 | Introvert/shy | 12 | 4 | 0 |
| EB2 | Being open minded | 1 | 3 | 4 | 4 | Following Rules | 8 | 2,67 | 0 |
| EB2 | Time-Management | 5 | 3 | 4 | 5 | - | 12 | 4 | 0 |
| EB2 | Organisational skills | 5 | 5 | 5 | 5 | - | 15 | 5 | 0 |
| EB2 | Hardworking/Persistent | 5 | 5 | 4 | 3 | Enjoying leisure balance | 14 | 4,67 | -2 |
| EB2 | Multitasking | 2 | 5 | 5 | 3 | Prefer single tasks | 12 | 4 | -2 |
| EB2 | Critical Thinking/Analysing | 5 | 5 | 5 | 5 | Less critical / driven by opinion | 15 | 5 | 0 |
| EB2 | Reflection / Will to improve | 5 | 5 | 5 | 5 | Not reflective | 15 | 5 | 0 |
| EB2 | Sociable / Developing Networks | 4 | 4 | 5 | 5 | Not sociable | 13 | 4,33 | 0 |
| EB2 | Identifying opportunities | 3 | 4 | 5 | 5 | Not identifying opportunities | 12 | 4 | 0 |
| EB2 | Presentation skills | 2 | 2 | 4 | 5 | - | 8 | 2,67 | 1 |
| EB2 | Confidence / Belief in myself | 4 | 4 | 5 | 5 | Not confident | 13 | 4,33 | 0 |
| EB2 | Comfortable with Risk taking | 3 | 4 | 4 | 4 | Safe choices | 11 | 3,67 | 0 |
| EB2 | Confidence with Financial Instability | 4 | 3 | 3 | 3 | Confidence with Financial Stability | 10 | 3,33 | -1 |
| EB2 | Encouragement to act Entrepreneurially | 3 | 4 | 5 | 5 | Not encouraged | 12 | 4 | 0 |
| EB2 | Communication | | | | | - | | | |
| EB2 | Leadership | | | | | - | | | |
| IA1 | Confident | 2 | 3 | 4 | 4 | Not Confident | 9 | 3 | 0 |
| IA1 | Creativity | 2 | 4 | 5 | 4 | Practicality | 11 | 3,67 | -1 |
| IA1 | Extrovert | 3 | 3 | 4 | 5 | Introvert/shy | 10 | 3,33 | 1 |
| IA1 | Being open minded | 3 | 4 | 4 | 4 | Following Rules | 11 | 3,67 | 0 |
| IA1 | Time-Management | 4 | 4 | 5 | 5 | - | 13 | 4,33 | 0 |
| IA1 | Organisational skills | 4 | 4 | 5 | 5 | - | 13 | 4,33 | 0 |
| IA1 | Hardworking/Persistent | 3 | 4 | 4 | 4 | Enjoying leisure balance | 11 | 3,67 | 0 |
| IA1 | Multitasking | 3 | 3 | 4 | 4 | Prefer single tasks | 10 | 3,33 | 0 |

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| ID | Attribute | | | | | Trend | Opposite | Sum | Avg | Diff |
|---|---|---|---|---|---|---|---|---|---|---|
| EB2 | Communication | | | | | | - | | | |
| EB2 | Leadership | | | | | | - | | | |
| IA1 | Confident | 2 | 3 | 4 | 4 | | Not Confident | 9 | 3 | 0 |
| IA1 | Extrovert | 3 | 3 | 4 | 5 | | Introvert/shy | 10 | 3,33 | 1 |
| IA1 | Being open minded | 3 | 4 | 4 | 4 | | Following Rules | 11 | 3,67 | 0 |
| IA1 | Time-Management | 4 | 4 | 5 | 5 | | - | 13 | 4,33 | 0 |
| IA1 | Organisational skills | 4 | 4 | 5 | 5 | | - | 13 | 4,33 | 0 |
| IA1 | Hardworking/Persistent | 3 | 4 | 4 | 4 | | Enjoying leisure balance | 11 | 3,67 | 0 |
| IA1 | Multitasking | 3 | 3 | 4 | 4 | | Prefer single tasks | 10 | 3,33 | 0 |
| IA1 | Critical Thinking/Analysing | 3 | 3 | 4 | 5 | | Less critical / driven by opinion | 10 | 3,33 | 1 |
| IA1 | Reflection / Will to improve | 3 | 3 | 4 | 5 | | Not reflective | 10 | 3,33 | 1 |
| IA1 | Sociable / Developing Networks | 2 | 3 | 4 | 5 | | Not sociable | 9 | 3 | 1 |
| IA1 | Identifying opportunities | 3 | 3 | 5 | 5 | | Not identifying opportunities | 11 | 3,67 | 0 |
| IA1 | Presentation skills | 3 | 3 | 4 | 5 | | - | 10 | 3,33 | 1 |
| IA1 | Confidence / Belief in myself | 3 | 3 | 4 | 5 | | Not confident | 10 | 3,33 | 1 |
| IA1 | Comfortable with Risk taking | 2 | 3 | 4 | 4 | | Safe choices | 9 | 3 | 0 |
| IA1 | Confidence with Financial Instability | 4 | 4 | 4 | 5 | | Confidence with Financial Stability | 12 | 4 | 1 |
| IA1 | Encouragement to act Entrepreneurially | 3 | 3 | 4 | 4 | | Not encouraged | 10 | 3,33 | 0 |
| IA1 | Communication | | | | | | - | | | |
| IA1 | Leadership | | | | | | - | | | |
| IA2 | Confident | 2 | 3 | 4 | 5 | | Not Confident | 9 | 3 | 1 |
| IA2 | Creativity | 3 | 3 | 4 | 4 | | Practicality | 10 | 3,33 | 0 |
| IA2 | Extrovert | 4 | 5 | 5 | 5 | | Introvert/shy | 14 | 4,67 | 0 |
| IA2 | Being open minded | 3 | 3 | 5 | 4 | | Following Rules | 11 | 3,67 | -1 |
| IA2 | Time-Management | 5 | 5 | 5 | 5 | | - | 15 | 5 | 0 |
| IA2 | Organisational skills | 3 | 3 | 4 | 5 | | - | 10 | 3,33 | 1 |
| IA2 | Hardworking/Persistent | 3 | 3 | 4 | 4 | | Enjoying leisure balance | 10 | 3,33 | 0 |
| IA2 | Multitasking | 3 | 3 | 4 | 5 | | Prefer single tasks | 10 | 3,33 | 1 |
| IA2 | Critical Thinking/Analysing | 2 | 3 | 4 | 5 | | Less critical / driven by opinion | 9 | 3 | 1 |
| IA2 | Reflection / Will to improve | 3 | 4 | 4 | 4 | | Not reflective | 11 | 3,67 | 0 |
| IA2 | Sociable / Developing Networks | 2 | 4 | 4 | 5 | | Not sociable | 10 | 3,33 | 1 |
| IA2 | Identifying opportunities | 3 | 3 | 4 | 5 | | Not identifying opportunities | 10 | 3,33 | 1 |
| IA2 | Presentation skills | 2 | 3 | 5 | 5 | | - | 10 | 3,33 | 0 |
| IA2 | Confidence / Belief in myself | 3 | 3 | 4 | 5 | | Not confident | 10 | 3,33 | 1 |
| IA2 | Comfortable with Risk taking | 2 | 3 | 4 | 4 | | Safe choices | 9 | 3 | 0 |
| IA2 | Confidence with Financial Instability | 4 | 4 | 4 | 4 | | Confidence with Financial Stability | 12 | 4 | 0 |
| IA2 | Encouragement to act Entrepreneurially | 3 | 3 | 4 | 5 | | Not encouraged | 10 | 3,33 | 1 |
| IA2 | Communication | | | | | | - | | | |
| IA2 | Leadership | | | | | | - | | | |
| IA3 | Confident | 2 | 3 | 3 | 5 | | Not Confident | 8 | 2,67 | 2 |
| IA3 | Creativity | 3 | 3 | 3 | 4 | | Practicality | 9 | 3 | 1 |
| IA3 | Extrovert | 3 | 3 | 3 | 4 | | Introvert/shy | 9 | 3 | 1 |
| IA3 | Being open minded | 3 | 3 | 3 | 3 | | Following Rules | 9 | 3 | 0 |
| IA3 | Time-Management | 3 | 3 | 4 | 5 | | - | 10 | 3,33 | 1 |
| IA3 | Organisational skills | 4 | 4 | 4 | 5 | | - | 12 | 4 | 1 |
| IA3 | Hardworking/Persistent | 3 | 3 | 4 | 4 | | Enjoying leisure balance | 10 | 3,33 | 0 |
| IA3 | Multitasking | 2 | 2 | 2 | 3 | | Prefer single tasks | 6 | 2 | 1 |
| IA3 | Critical Thinking/Analysing | 3 | 3 | 3 | 3 | | Less critical / driven by opinion | 9 | 3 | 0 |

| ID | Attribute | | | | | | Opposite | Sum | Avg | Δ |
|----|-----------|---|---|---|---|---|----------|-----|-----|---|
| IA3 | Confident | 2 | 3 | 3 | 3 | | Not Confident | 8 | 2,67 | 1 |
| IA3 | Creativity | 3 | 3 | 3 | 4 | | Practicality | 9 | 3 | 1 |
| IA3 | Extrovert | 3 | 3 | 3 | 4 | | Introvert/shy | 9 | 3 | 1 |
| IA3 | Being open minded | 3 | 3 | 3 | 3 | | Following Rules | 9 | 3 | 0 |
| IA3 | Organisational skills | 4 | 4 | 4 | 5 | | - | 12 | 4 | 1 |
| IA3 | Hardworking/Persistent | 3 | 3 | 4 | 4 | | Enjoying leisure balance | 10 | 3,33 | 0 |
| IA3 | Multitasking | 2 | 2 | 2 | 3 | | Prefer single tasks | 6 | 2 | 1 |
| IA3 | Critical Thinking/Analysing | 3 | 3 | 3 | 3 | | Less critical / driven by opinion | 9 | 3 | 0 |
| IA3 | Reflection / Will to improve | 2 | 2 | 2 | 3 | | Not reflective | 6 | 2 | 1 |
| IA3 | Sociable / Developing Networks | 3 | 3 | 4 | 5 | | Not sociable | 10 | 3,33 | 1 |
| IA3 | Identifying opportunities | 2 | 2 | 3 | 4 | | Not identifying opportunities | 7 | 2,33 | 1 |
| IA3 | Presentation skills | 1 | 1 | 3 | 5 | | - | 5 | 1,67 | 2 |
| IA3 | Confidence / Belief in myself | 3 | 3 | 4 | 5 | | Not confident | 10 | 3,33 | 1 |
| IA3 | Comfortable with Risk taking | 3 | 3 | 3 | 3 | | Safe choices | 9 | 3 | 0 |
| IA3 | Confidence with Financial Instability | 2 | 2 | 4 | 4 | | Confidence with Financial Stability | 8 | 2,67 | 0 |
| IA3 | Encouragement to act Entrepreneurially | 2 | 2 | 4 | 5 | | Not encouraged | 8 | 2,67 | 1 |
| IA3 | Communication | | | | | | - | | | |
| IA3 | Leadership | | | | | | - | | | |
| IA4 | Confident | 2 | 3 | 5 | 5 | | Not Confident | 10 | 3,33 | 0 |
| IA4 | Creativity | 2 | 3 | 4 | 5 | | Practicality | 9 | 3 | 1 |
| IA4 | Extrovert | 5 | 5 | 5 | 5 | | Introvert/shy | 15 | 5 | 0 |
| IA4 | Being open minded | 2 | 3 | 4 | 4 | | Following Rules | 9 | 3 | 0 |
| IA4 | Time-Management | 3 | 3 | 3 | 4 | | - | 9 | 3 | 1 |
| IA4 | Organisational skills | 1 | 3 | 4 | 5 | | - | 8 | 2,67 | 1 |
| IA4 | Hardworking/Persistent | 2 | 4 | 5 | 5 | | Enjoying leisure balance | 11 | 3,67 | 0 |
| IA4 | Multitasking | 3 | 4 | 4 | 3 | | Prefer single tasks | 11 | 3,67 | -1 |
| IA4 | Critical Thinking/Analysing | 2 | 4 | 5 | 5 | | Less critical / driven by opinion | 11 | 3,67 | 0 |
| IA4 | Reflection / Will to improve | 3 | 3 | 5 | 5 | | Not reflective | 11 | 3,67 | 0 |
| IA4 | Sociable / Developing Networks | 4 | 5 | 5 | 5 | | Not sociable | 14 | 4,67 | 0 |
| IA4 | Identifying opportunities | 2 | 3 | 4 | 5 | | Not identifying opportunities | 9 | 3 | 1 |
| IA4 | Presentation skills | 3 | 4 | 5 | 5 | | - | 12 | 4 | 0 |
| IA4 | Confidence / Belief in myself | 3 | 4 | 5 | 5 | | Not confident | 12 | 4 | 0 |
| IA4 | Comfortable with Risk taking | 4 | 4 | 5 | 4 | | Safe choices | 13 | 4,33 | -1 |
| IA4 | Confidence with Financial Instability | 2 | 2 | 4 | 5 | | Confidence with Financial Stability | 8 | 2,67 | 1 |
| IA4 | Encouragement to act Entrepreneurially | 3 | 3 | 4 | 4 | | Not encouraged | 10 | 3,33 | 0 |
| IA4 | Communication | | | | | | - | | | |
| IA4 | Leadership | | | | | | - | | | |
| TB1 | Confident | 4 | 5 | 5 | 5 | | Not Confident | 14 | 4,67 | 0 |
| TB1 | Creativity | 3 | 4 | 5 | 5 | | Practicality | 12 | 4 | 0 |
| TB1 | Extrovert | 3 | 5 | 5 | 5 | | Introvert/shy | 13 | 4,33 | 0 |
| TB1 | Being open minded | 3 | 4 | 5 | 5 | | Following Rules | 12 | 4 | 0 |
| TB1 | Time-Management | 2 | 4 | 4 | 5 | | - | 10 | 3,33 | 1 |
| TB1 | Organisational skills | 3 | 4 | 5 | 5 | | - | 12 | 4 | 0 |
| TB1 | Hardworking/Persistent | 4 | 4 | 4 | 5 | | Enjoying leisure balance | 12 | 4 | 1 |
| TB1 | Critical Thinking/Analysing | 2 | 3 | 4 | 5 | | Less critical / driven by opinion | 9 | 3 | 1 |
| TB1 | Reflection / Will to improve | 2 | 3 | 4 | 5 | | Not reflective | 9 | 3 | 1 |
| TB1 | Sociable / Developing Networks | 2 | 3 | 4 | 5 | | Not sociable | 9 | 3 | 1 |

| Group | Skill | | | | | | Label | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| TB1 | Being open minded | 3 | 1 | 5 | 5 | | Following Rules | 12 | 4 | 0 |
| TB1 | Time-Management | 2 | 4 | 4 | 5 | | - | 10 | 3,33 | 1 |
| TB1 | Organisational skills | 3 | 4 | 5 | 5 | | - | 12 | 4 | 0 |
| TB1 | Multitasking | 3 | 4 | 4 | 5 | | Prefer single tasks | 11 | 3,67 | 1 |
| TB1 | Critical Thinking/Analysing | 2 | 3 | 4 | 5 | | Less critical / driven by opinion | 9 | 3 | 1 |
| TB1 | Reflection / Will to improve | 2 | 3 | 4 | 5 | | Not reflective | 9 | 3 | 1 |
| TB1 | Sociable / Developing Networks | 2 | 3 | 4 | 5 | | Not sociable | 9 | 3 | 1 |
| TB1 | Identifying opportunities | 2 | 4 | 4 | 5 | | Not identifying opportunities | 10 | 3,33 | 1 |
| TB1 | Presentation skills | 3 | 4 | 5 | 5 | | - | 12 | 4 | 0 |
| TB1 | Confidence / Belief in myself | 3 | 4 | 5 | 5 | | Not confident | 12 | 4 | 0 |
| TB1 | Comfortable with Risk taking | 2 | 2 | 3 | 5 | | Safe choices | 7 | 2,33 | 2 |
| TB1 | Confidence with Financial Instability | 2 | 3 | 4 | 5 | | Confidence with Financial Stability | 9 | 3 | 1 |
| TB1 | Encouragement to act Entrepreneurially | 1 | 3 | 4 | 5 | | Not encouraged | 8 | 2,67 | 1 |
| TB1 | Communication | 2 | 3 | 5 | 5 | | - | 10 | 3,33 | 0 |
| TB1 | Leadership | 3 | 4 | 5 | 5 | | - | 12 | 4 | 0 |
| LB1 | Confident | 3 | 3 | 4 | 5 | | Not Confident | 10 | 3,33 | 1 |
| LB1 | Creativity | 1 | 1 | 3 | 3 | | Practicality | 5 | 1,67 | 0 |
| LB1 | Extrovert | 3 | 3 | 4 | 4 | | Introvert/shy | 10 | 3,33 | 0 |
| LB1 | Being open minded | 2 | 3 | 5 | 5 | | Following Rules | 10 | 3,33 | 0 |
| LB1 | Time-Management | 2 | 2 | 4 | 5 | | - | 8 | 2,67 | 1 |
| LB1 | Organisational skills | 2 | 3 | 4 | 5 | | - | 9 | 3 | 1 |
| LB1 | Hardworking/Persistent | 2 | 2 | 4 | 4 | | Enjoying leisure balance | 8 | 2,67 | 0 |
| LB1 | Multitasking | 3 | 3 | 4 | 5 | | Prefer single tasks | 10 | 3,33 | 1 |
| LB1 | Critical Thinking/Analysing | 2 | 2 | 4 | 5 | | Less critical / driven by opinion | 8 | 2,67 | 1 |
| LB1 | Reflection / Will to improve | 1 | 2 | 3 | 5 | | Not reflective | 6 | 2 | 2 |
| LB1 | Sociable / Developing Networks | 3 | 3 | 4 | 4 | | Not sociable | 10 | 3,33 | 0 |
| LB1 | Identifying opportunities | 1 | 2 | 3 | 5 | | Not identifying opportunities | 6 | 2 | 2 |
| LB1 | Presentation skills | 2 | 3 | 4 | 5 | | - | 9 | 3 | 1 |
| LB1 | Confidence / Belief in myself | 3 | 3 | 4 | 5 | | Not confident | 10 | 3,33 | 1 |
| LB1 | Comfortable with Risk taking | 3 | 3 | 3 | 3 | | Safe choices | 9 | 3 | 0 |
| LB1 | Confidence with Financial Instability | 3 | 3 | 3 | 3 | | Confidence with Financial Stability | 9 | 3 | 0 |
| LB1 | Encouragement to act Entrepreneurially | 1 | 1 | 3 | 4 | | Not encouraged | 5 | 1,67 | 1 |
| LB1 | Communication | 2 | 3 | 4 | 5 | | - | 9 | 3 | 1 |
| LB1 | Leadership | 2 | 2 | 3 | 5 | | - | 7 | 2,33 | 2 |
| TB2 | Confident | 3 | 3 | 4 | 5 | | Not Confident | 10 | 3,33 | 1 |
| TB2 | Creativity | 2 | 3 | 3 | 4 | | Practicality | 8 | 2,67 | 1 |
| TB2 | Extrovert | 3 | 3 | 3 | 3 | | Introvert/shy | 9 | 3 | 0 |
| TB2 | Being open minded | 3 | 4 | 5 | 5 | | Following Rules | 12 | 4 | 0 |
| TB2 | Time-Management | 3 | 4 | 5 | 5 | | - | 12 | 4 | 0 |
| TB2 | Organisational skills | 2 | 3 | 4 | 5 | | - | 9 | 3 | 1 |
| TB2 | Hardworking/Persistent | 4 | 4 | 4 | 5 | | Enjoying leisure balance | 12 | 4 | 1 |
| TB2 | Multitasking | 1 | 3 | 4 | 4 | | Prefer single tasks | 8 | 2,67 | 0 |
| TB2 | Critical Thinking/Analysing | 2 | 3 | 4 | 4 | | Less critical / driven by opinion | 9 | 3 | 0 |
| TB2 | Reflection / Will to improve | 4 | 4 | 4 | 4 | | Not reflective | 12 | 4 | 0 |
| TB2 | Sociable / Developing Networks | 3 | 4 | 4 | 4 | | Not sociable | 11 | 3,67 | 0 |
| TB2 | Identifying opportunities | 2 | 3 | 4 | 5 | | Not identifying opportunities | 9 | 3 | 1 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | balance | | | |
| **TB2** | Multitasking | 1 | 3 | 4 | 4 | | Prefer single tasks | **8** | **2,67** | **0** |
| **TB2** | Critical Thinking/Analysing | 2 | 3 | 4 | 4 | | Less critical / driven by opinion | **9** | **3** | **0** |
| **TB2** | Reflection / Will to improve | 4 | 4 | 4 | 4 | | Not reflective | **12** | **4** | **0** |
| **TB2** | Sociable / Developing Networks | 3 | 4 | 4 | 4 | | Not sociable | **11** | **3,67** | **0** |
| **TB2** | Identifying opportunities | 2 | 3 | 4 | 5 | | Not identifying opportunities | **9** | **3** | **1** |
| **TB2** | Presentation skills | 1 | 2 | 5 | 5 | | - | **8** | **2,67** | **0** |
| **TB2** | Confidence / Belief in myself | 2 | 3 | 5 | 5 | | Not confident | **10** | **3,33** | **0** |
| **TB2** | Comfortable with Risk taking | 1 | 2 | 4 | 5 | | Safe choices | **7** | **2,33** | **1** |
| **TB2** | Confidence with Financial Instability | 2 | 3 | 4 | 5 | | Confidence with Financial Stability | **9** | **3** | **1** |
| **TB2** | Encouragement to act Entrepreneurially | 1 | 2 | 4 | 5 | | Not encouraged | **7** | **2,33** | **1** |
| **TB2** | Communication | 3 | 4 | 5 | 5 | | - | **12** | **4** | **0** |
| **TB2** | Leadership | 3 | 4 | 5 | 5 | | - | **12** | **4** | **0** |
| **TB3** | Confident | 3 | 4 | 4 | 5 | | Not Confident | **11** | **3,67** | **1** |
| **TB3** | Creativity | 3 | 5 | 5 | 5 | | Practicality | **13** | **4,33** | **0** |
| **TB3** | Extrovert | 1 | 2 | 2 | 2 | | Introvert/shy | **5** | **1,67** | **0** |
| **TB3** | Being open minded | 3 | 3 | 3 | 3 | | Following Rules | **9** | **3** | **0** |
| **TB3** | Time-Management | 4 | 5 | 5 | 5 | | - | **14** | **4,67** | **0** |
| **TB3** | Organisational skills | 3 | 4 | 4 | 4 | | - | **11** | **3,67** | **0** |
| **TB3** | Hardworking/Persistent | 4 | 4 | 4 | 4 | | Enjoying leisure balance | **12** | **4** | **0** |
| **TB3** | Multitasking | 4 | 2 | 2 | 2 | | Prefer single tasks | **8** | **2,67** | **-2** |
| **TB3** | Critical Thinking/Analysing | 3 | 4 | 4 | 5 | | Less critical / driven by opinion | **11** | **3,67** | **1** |
| **TB3** | Reflection / Will to improve | 4 | 5 | 5 | 5 | | Not reflective | **14** | **4,67** | **0** |
| **TB3** | Sociable / Developing Networks | 3 | 4 | 4 | 5 | | Not sociable | **11** | **3,67** | **1** |
| **TB3** | Identifying opportunities | 3 | 4 | 4 | 5 | | Not identifying opportunities | **11** | **3,67** | **1** |
| **TB3** | Presentation skills | 3 | 4 | 4 | 5 | | - | **11** | **3,67** | **1** |
| **TB3** | Confidence / Belief in myself | 3 | 4 | 4 | 4 | | Not confident | **11** | **3,67** | **0** |
| **TB3** | Comfortable with Risk taking | 1 | 3 | 3 | 3 | | Safe choices | **7** | **2,33** | **0** |
| **TB3** | Confidence with Financial Instability | 2 | 3 | 4 | 5 | | Confidence with Financial Stability | **9** | **3** | **1** |
| **TB3** | Encouragement to act Entrepreneurially | 2 | 3 | 4 | 5 | | Not encouraged | **9** | **3** | **1** |
| **TB3** | Communication | 3 | 4 | 4 | 5 | | - | **11** | **3,67** | **1** |
| **TB3** | Leadership | 3 | 4 | 5 | 5 | | - | **12** | **4** | **0** |
| | | | | | | | | | | |
| Average | **Average** | **2,632** | **3,256** | **3,948** | **4,58** | | | | | |
| % of Total | **% of Total for each Stage** | **18,26%** | **22,59%** | **27,39%** | **31,77%** | | | | | |
| Sum | **Sum** | **658** | **814** | **987** | **1145** | | | | | |
| Sum Increase | **Sum - Increase** | | **156** | **173** | **158** | | | | | |
| | | | | | | | | | | |
| | % in overall sum | **26,76%** | **33,10%** | **40,14%** | **46,56%** | | | | | |

Table 19 - Repertory grid - Linear analysis

| Course | Respondent | Confident / Not Confident | | | | Creativity / Practicality | | | | Extrovert / Introvert/shy | | | | Being open / Followi |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Family Background / Character (E - EARLY) | up to Studies prior to the course (B - BEFORE) | After the course (A - AFTER) | Ideal for you (I - IDEAL) | E | B | A | I | E | B | A | I | |
| **M** | MA1 | 2 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | 1 | 2 | 4 | 5 | |
| increase by | | | 1 | 1 | 1 | | 1 | 1 | 1 | | 1 | 2 | 1 | |
| **M** | MA2 | 2 | 3 | 4 | 5 | 2 | 2 | 3 | 4 | 1 | 3 | 4 | 4 | |
| increase by | | | 1 | 1 | 1 | | 0 | 1 | 1 | | 2 | 1 | 0 | |
| Average increase for the course | | | 1 | 1 | 1 | | 0,5 | 1 | 1 | | 1,5 | 1,5 | 0,5 | |
| **V** | VC1 | 2 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | |
| Average increase for the course | | | 1 | 1 | 1 | | 1 | 1 | 1 | | 1 | 1 | 1 | |
| **N** | NC1 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 2 | 3 | |
| Average increase for the course | | | 0 | 0 | 1 | | 0 | 0 | 0 | | 0 | 1 | 1 | |
| **E** | EB1 | 3 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 4 | 4 | 4 | |
| increase by | | | 1 | 0 | 0 | | 0 | 0 | 0 | | 2 | 0 | 0 | |
| **E** | EB2 | 5 | 3 | 5 | 5 | 3 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | |
| increase by | | | -2 | 2 | 0 | | -1 | 2 | 0 | | 0 | 0 | 0 | |
| Average increase for the course | | | -0,5 | 1 | - | | -0,5 | 1 | - | | 1 | - | - | |
| **I** | IA1 | 2 | 3 | 4 | 4 | 2 | 4 | 5 | 4 | 3 | 3 | 4 | 5 | |
| increase by | | | 1 | 1 | 0 | | 2 | 1 | -1 | | 0 | 1 | 1 | |
| **I** | IA2 | 2 | 3 | 4 | 5 | 3 | 3 | 4 | 4 | 4 | 5 | 5 | 5 | |
| increase by | | | 1 | 1 | 1 | | 0 | 1 | 0 | | 1 | 0 | 0 | |
| **I** | IA3 | 2 | 3 | 3 | 5 | 3 | 3 | 3 | 4 | 3 | 3 | 3 | 4 | |
| increase by | | | 1 | 0 | 2 | | 0 | 0 | 1 | | 0 | 0 | 1 | |
| **I** | IA4 | 2 | 3 | 5 | 5 | 2 | 3 | 4 | 5 | 5 | 5 | 5 | 5 | |
| increase by | | | 1 | 2 | 0 | | 1 | 1 | 1 | | 0 | 0 | 0 | |
| Average increase for the course | | | 1 | 1 | 0,75 | | 0,75 | 0,75 | 0,25 | | 0,25 | 0,25 | 0,5 | |
| **T** | TB1 | 4 | 5 | 5 | 5 | 3 | 4 | 5 | 5 | 3 | 5 | 5 | 5 | |
| increase by | | | 1 | 0 | 0 | | 1 | 1 | 0 | | 2 | 0 | 0 | |
| **T** | TB2 | 3 | 3 | 4 | 5 | 2 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | |
| increase by | | | 0 | 1 | 1 | | 1 | 0 | 1 | | 0 | 0 | 0 | |
| **T** | TB3 | 3 | 4 | 4 | 5 | 3 | 5 | 5 | 5 | 1 | 2 | 2 | 2 | |
| increase by | | | 1 | 0 | 1 | | 2 | 0 | 0 | | 1 | 0 | 0 | |
| Average increase for the course | | | 0,67 | 0,33 | 0,67 | | 1,33 | 0,33 | 0,33 | | 1 | - | - | |
| **L** | LB1 | 3 | 3 | 4 | 5 | 1 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | |
| Average increase for the course | | | 0 | 1 | 1 | | 0 | 2 | 0 | | 0 | 1 | 0 | |
| **Average change on each stage** | | | 0,57 | 0,79 | 0,71 | | 0,57 | 0,79 | 0,36 | | 0,71 | 0,50 | 0,36 | |
| **Total change** | | | 8,00 | 11,00 | 10,00 | | 8,00 | 11,00 | 5,00 | | 10,00 | 7,00 | 5,00 | |
| **Zeros - no change** | | | 3 | 5 | 5 | | 6 | 5 | 7 | | 7 | 8 | 9 | |
| **Positive results** | | | 10 | 9 | 9 | | 7 | 9 | 10 | | 7 | 6 | 5 | |
| **Negative results** | | | 1 | | | | 1 | | 0 | | | | | |

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| Being open minded / Following Rules | | | | Time-Management | | | | Organisational skills | | | | Hardworking/Persistent / Enjoying leisure balance | | | | Multitasking / Prefer single tasks | | | | Critical Thinking/Analysing / Less critical / driven by | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | B | A | I | E | B | A | I | E | B | A | I | E | B | A | I | E | B | A | I | E | B | A | I |
| 3 | 3 | 4 | 5 | 3 | 3 | 3 | 5 | 2 | 3 | 3 | 5 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 5 | 2 | 3 | 4 | 5 |
|  | 0 | 1 | 1 |  | 0 | 0 | 2 |  | 1 | 0 | 2 |  | 0 | 1 | 0 |  | 0 | 1 | 1 |  | 1 | 1 | 1 |
| 3 | 3 | 4 | 4 | 3 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | 2 | 3 | 3 | 5 | 3 | 4 | 4 | 5 | 4 | 4 | 4 | 5 |
|  | 0 | 1 | 0 |  | 0 | 1 | 1 |  | 1 | 1 | 1 |  | 1 | 0 | 2 |  | 1 | 0 | 1 |  | 0 | 0 | 1 |
|  | - | 1 | 0,5 |  | - | 0,5 | 1,5 |  | 1 | 0,5 | 1,5 |  | 0,5 | 0,5 | 1 |  | 0,5 | 0,5 | 1 |  | 0,5 | 0,5 | 1 |
| 2 | 4 | 4 | 5 | 2 | 3 | 3 | 5 | 2 | 3 | 3 | 5 | 2 | 3 | 3 | 5 | 2 | 3 | 4 | 5 | 2 | 3 | 4 | 5 |
|  | 2 | 0 | 1 |  | 1 | 0 | 2 |  | 1 | 0 | 2 |  | 1 | 0 | 2 |  | 1 | 1 | 1 |  | 1 | 1 | 1 |
| 3 | 4 | 4 | 4 | 2 | 3 | 4 | 5 | 3 | 2 | 3 | 4 | 4 | 4 | 3 | 4 | 3 | 2 | 4 | 5 | 2 | 2 | 2 | 5 |
|  | 1 | 0 | 0 |  | 1 | 1 | 1 |  | -1 | 1 | 1 |  | 0 | -1 | 1 |  | -1 | 2 | 1 |  | 0 | 0 | 3 |
| 3 | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 3 | 4 | 4 | 4 | 2 | 2 | 3 | 2 | 2 | 3 | 4 | 4 |
|  | -1 | 0 | 1 |  | 1 | 0 | 0 |  | 0 | 0 | 1 |  | 1 | 0 | 0 |  | 0 | 1 | -1 |  | 1 | 1 | 0 |
| 1 | 3 | 4 | 4 | 5 | 3 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 3 | 2 | 5 | 5 | 3 | 5 | 5 | 5 | 5 |
|  | 2 | 1 | 0 |  | -2 | 1 | 1 |  | 0 | 0 | 0 |  | 0 | -1 | -1 |  | 3 | 0 | -2 |  | 0 | 0 | 0 |
|  | 0,5 | 0,5 | 0,5 |  | -0,5 | 0,5 | 0,5 |  | - | - | 0,5 |  | 0,5 | -0,5 | -0,5 |  | 1,5 | 0,5 | -1,5 |  | 0,5 | 0,5 | - |
| 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 4 | 4 | 5 | 5 | 3 | 4 | 4 | 4 | 3 | 3 | 4 | 4 | 3 | 3 | 4 | 5 |
|  | 1 | 0 | 0 |  | 0 | 1 | 0 |  | 0 | 1 | 0 |  | 1 | 0 | 0 |  | 0 | 1 | 0 |  | 0 | 1 | 1 |
| 3 | 3 | 5 | 4 | 5 | 5 | 5 | 5 | 3 | 3 | 4 | 5 | 3 | 3 | 4 | 4 | 3 | 3 | 4 | 5 | 2 | 3 | 4 | 5 |
|  | 0 | 2 | -1 |  | 0 | 0 | 0 |  | 0 | 1 | 1 |  | 0 | 1 | 0 |  | 0 | 1 | 1 |  | 1 | 1 | 1 |
| 3 | 3 | 3 | 3 | 3 | 3 | 4 | 5 | 4 | 4 | 4 | 5 | 3 | 3 | 4 | 4 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 |
|  | 0 | 0 | 0 |  | 0 | 1 | 1 |  | 0 | 0 | 1 |  | 0 | 1 | 0 |  | 0 | 0 | 1 |  | 0 | 0 | 0 |
| 2 | 3 | 4 | 4 | 3 | 3 | 3 | 4 | 1 | 3 | 4 | 5 | 2 | 4 | 5 | 5 | 3 | 4 | 4 | 3 | 2 | 4 | 5 | 5 |
|  | 1 | 1 | 0 |  | 0 | 0 | 1 |  | 2 | 1 | 1 |  | 2 | 1 | 0 |  | 1 | 0 | -1 |  | 2 | 1 | 0 |
|  | 0,5 | 0,75 | -0,25 |  | - | 0,5 | 0,5 |  | 0,5 | 0,75 | 0,75 |  | 0,75 | 0,75 | - |  | 0,25 | 0,5 | 0,25 |  | 0,75 | 0,75 | 0,5 |
| 3 | 4 | 5 | 5 | 2 | 4 | 4 | 5 | 3 | 4 | 5 | 5 | 4 | 4 | 4 | 5 | 3 | 4 | 4 | 5 | 2 | 3 | 4 | 5 |
|  | 1 | 1 | 0 |  | 2 | 0 | 1 |  | 1 | 1 | 0 |  | 0 | 0 | 1 |  | 1 | 0 | 1 |  | 1 | 1 | 1 |
| 3 | 4 | 5 | 5 | 3 | 4 | 5 | 5 | 2 | 3 | 4 | 5 | 4 | 4 | 4 | 5 | 1 | 3 | 4 | 4 | 2 | 3 | 4 | 4 |
|  | 1 | 1 | 0 |  | 1 | 1 | 0 |  | 1 | 1 | 1 |  | 0 | 0 | 1 |  | 2 | 1 | 0 |  | 1 | 1 | 0 |
| 3 | 3 | 3 | 3 | 4 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 2 | 2 | 2 | 3 | 4 | 4 | 5 |
|  | 0 | 0 | 0 |  | 1 | 0 | 0 |  | 1 | 0 | 0 |  | 0 | 0 | 0 |  | -2 | 0 | 0 |  | 1 | 0 | 1 |
|  | 0,67 | 0,67 | - |  | 1,33 | 0,33 | 0,33 |  | 1 | 0,67 | 0,33 |  | - | - | 0,67 |  | 0,33 | 0,33 | 0,33 |  | 1 | 0,67 | 0,67 |
| 2 | 3 | 5 | 5 | 2 | 2 | 4 | 5 | 2 | 3 | 4 | 5 | 2 | 2 | 4 | 4 | 3 | 3 | 4 | 5 | 2 | 2 | 4 | 5 |
|  | 1 | 2 | 0 |  | 0 | 2 | 1 |  | 1 | 1 | 1 |  | 0 | 2 | 0 |  | 0 | 1 | 1 |  | 0 | 2 | 1 |
|  | 0,64 | 0,71 | 0,14 |  | 0,36 | 0,57 | 0,79 |  | 0,57 | 0,57 | 0,86 |  | 0,43 | 0,29 | 0,43 |  | 0,43 | 0,64 | 0,29 |  | 0,64 | 0,71 | 0,79 |
|  | 9,00 | 10,00 | 2,00 |  | 5,00 | 8,00 | 11,00 |  | 8,00 | 8,00 | 12,00 |  | 6,00 | 4,00 | 6,00 |  | 6,00 | 9,00 | 4,00 |  | 9,00 | 10,00 | 11,00 |
|  | 5 | 6 | 10 |  | 7 | 7 | 5 |  | 5 | 6 | 4 |  | 9 | 7 | 8 |  | 6 | 6 | 3 |  | 6 | 5 | 5 |
|  | 8 | 8 | 3 |  | 6 | 7 | 9 |  | 8 | 8 | 10 |  | 5 | 5 | 5 |  | 6 | 8 | 8 |  | 8 | 9 | 9 |
|  | 1 |  | 1 |  | 1 |  |  |  | 1 |  |  |  |  | 2 | 1 |  | 2 |  | 3 |  |  |  |  |  |

| Reflection/Will to improve / Not reflective | | | | Sociable/Developing Networks / Not sociable | | | | Identifying opportunities | | | | Presentation skills | | | | Confidence / Belief in myself | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | B | A | I | E | B | A | I | E | B | A | I | E | B | A | I | E | B | A | I |
| 2 | 3 | 4 | 5 | 2 | 3 | 3 | 5 | 2 | 3 | 4 | 5 | 2 | 4 | 4 | 5 | 3 | 4 | 5 | 5 |
|  | 1 | 1 | 1 |  | 1 | 0 | 2 |  | 1 | 1 | 1 |  | 2 | 0 | 1 |  | 1 | 1 | 0 |
| 3 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | 2 | 2 | 4 | 5 | 3 | 3 | 4 | 5 | 2 | 3 | 4 | 5 |
|  | 0 | 1 | 1 |  | 1 | 1 | 1 |  | 0 | 2 | 1 |  | 0 | 1 | 1 |  | 1 | 1 | 1 |
|  | 0,5 | 1 | 1 |  | 1 | 0,5 | 1,5 |  | 0,5 | 1,5 | 1 |  | 1 | 0,5 | 1 |  | 1 | 1 | 0,5 |
| 2 | 4 | 4 | 5 | 2 | 3 | 4 | 5 | 2 | 4 | 4 | 5 | 2 | 3 | 4 | 5 | 2 | 4 | 4 | 5 |
|  | 2 | 0 | 1 |  | 1 | 1 | 1 |  | 2 | 0 | 1 |  | 1 | 1 | 1 |  | 2 | 0 | 1 |
| 2 | 3 | 5 | 5 | 2 | 3 | 4 | 5 | 3 | 3 | 4 | 5 | 3 | 4 | 4 | 5 | 3 | 3 | 3 | 4 |
|  | 1 | 2 | 0 |  | 1 | 1 | 1 |  | 0 | 1 | 1 |  | 1 | 0 | 1 |  | 0 | 0 | 1 |
| 1 | 3 | 4 | 5 | 3 | 3 | 4 | 5 | 2 | 4 | 4 | 5 | 2 | 3 | 4 | 5 | 2 | 3 | 3 | 5 |
|  | 2 | 1 | 1 |  | 0 | 1 | 1 |  | 2 | 0 | 1 |  | 1 | 1 | 1 |  | 1 | 0 | 2 |
| 5 | 5 | 5 | 5 | 4 | 4 | 5 | 5 | 3 | 4 | 5 | 5 | 2 | 2 | 4 | 5 | 4 | 4 | 5 | 5 |
|  | 0 | 0 | 0 |  | 0 | 1 | 0 |  | 1 | 1 | 0 |  | 0 | 2 | 1 |  | 0 | 1 | 0 |
|  | 1 | 0,5 | 0,5 |  | - | 1 | 0,5 |  | 1,5 | 0,5 | 0,5 |  | 0,5 | 1,5 | 1 |  | 0,5 | 0,5 | 1 |
| 3 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | 3 | 3 | 5 | 5 | 3 | 3 | 4 | 5 | 3 | 3 | 4 | 5 |
|  | 0 | 1 | 1 |  | 1 | 1 | 1 |  | 0 | 2 | 0 |  | 0 | 1 | 1 |  | 0 | 1 | 1 |
| 3 | 4 | 4 | 4 | 2 | 4 | 4 | 5 | 3 | 3 | 4 | 5 | 2 | 3 | 5 | 5 | 3 | 3 | 4 | 5 |
|  | 1 | 0 | 0 |  | 2 | 0 | 1 |  | 0 | 1 | 1 |  | 1 | 2 | 0 |  | 0 | 1 | 1 |
| 2 | 2 | 2 | 3 | 3 | 3 | 4 | 5 | 2 | 2 | 3 | 4 | 1 | 1 | 3 | 5 | 3 | 3 | 4 | 5 |
|  | 0 | 0 | 1 |  | 0 | 1 | 1 |  | 0 | 1 | 1 |  | 0 | 2 | 2 |  | 0 | 1 | 1 |
| 3 | 3 | 5 | 5 | 4 | 5 | 5 | 5 | 2 | 3 | 4 | 5 | 3 | 4 | 5 | 5 | 3 | 4 | 5 | 5 |
|  | 0 | 2 | 0 |  | 1 | 0 | 0 |  | 1 | 1 | 1 |  | 1 | 1 | 0 |  | 1 | 1 | 0 |
|  | 0,25 | 0,75 | 0,5 |  | 1 | 0,5 | 0,75 |  | 0,25 | 1,25 | 0,75 |  | 0,5 | 1,5 | 0,75 |  | 0,25 | 1 | 0,75 |
| 2 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | 2 | 4 | 4 | 5 | 3 | 4 | 5 | 5 | 3 | 4 | 5 | 5 |
|  | 1 | 1 | 1 |  | 1 | 1 | 1 |  | 2 | 0 | 1 |  | 1 | 1 | 0 |  | 1 | 1 | 0 |
| 4 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 2 | 3 | 4 | 5 | 1 | 2 | 5 | 5 | 2 | 3 | 5 | 5 |
|  | 0 | 0 | 0 |  | 1 | 0 | 0 |  | 1 | 1 | 1 |  | 1 | 3 | 0 |  | 1 | 2 | 0 |
| 4 | 5 | 5 | 5 | 3 | 4 | 4 | 5 | 3 | 4 | 4 | 5 | 3 | 4 | 4 | 5 | 3 | 4 | 4 | 4 |
|  | 1 | 0 | 0 |  | 1 | 0 | 1 |  | 1 | 0 | 1 |  | 1 | 0 | 1 |  | 1 | 0 | 0 |
|  | 0,67 | 0,33 | 0,33 |  | 1 | 0,33 | 0,67 |  | 1,33 | 0,33 | 1 |  | 1 | 1,33 | 0,33 |  | 1 | 1 | - |
| 1 | 2 | 3 | 5 | 3 | 3 | 4 | 4 | 1 | 2 | 3 | 5 | 2 | 3 | 4 | 5 | 3 | 3 | 4 | 5 |
|  | 1 | 1 | 2 |  | 0 | 1 | 0 |  | 1 | 1 | 2 |  | 1 | 1 | 1 |  | 0 | 1 | 1 |
|  | 0,71 | 0,71 | 0,64 |  | 0,79 | 0,64 | 0,79 |  | 0,86 | 0,86 | 0,93 |  | 0,79 | 1,14 | 0,79 |  | 0,64 | 0,79 | 0,64 |
|  | 10,00 | 10,00 | 9,00 |  | 11,00 | 9,00 | 11,00 |  | 12,00 | 12,00 | 13,00 |  | 11,00 | 16,00 | 11,00 |  | 9,00 | 11,00 | 9,00 |
|  | 6 | 6 | 6 |  | 4 | 5 | 4 |  | 5 | 4 | 2 |  | 4 | 3 | 4 |  | 6 | 4 | 6 |
|  | 8 | 8 | 8 |  | 10 | 9 | 10 |  | 9 | 10 | 12 |  | 10 | 11 | 10 |  | 8 | 10 | 8 |

| Comfortable with Risk taking | | | | Confidence with Financial Instability / Stability | | | | Encouragement to act Entrepreneurially | | | | Communication | | | | Leadership | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | B | A | I | E | B | A | I | E | B | A | I | E | B | A | I | E | B | A | I |
| 2 | 3 | 4 | 4 | 3 | 4 | 4 | 5 | 2 | 3 | 4 | 4 | | | | | | | | |
| | 1 | 1 | 0 | | 1 | 0 | 1 | | 1 | 1 | 0 | | | | | | | | |
| 2 | 2 | 3 | 4 | 3 | 3 | 3 | 4 | 2 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | 3 | 3 | 3 | 5 |
| | 0 | 1 | 1 | | 0 | 0 | 1 | | 1 | 1 | 1 | | 1 | 1 | 1 | | 0 | 0 | 2 |
| | 0,5 | 1 | 0,5 | | 0,5 | - | 1 | | 1 | 1 | 0,5 | | 0,5 | 0,5 | 0,5 | | - | - | 1 |
| 2 | 4 | 4 | 5 | 2 | 2 | 3 | 5 | 2 | 4 | 4 | 5 | | | | | | | | |
| | 2 | 0 | 1 | | 0 | 1 | 2 | | 2 | 0 | 1 | | | | | | | | |
| 4 | 4 | 3 | 4 | 2 | 2 | 2 | 5 | 3 | 3 | 4 | 5 | 2 | 3 | 3 | 5 | 2 | 3 | 4 | 5 |
| | 0 | -1 | 1 | | 0 | 0 | 3 | | 0 | 1 | 1 | | 1 | 0 | 2 | | 1 | 1 | 1 |
| 5 | 5 | 5 | 4 | 5 | 5 | 2 | 5 | 1 | 4 | 4 | 5 | | | | | | | | |
| | 0 | 0 | -1 | | 0 | -3 | 3 | | 3 | 0 | 1 | | | | | | | | |
| 3 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 4 | 5 | 5 | | | | | | | | |
| | 1 | 0 | 0 | | -1 | 0 | 0 | | 1 | 1 | 0 | | | | | | | | |
| | 0,5 | - | -0,5 | | -0,5 | -1,5 | 1,5 | | 2 | 0,5 | 0,5 | | | | | | | | |
| 2 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 3 | 3 | 4 | 4 | | | | | | | | |
| | 1 | 1 | 0 | | 0 | 0 | 1 | | 0 | 1 | 0 | | | | | | | | |
| 2 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 4 | 5 | | | | | | | | |
| | 1 | 1 | 0 | | 0 | 0 | 0 | | 0 | 1 | 1 | | | | | | | | |
| 3 | 3 | 3 | 3 | 2 | 2 | 4 | 4 | 2 | 2 | 4 | 5 | | | | | | | | |
| | 0 | 0 | 0 | | 0 | 2 | 0 | | 0 | 2 | 1 | | | | | | | | |
| 4 | 4 | 5 | 4 | 2 | 2 | 4 | 5 | 3 | 3 | 4 | 4 | | | | | | | | |
| | 0 | 1 | -1 | | 0 | 2 | 1 | | 0 | 1 | 0 | | | | | | | | |
| | 0,5 | 0,75 | -0,25 | | - | 1 | 0,5 | | - | 1,25 | 0,5 | | | | | | | | |
| 2 | 2 | 3 | 5 | 2 | 3 | 4 | 5 | 1 | 3 | 4 | 5 | 2 | 3 | 5 | 5 | 3 | 4 | 5 | 5 |
| | 0 | 1 | 2 | | 1 | 1 | 1 | | 2 | 1 | 1 | | 1 | 2 | 0 | | 1 | 1 | 0 |
| 1 | 2 | 4 | 5 | 2 | 3 | 4 | 5 | 1 | 2 | 4 | 5 | 3 | 4 | 5 | 5 | 3 | 4 | 5 | 5 |
| | 1 | 2 | 1 | | 1 | 1 | 1 | | 1 | 2 | 1 | | 1 | 1 | 0 | | 1 | 1 | 0 |
| 1 | 3 | 3 | 3 | 2 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | 3 | 4 | 4 | 5 | 3 | 4 | 5 | 5 |
| | 2 | 0 | 0 | | 1 | 1 | 1 | | 1 | 1 | 1 | | 1 | 0 | 1 | | 1 | 1 | 0 |
| | 1 | 1 | 1 | | 1 | 1 | 1 | | 1,33 | 1,33 | 1 | | 1 | 1 | 0,33 | | 1 | 1 | - |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 4 | 2 | 3 | 4 | 5 | 2 | 2 | 3 | 5 |
| | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 2 | 1 | | 1 | 1 | 1 | | 0 | 1 | 2 |
| | 0,64 | 0,50 | 0,29 | | 0,21 | 0,36 | 1,07 | | 0,86 | 1,07 | 0,71 | | 0,43 | 0,36 | 0,36 | | 0,29 | 0,36 | 0,36 |
| | 9,00 | 7,00 | 4,00 | | 3,00 | 5,00 | 15,00 | | 12,00 | 15,00 | 10,00 | | 6,00 | 5,00 | 5,00 | | 4,00 | 5,00 | 5,00 |
| | 7 | 6 | 7 | | 9 | 7 | 4 | | 6 | 2 | 4 | | 0 | 2 | 2 | | 2 | 1 | 3 |
| | 7 | 7 | 5 | | 4 | 6 | 10 | | 8 | 12 | 10 | | 6 | 4 | 4 | | 4 | 5 | 3 |
| | | 1 | 2 | | 1 | 1 | | | | | | | | | | | | | |