The Bermuda Triangle in Entrepreneurship Education: The Role of Social Capital in Entrepreneurial Learning

Prof Nigel Lockett, Professor of Enterprise at Leeds University Business School
Address: Maurice Keyworth Building, University of Leeds, Leeds, LS2 9JT. Tel: +44 (0)113 343 8354
Email: n.lockett@leeds.ac.uk Website: http://cees.leeds.ac.uk

Dr Carla Quesada-Pallarès, Post-doc Researcher at Leeds University Business School
Dr Karen Williams-Middleton, Associate Professor at Chalmers University of Technology
Dr Antonio Padilla-Meléndez, Associate Professor at Universidad de Málaga
Prof Sarah Jack, Professor of Entrepreneurship at Lancaster University Management School

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Abstract

Objectives. We aim to explore the relationship between the role of social capital and entrepreneurial learning by investigating the entrepreneurial journey of student and graduate entrepreneurs.
Prior Work. It is widely acknowledged that the most powerful resource of an entrepreneur is their network: individuals, groups or organisations that support, advice and even finance an entrepreneur's growth. Because of this, entrepreneurship education programmes have been using entrepreneurs to connect students to the 'real world', providing them an initial network of entrepreneurs and the skills to develop their own network. Nonetheless, the real impact of networking on students learning has not yet been fully explored.
Approach. This qualitative study uses unstructured interviews with three student and graduate entrepreneurs at both the University of Leeds and Chalmers University of Technology. Interviews focused on understanding the six entrepreneurs' journey through entrepreneurial activities (critical incidents) and how social networks influenced these activities; interviewees were asked to reflect on their entrepreneurial journey, covering secondary school, university, post-university and expectations for the immediate future.
Results. Main findings evidenced that the UK three entrepreneurs started to show some kind of entrepreneurial behaviour during secondary school education. All respondents though increased their network awareness through their entrepreneurial journey: from "don't know" to "know" to "need". Moreover, at the beginning the network was mostly informal (family and friends), becoming more formal according to the increased complexity of the entrepreneurial activity. During their entrepreneurial journey, interviewees agreed that at the beginning nobody taught them how to be entrepreneur or even the skills they needed to carry on the entrepreneurial activity. But once their journey became more complex and serious, they needed skills and knowledge that they were not able to develop by their own; in that moment entrepreneurs realised that their network could provide them with people from who learn new capabilities, using informal learning processes to close the gap between their scarcities and needs.
Implications. The study exposes that networks facilitate entrepreneurial learning through informal learning processes which need to be translated into entrepreneurship education in a higher education context. One way is to legitimise social networking activities within the university environment, while another is embedding social networking into formal and non-formal entrepreneurship education.
Value. Social networking is not simply building a contact list; it is part of the social capital needed to help the entrepreneurial journey. This study exposes the previously missing value of social networking and encourages educators to embed activities within the curriculum that facilitate students' informal learning.

Introduction

During the last decade, entrepreneurship has become a 'hot topic' for both society and academia (Matlay and Carey, 2007; Young, 2014); not least because governments and organisations worldwide consider entrepreneurship to be a vital part of overcoming the recession (OECD, 2009, 2013), but also necessary if institutions, including universities, are to educate people for being part of any 'enterprise society' (Cedefop, 2011; European Commission, 2014, 2015; Gibb, 2005). Indeed, in developed countries, such as the UK, the aspiration of young people to start their own business has more than doubled (Young, 2014).

For this reason, the enterprising spirit or entrepreneurial orientation of an individual should be a 'must' if people are to be part of an innovative global labour market: creating entrepreneurs but also "a positive

outlook on life that enables [them] to succeed in any endeavour" (Young, 2014, p. 15). And the role of universities, as higher education institutions, could be crucial in this. However, what is the role of universities in supporting the development of this entrepreneurial orientation by these individuals? How might relationships within and beyond universities enhance these models? Within the context of entrepreneurial learning in universities across Europe, we examine the role played by social capital developed during graduates' entrepreneurial journeys. The paper continues with a summary of the theoretical framework, the methodology and the results analysis, finishing with the discussion and conclusion.

Theoretical framework

Entrepreneurial Learning in Universities

The seminal work of Coombs et al. (1973) established a typology of educational programmes: (1) *formal* education programmes, structured and chronologically graded activities that go from primary school to universities and professional training; (2) *non-formal* education programmes, organised activities outside the curriculum; and (3) *informal* education programmes, lifelong educational processes developed through daily life experiences of the individual (Knapper and Cropley, 2000; Ngaka et al., 2012; Sharma and Choudhary, 2015). This 'educational triad' is theoretically clear, which has helped teachers and educators to design modules with specific educational objectives. Nonetheless, in the context of entrepreneurial learning, it results in confusion so a well-planned 'educational triad' becomes a 'Bermuda Triangle' where *planned* formal and non-formal educational objectives mysteriously disappear and *unplanned* informal educational outcomes seem to spontaneously appear.

In the context of universities, educating people in entrepreneurship or 'entrepreneurship education' is typically based on programmes whose outputs are mainly focused on new venture and job creation or increasing entrepreneurial mindset and spirit (Béchard and Toulouse, 1998; Fayolle et al., 2006; Henry et al., 2005). Although universities programmes are normally considered formal education (1), entrepreneurship education is more complex because it also involves non-formal (2) and informal (3) education processes with more of a focus on interactive and experiential learning (Cedefop, 2011). For example, a student who attends a class about business plan gains knowledge, skills and attitudes from the module (formal education), the meetings with entrepreneur guest speakers organised by the institution (non-formal education), and the current news about successful or failed businesses (informal education). However, the educational objective of a programme may be difficult to assess when elements of informal education are included (Skule, 2004). Indeed, how can educators be sure that informal education is only acquired through the planned activities?

With the unique educational objective of developing entrepreneurial capabilities, an entrepreneurship programme may require formal, non-formal and informal education activities to deliver the desired learning outcomes (Edwards and Muir, 2005; Honig, 2004). This increased complexity makes the assessment of the achieved learning objectives in a direct and clear way difficult. Perhaps for this reason, there are few studies that examine the relationship between the exposure to entrepreneurship education and the consequential entrepreneurial behaviour of the student (Pittaway and Cope, 2007).

Achieving impact by entrepreneurship education is commonly approached through delivering non-formal education programmes, typically involving nascent entrepreneurs or entrepreneurs with continuing professional development needs (e.g. Ayinla, 2007; Ibrahim and Soufani, 2002; Karlan and Valdivia, 2011; Klofsten, 2000). For example, in the case of the UK, two relevant programmes were developed. In 2004, the *Lancaster LEAD (Leading Enterprise and Development)* programme trained small business owners-managers on their leadership skills for 10 months; half of the survey respondents stated an average growth rate of 3.5% a year (George, 2013). In 2010, the *10,000 Small Businesses UK* programme was offered to small business owners in Birmingham, Leeds, London and Manchester areas; its application had a significant positive impact on accelerating business growth with participants growing at between 23% and 42% per year (Goldman Sachs, 2014).

Most of the studies that explore the impact of entrepreneurship education programmes in universities use proxy variables such as satisfaction (Cruz et al., 2009), attitudes (von Graevenitz et al., 2010; Lackéus and Williams-Middleton, 2015) and intentions (Piperopoulos, 2012; Souitaris et al., 2007). The complexity of analysing the relationship between entrepreneurship education at universities and entrepreneurial behaviour means that this relationship be barely proven (Matlay, 2008); this situation highlights an important gap in the entrepreneurship literature. Moreover, there is little research analysing this relationship; for instance, the European Commission (2012) analysed various universities in order to examine the impact of entrepreneurship studies on their alumni; 16% of the entrepreneurship alumni is self-employed in comparison with the 10% of non-entrepreneurship alumni. Hill's (2011) work,

on the other hand, analyse the impact of MBA entrepreneurship education programmes in Ireland; reporting that of the 27% of MBA graduates who founded ventures after completing the programme, 69% did not consider the programme as the main reason for being entrepreneurial. Consequently, a question arises: if we have not been able to prove that entrepreneurship education programmes are not the main reason for increasing entrepreneurial capabilities, where do university students acquire these skills? Indeed, what is the role of the University?

It is clear that for entrepreneurship education programmes to have a direct and positive impact on entrepreneurial behaviour and capabilities, there is a need for deeper understanding of the formal, non-formal and formal elements. Considering Gupta and Bharadwaj (2013), business schools' pedagogical model needs to be reconsidered because entrepreneurship goes beyond business schools: it is a university competence with interdisciplinary possibilities (Gibb et al., 2013; Janssen et al., 2007; López-Robles et al., 2014; Valencia Arias, 2013). In fact, 39% of UK arts students were entrepreneurs compared to 5% of students from business studies (Greene and Saridakis, 2007). Should, "inclusive, lifelong approach to enterprise learning" be considered as an alternative to traditional entrepreneurship education programmes? (Rae, 2010, p. 600).

Interdisciplinarity is not the only change that needs to be considered if business schools are to adapt to reality. The focus on the individual's participation of education programmes needs be refocused on the type of learning undertaken (Gupta and Bharadwaj, 2013; Higgins and Elliott, 2011; Pittaway et al., 2011; Rae, 2010) and the existence of teachable and non-teachable entrepreneurship elements (Rae and Carswell, 2001; Shepherd and Douglas, 1997). In fact, students require an understanding of education as a learning process whether that is formal, non-formal or informal. Entrepreneurial learning is "concerned with how people construct new meaning in the process of recognising and acting on opportunities, and of organising and managing ventures" (Rae and Carswell, 2001, p. 153). This new vision demands new frameworks that help educators to identify and explicit entrepreneurial learning (Man, 2007) because "the recognition of non-formal and informal learning outcomes may increase the number of graduates" (Werkins, 2010, p. 17) and their entrepreneurial capabilities.

This holistic approach allows us to take into account all types of learning environments both inside and outside the curriculum and across the university by considering the entrepreneurial journey as a path to develop an individual's long-life entrepreneurial learning. We need to solve the mystery of the Bermuda Triangle; it is time then to change the focus of research: from business schools to universities, from entrepreneurship education to entrepreneurial learning. Stemming from this, our first research question is: *How does entrepreneurial learning develop before, during and after students' involvement in universities?* (RQ1).

Entrepreneurial Social Capital in Universities

Entrepreneurship has been recognised as an economic activity embedded in society (European Commission, 2015; OECD, 2013) and has led to the identification of social capital as important for business development (Cope et al., 2007; Eagle et al., 2010; Light and Dana, 2013; Stam et al., 2014; Westlund and Adam, 2010).

Even though social capital and entrepreneurship has been a research topic since the 1980s (Aldrich and Zimmer, 1986; Granovetter, 1985), their inter-relationship is attracting increased interest (Chen et al., 2015; Estrin et al., 2013; Stam and Elfring, 2008). For instance, Anderson et al. (2007) interviewed 10 British entrepreneurs from technological firms; their results suggest that social capital "resides in the [entrepreneurial] network as connections and interactions that take place between individuals" (p. 264). Bauernschuster et al. (2010) stated that the propensity to be an entrepreneur is increased when s/he gains access to social capital via club memberships of small German communities. Westlundet al. (2014) proved that entrepreneurial social capital is a determinant for Swedish new firm creation, with more influence in rural areas.

Therefore, for an entrepreneurial network to be considered as providing social capital the network must add value for the nascent entrepreneur (Foxton and Jones, 2011). That is, it must consist of individuals, groups and organisations that support, advice or finance the entrepreneur's growth (Bosma et al., 2004; Casson and Della Giusta, 2007; Kim and Aldrich, 2005). Besides, the entrepreneurial social capital is critical to the perseverance through the entrepreneurial journey, as supported by the principles of effectuation (Sarasvathy and Dew, 2005). Subsequently, how can this process be initiated? Is it possible for the emerging or nascent entrepreneur to learn about creating and managing networks in order to develop social capital?

Some entrepreneurship education programmes have been using entrepreneurs to connect students to the 'real world', providing them an initial network of entrepreneurs and the skills to develop their own network (e.g. Gordon et al., 2012; Lans et al., 2011), although few studies provide results of their impact. For example, six months after the *10,000 Small Businesses UK* programme application, 43% of the participants reported significant change in their business relating to their enhanced business network (Goldman Sachs, 2014). However, like the *LEAD* programme (George, 2013), the participants are already running growing businesses or social enterprises that meet the selection criteria of the programmes but cannot be considered as nascent entrepreneurs.

Obviously, not all entrepreneurs with an entrepreneurial network attended an entrepreneurship education programme (e.g. Dawson et al., 2011; Jack et al., 2010; Saunders et al., 2013), which requires the consideration of where and how they formed their network and subsequent social capital. This leads us to our second research question: *How does entrepreneurial social capital develop before, during and after students' involvement in universities?* (RQ2).

In addition, most of the entrepreneurship education programmes view entrepreneurial networks as non-formal education activities (e.g. enterprise society meetings, entrepreneur clubs, entrepreneurial guest speakers and enterprise awards) separate from the curriculum. However, the type of learning generated within these activities corresponds to an informal learning. It looks like the Bermuda Triangle is still evident, because as much as universities design and deliver activities outside the curriculum to provide students with an initial network of entrepreneurs, the learning acquired to become a successful entrepreneur goes beyond these *planned* activities and comes additionally from *unplanned* activities. In the context of universities, the need to investigate the complex and interdependent activities of formal, non-formal and informal entrepreneurial learning and the role and development of social capital is now compelling.

For this reason, our third research question asks: *Is it possible to establish a relationship between students' entrepreneurial social capital and entrepreneurial learning in universities?* (RQ3).

Methodology

Gaps identified by the literature review helped to build three research questions. The paper aims to explore the relationship between the role of social capital and entrepreneurial learning by investigating the entrepreneurial journey of student and graduate entrepreneurs. Thus, we followed an interpretive epistemological perspective underpinned by a qualitative research approach, which allowed us to understand the lived experiences of the interviewed entrepreneurs (Gephart, 2004). A life history technique was chosen to facilitate a reflexivity process for the respondents in order to help them theorize and explain their past, present and future of their entrepreneurial journey (Cassell and Symon, 2004).

Empirical Setting

This study involves student and graduates entrepreneurs of two European universities (University of Leeds, UK and Chalmers University of Technology, Sweden) as part of a pilot stage of a wider research project. These two institutions were chosen due to their specific entrepreneurship programmes. As mentioned, it is important to consider that entrepreneurship can be learned through formal, non-formal and informal educational programmes; Leeds and Chalmers universities are two different higher education institutions that provide two different types of education in entrepreneurship.

The University of Leeds (Leeds) is one of the biggest universities in the UK and is a member of the Russell Group. Leeds focuses on entrepreneurship to develop: 1) opportunities provided by Leeds University Union (e.g. societies, competitions, work experience, social enterprise); 2) education through Leeds Enterprise Centre (LEC); and 3) support offered by Spark start-up services, business incubation programme, and scholarships and awards. LEC is the focal point for enterprise education and research on the campus, part of Enterprise at Leeds initiative and contributor to the GOLD standard awarded by the Small Business Charter in 2014. LEC offers a wide range of undergraduate and graduate modules available about enterprise and entrepreneurship skills, such as enterprise and innovation discovery theme and the Enterprise placement year. In 2013, LEC taught 1,203 students in 2014/15 and launched the MSc Enterprise, 42 students have graduated so far. In addition, Spark engaged with 885 students and supported 48 start-ups in 2014/15 (Leeds, 2015).

Chalmers University of Technology (Chalmers), based in Gothenburg (Sweden), is a technical university described as an entrepreneurial university (McQueen and Wallmark, 1982, 1984). Chalmers School of Entrepreneurship was created to offer entrepreneurship programmes in 1997; nowadays, the school is combined with the university's incubator, and offers a two-year master 'Entrepreneurship and

Business Design'. The design includes: 1) a master-level programme on technology-based entrepreneurship and business development; 2) an incubator managing recruitment of ideas for incubation (often from institutional researchers), providing business advice/council, and financing initial seed-investment into the ventures; 3) a venture team made of a student team and a role-set of associated shareholders and stakeholders; and 4) an entrepreneurial network including alumni, researchers, professionals, investors, etc. operating within a regional/national innovation system (Lundqvist and Williams-Middleton, 2008). In the final 'incubation' year, students start working with an early stage technological idea and systematically go through a venture creation process, with the ultimate goal of incorporation, should the venture prove to be commercially viable. Students are supported by a network of stakeholders and shareholders. Since 1997, 304 students have enrolled on the programme, creating a total of 50 ventures incorporated with 80% of them surviving.

Sample and Data Collection

Criterion sampling was used (Neergaard and Ulhoi, 2007) following two key criteria for selecting the entrepreneurs to interview: 1) have or are engaged in some entrepreneurial activity; 2) being a final year student or have been recently graduated from some degree o master of the selected university. Through these criteria, we ensured that research questions could be answered.

Three entrepreneurs were interviewed from each university; in total, six entrepreneurs formed the sample. The main researcher of each institution contacted them by e-mail. In order to follow a life history technique (Cassell and Symon, 2004), an unstructured interview (Creswell, 2013) was used to deepen the understanding of the entrepreneurs' journey. No script was prepared but the interviewer had a clear awareness of what topics needed to be discussed. The interview started asking about the first entrepreneurial activity where the interviewee was involved (even if it was in school); including the people related to that activity (family and friends support, suppliers, costumers, etc.) and on the knowledge needed to develop it (and where and how this knowledge was acquired). The researcher concluded by asking about interviewee's motivation for engaging in that activity. This process was followed for each entrepreneurial activity that the interviewee had ever engaged with, considering them as critical incidents (Deakins and Freel, 1998). At the end, the researcher asked about interviewee's future in terms of professional career development.

The interview was conducted by two researchers and audio recorded; four of them took place at the main researcher's office, while two of them were conducted through videoconference. On average, interviews were 45 minutes long.

Data analysis

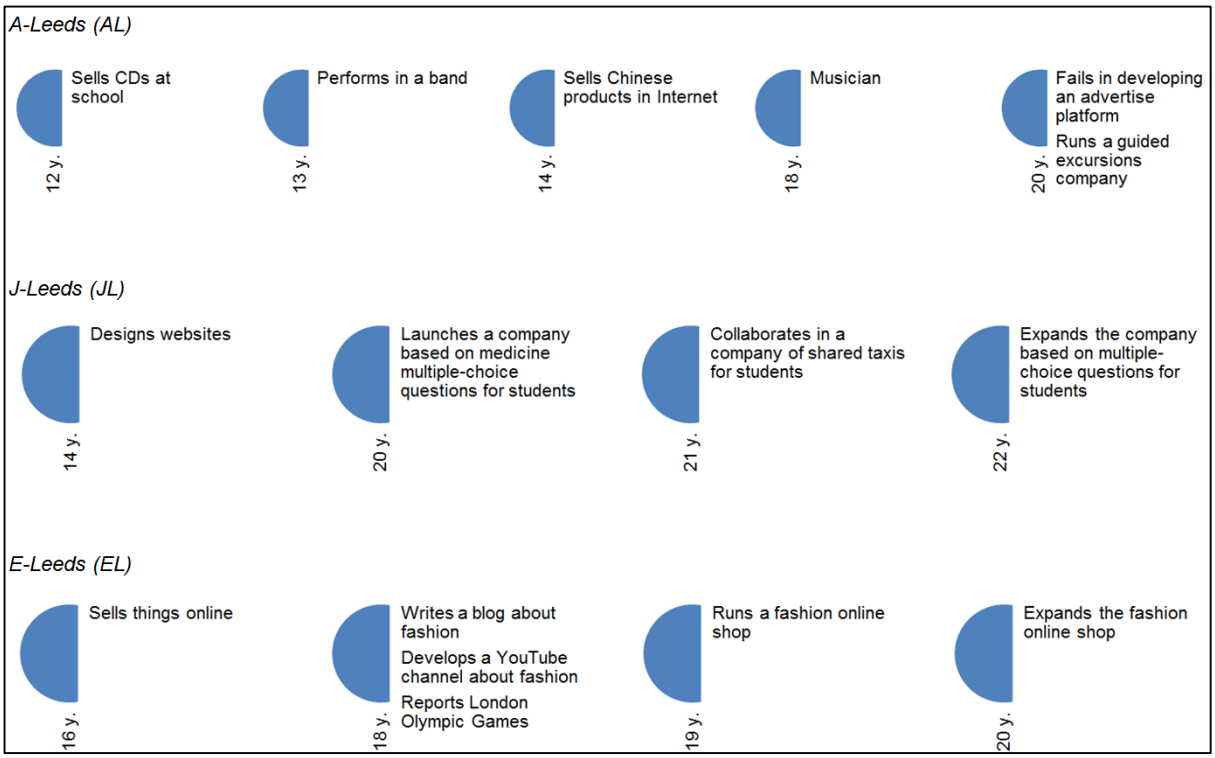
Interviews were analysed using various categories. Firstly, story lines were drawn for each entrepreneur in order to visualise their entrepreneurial activities in a timeline (Figure 2 and Figure 3). Secondly, a process of looking for patterns and commonalities among interviews of each institution was done; this process established categories and themes to explain the situations of the entrepreneurs (McKeever et al., 2015). This data was analysed to find details of these themes. Each entrepreneur was used as the unit of analysis to allow a better understanding of their processes.

Results

In this section we present data of each entrepreneur according to their institution. This division offers a detailed understanding of their life. For this reason, story lines are presented (Figure 1 and Figure 2), using entrepreneurial activities as critical incidents of their life.

Leeds case

Figure 1. Leeds interviewees story lines.



A-Leeds (AL)

AL started engaging in entrepreneurial activities when he was 12 years old; he didn't develop a formal business structure even though his motivation was purely economic, *"I didn't do it particularly because I needed to … it was an easy and quick way to make money as a kid"*. He had the support of his parents but his prior knowledge about entrepreneurship and running a business was very limited: *"I used that information … and then I applied it so I could get a better deal"*. He engaged in both enterprises on his own.

During this initial stage, he was also performing in a band and on his own although he did not identify these activities as running a business, because *"it's been just a hobby … I was just happy that I was earning some money."*

After these enterprising experiences, he enrolled in an undergraduate Management degree because *"I always had the idea of having, running, my own business and being self-employed".* At that time, he also used the resources provided by Spark to *"gave me specific knowledge besides my degree. I thought it was complementary".* He also used online resources as part of his informal learning process.

When he finished the Management degree, he enrolled on an MSc Enterprise because he wanted:

> *"to develop that knowledge and the practical nature of it [running a business]… I was a little bit disappointed with the outcome from my degree, from the academic point of view. I wanted to correct that … It was also deliberate to use it to meet other people."*

In that programme he met R-External with whom he developed a guided day-trip excursions company. Before launching the business, they asked their friends what they thought about the idea and, along with the knowledge gained at the Masters and the help from guest speakers and professors, they submitted a business proposal to Spark, winning a scholarship worth £5,000. However, the motivation was more out of necessity:

> *"it was that [starting a business] or a job … I was doing pianist work at that time but it was not enough so I needed to do something ... it was also a deliberate career choice."*

At this point, his network becomes more formal, including investors and advisors, which allowed him to leave his position in the business and to engage in other projects that he thought could help him to develop a broader network and gain knowledge so he needed to start his own high-tech business in the future.

J-Leeds (JL)

The entrepreneurial activity of JL started at age 14 mostly supported by an intrinsic motivation and to a lesser extent making money:

> *"I really enjoyed it, with computers you can do stuff … you can play around with the designs and the business side, get money in…"*

Nonetheless, he sometimes needed help, so he relied on a friend to help him with some clients: *"It wasn't 50/50, I was doing the main thing and [my friend] helped me out with some clients".* This association became more formal when he was 16 years old due to his increasing demand designing websites.

During this first entrepreneurial adventure, his knowledge about how to run a business was provided by his parents in an informal way; indeed, JL's parents *"have also had an entrepreneurial mind-set"* so he learned from them what he needed to know. According to JL, even though he did business and economics studies at A-level, he *"didn't pick up anything especially helpful"*.

JL enrolled in an undergraduate Medicine degree. When exams started during his first year, JL and another student developed a platform with key multiple-choice questions about medicine modules to help students to revise; however, having a collaborator *"was not part of the plan, we were friends and we were together at that time so we sort of came up with the idea of sending questions"*.

In JL's second year, he and O-External did not actively work on the company. Thus, when B-External and S-External offered him to join their business, he negotiated his role. He accepted the offer because *"it just sounded interesting, it was a technical challenge"*. In fact, this new business allowed him to learn from a formal source, although he was not aware of it at that moment:

> *"I gained lots, in terms of contacting Spark and realising that they were out there … an appreciation of a business sense … I didn't know what Angel meant before that … they introduced me to some start-up businesses"*

Looking back, JL feels that *"I wish I had actually [enrolled in some formal learning about enterprise or business] because I've would have better appreciation for some add value of what I was doing"*. The network JL developed with this undertaking was more formal; he met academics and Spark people, as well attended networking events. But the necessity of having a network is something that he realises now because there are things that he cannot do by himself; indeed, his trend of building a network or knowing that needed a network *"happened unconsciously"*. But *"in the past few months [I realised that network] is quite big and something that you need … meeting new people and getting in touch with other people"*.

JL abandoned this collaboration with the company because it was expanded to London and he wanted to finished medicine studies. During this exit, and before going back to the multiple-choice questions company, JL intercalated his medicine degree with a Health Informatics masters. Meeting people, advisors or entrepreneurs introduced by Spark, related to this field has allowed JL to acquire enterprise skills and solving specific problems.

He knew his strengths and weaknesses so he doesn't mind delegating; this is the reason why *"since a month ago, we're taking on some new people, there're people coming on board to share the workload".* Because for JL his business is not about *"getting money but [looking for] someone willing to be part of it"*. Having a bigger crew will help JL to graduate from medicine and to expand the company.

E-Leeds (EL)

When EL was 16, she started her entrepreneurial journey *"just to make money. It was kind of accidental, I would just start selling things and I realised that actually I was good at making money".* Her first attempt at being entrepreneurial was completely by herself, although her family supported her. Because of it, EL thinks that *"being entrepreneurial is natural. I don't think is something you can teach. I think you can learn about things as you go. You make mistakes and you learn from them"*, which is the reason why she didn't attend any formal education programme to learn how to be entrepreneurial.

Nonetheless, EL affirms that going to university allowed her to do entrepreneurial activities and that is the reason that brought EL to enrol in a Broadcasting degree; the undergraduate programme allowed EL to study two topics: media and English. At the same time, EL engaged in various activities related to her studies: writing a blog about fashion, developing a YouTube channel about fashion linked to her blog, and reporting the London Olympic Games of 2012. These different activities were a combination of her degree and her entrepreneurial spirit.

A year later, EL started her own business with her brother, because *"I wanted a good revenue from the industry, control it myself, grow it myself and I always wanted to work for myself rather than for anyone else"*; more precisely, *"I came with the idea because I run an online blog which is successful with young females so I decided to find a gap in the market and get them think they can't get it anywhere else online"*. Her brother's role was essential to help her to develop the fashion online shop, she couldn't do it by herself and needed his skills so *"we brought our skills together and we were able to learn from each other"*.

In relation to her training in being an entrepreneur, EL states that:

> *"the only course I've ever done is with Spark at Leeds Uni, and it was kind of a business boot camp. I learned a lot about that, but more than anything they just inspired me. I definitely think in business you just have to be an inspired and motivated and you just learn the skills"*.

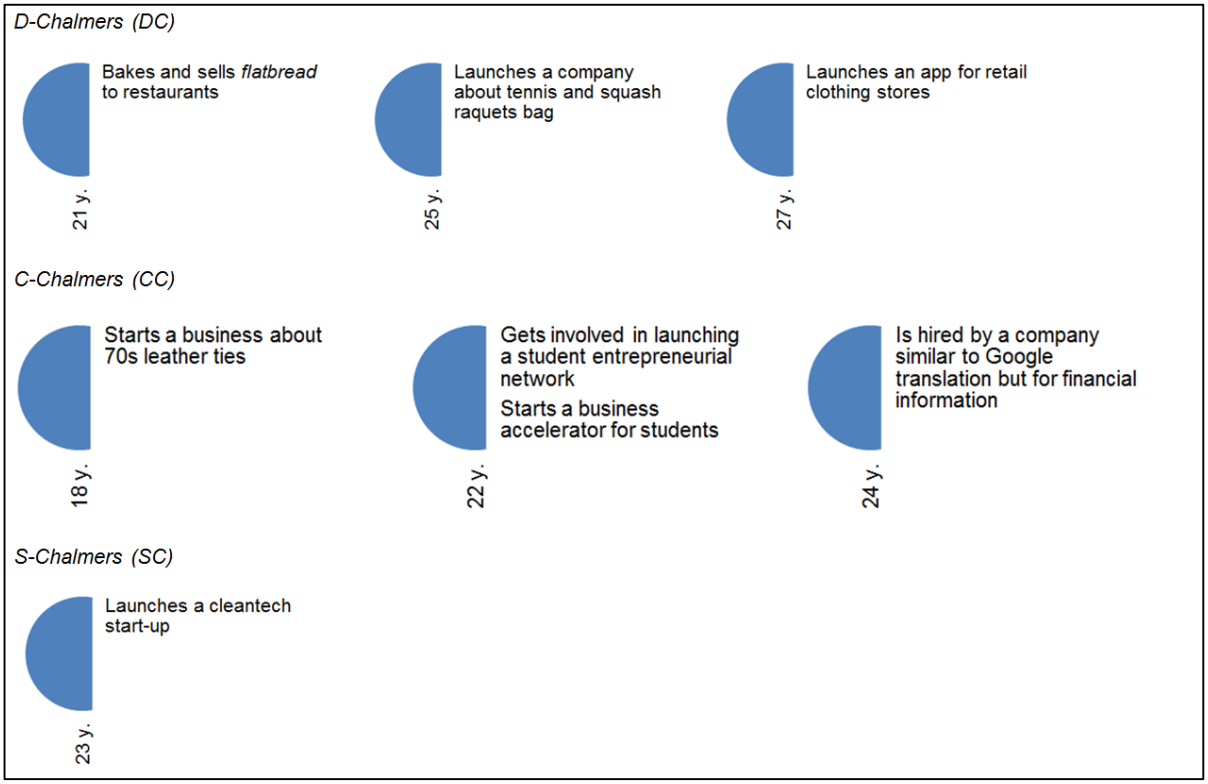
She also met a lot of young people alike to her there and advisors with whom she is still in contact weekly. But though she thinks that being an entrepreneur can be learned by doing, she realised that:

> *"I wouldn't say it's completely natural. Obviously you need to understand finance and things like that but you can pay for an accountant, and you can learn this kind of things. Very much it was kind of a natural entrepreneurial spirit, which means you just need to set it up and go alone with that"*.

Currently, she is expanding the online shop which needed more people on board, so her last relative addition was her mother: "*my mom is actually a part of the team now. She thinks it's great, she's very excited".* In fact, she has three people working for her *"who help with the marketing and the PR and the social media"* expanding her formal network.

Chalmers' case

Figure 2. Chalmers interviewees story lines.



D-Chalmers (DC)

DC grew up in a community outside of Gothenburg Sweden, known for its entrepreneurial activity; his motivation was from a shared interest among friends –*"we just decided we wanted to do something together (…) [we were] all interested in starting our own company"*– but the inspiration and support

came from DC's mother. The samples of flatbread (Swedish recipe) were readily accepted amongst local restaurants, *"went to Gothenburg and the finest restaurants and asked if they wanted to buy from us and the response was very good".* However, the business started at the age of 21, was not enough to live on.

DC's lack of experience regarding this first business included naiveté about general practice. For this reason, DC and his friends ended up switching bakeries to produce their bread, but the original bakery was able to continue selling flatbread based on the recipe given to them by DC.

The next entrepreneurial company was started *"together with one of my classmates in Industrial Engineering and Management"*, during bachelor studies at Chalmers (25 years old), when *"we started a company selling racket bags for tennis and squash".* With a bag design in place and initially interested customers, DC and the classmate investigated ways to manufacture the bag. First they used Google: *"we googled 'import to Sweden'"*. They also visited a trade fair where they were able to get a lot of their questions answered, but nonetheless, it still felt like a big risk to use foreign manufacturers. DC marked it as another experience:

> *"I did not care that much about if we didn't do it. It was fun but I did not feel that connected to it. […] On the one hand I wanted to create my own company so I guess the drive is also to do something. I know I was a little bit stressed when the company lacked experience, because I know I wanted to do something".*

For DC, the motivation came with the third venture, started as part of the program at Chalmers School of Entrepreneurship at 27 years old. The structure around the programme differentiated the experience from the previous ones:

> *"the school was a network of course. The app developers are from the IT department here at Chalmers. So we came in contact with them basically because we are Chalmers also. This device was very critical because none of us have the IT competence. Now we are almost launching so we have built up without any skills internally. […] Just to have an office. […] I think almost the most important thing, we go there every day and we sit in our same places and we do the routines. It feels like work. "*

DC and his teammates are continuing with their venture, having secured a number of pilot customers in Gothenburg, with aims to expand into Europe. The team has been a critical source of motivation, but it has also been valuable to learn the process of how to develop a more technology-based venture:

> *"a 'right way' process of doing things because both [of the previous companies] were more [about] doing something. We just did actually something without knowing how to do it. [Now we] follow, like, how we should do things, like the cold calling, and the lean start-up, and effectuation, like what we have in the team and what we can do with ourselves, and what we have studied now".*

C-Chalmers (CC)

CC's entrepreneurial interest started with a focus on creativity instead of a business intention. Growing up, CC worked developing clubs activities and events in his hometown. In high school, he took part in the Youth Business course (Ungföretagsamhet), starting a small business with some classmates:

> *"we did the classic, by something, sell to the other one. We bought ties, from the 70s, made of leather, and they were produced in West Germany".*

Besides having fun, the motivation was to see if the project could win any of the awards associated with Ungföretagsamhet. CC and his partners evaluated the options relative to their personal strengths:

> *"me and K-External, we spent a lot of time on the presentation because we sort of took all these categories or these fields for competition and we looked at said, okay, within which competition is it possible for us to win? … The product wasn't that good. But we made a great presentation."*

Ultimately though, it was back to CC's creativity drive: *"you are required to do some sort of project work to finish off [but, for me] there was some sort of force just dragging me towards it. I don't know if it was the curiosity part of me or if it was, ... about creating something."*

At university, CC continued his emphasis on engagement into entrepreneurial activity, continually generated from a motivation to create and build something, manifesting in various forms. Together with classmates from Chalmers, CC started a student association for entrepreneurs:

> *"[J-External] came to me and said, hey, how about starting an association for entrepreneurship. I think that is needed because entrepreneurship is centralized at Chalmers at the School of Entrepreneurship, and there are plenty of students that have this need for entrepreneurial minded [stuff]. And I said, well, you should talk to JS-External who was working with this question from the Student Union board. So they connected, they talked, and then J-External pulled me in".*

At the same time, he also started a business accelerator for student idea development: *"what we ended up with, starting to build, was (…) the business accelerator for students".* All of these endeavours stem from CC's creativity interest, but also from wanting to create value for others because *"for me it was again creating something. Building something and sort of transfer the feeling of connecting people. Because that is also something that I enjoy doing".*

CC continues his studies at Chalmers, but is also now working for a company, *"taking part in building up a new business area, or a new company, within the company group, where I have the responsibility for sales".*

S-Chalmers (SC)

SC grew up in an entrepreneurial family; both SC's father and uncle run their own companies and have always encouraged SC in her entrepreneurial interests. The decision between staying in northern Sweden and going to Chalmers was essential to where SC is today. Indeed, she wanted a technical basis:

> *"my best friend at the time and I applied for Chalmers, and then my choice of education was, okay – let's go away, because I don't have a clue of what I am going to do. I have an interest in finance and business but I also have an interest in natural sciences and technology, so industrial engineering. I thought it would be something that would fit me well*".

During her bachelor studies, she engaged with different student groups regarding entrepreneurship; and just the common perspective steered her away from a more traditional career track. SC did her masters studies at the Chalmers School of Entrepreneurship, during which, in the 2nd year she was part of a team developing *"a cleantech start-up. We develop a solution to use energy from ocean waves"*. The team experienced a lot of team conflict during this period:

> *"a lot of the activities or a lot of my energy was focused on getting a team together and understanding each other and understanding the team dynamics. Which was rather the focus than actually developing the idea. And that has had an impact in many ways. (…) learned a lot of things about knowing what not to do, how not to act. The importance of having a team, and a team that is really complementary in terms of (…) personality. In terms of values"*.

Knowledge important to the development of the company includes industry information, and specifically the renewable energy industry, and SC's background of integrating business with technology was important to this. But something particularly gained through the school was applying entrepreneurial tools often seen as more common to IT development:

> *"[my company] is a super long-term – we are not developing an app (…) It's resource heavy. But what I've learned is that you can use the same tools, (…) the same thinking, or packaging, as when you develop an IT-based idea. And you can apply that to type of ideas or businesses [like my company]. (…) I don't think other developers in our industry apply that type of mind or toolset".*

SC also stresses the importance of cohort of classmates, *"it helped a lot to have like-minded people around you in the same situation"*, and in particular those that also continued with their ventures after graduating. *"I was alone [in the company], but I was not alone in being alone",* which changed their relationship from peers to being a close friendship.

A critical connection for the company and SC was meeting A-External, the current technical director in the company. SC met AE through the process of building the first scale prototype, having attracted funding for this during the incubation period, though AE comes from another university in Sweden. Other important stakeholders were also developed either during the incubation time, or as part of the school network.

Discussion

From a general perspective, the 'educational triad' of formal, non-formal and informal education programmes related to entrepreneurship (Coombs et al. 1973), has been described briefly in two universities as exemplars. Similar to previous studies (Ayinla, 2007; Ibrahim and Soufani, 2002; Karlan and Valdivia, 2011; Klofsten, 2000), the use of non-formal education programmes was observed. Moreover, through the analysis and comparison of the entrepreneurial activities, as critical incidents, of entrepreneurs coming from the two studied settings, the perception and attitudes about these programs were described and analysed.

In general, the relevance of networks has been made clear and how entrepreneur's network awareness increased through their entrepreneurial journey: from "don't know" to "know" to "need". For example, one of the entrepreneurs stated how he enrolled in a masters degree to have more practical knowledge over enterprise and precisely to meet other people.

Regarding the two universities, it is surprisingly to see that Leeds entrepreneurs started to engage in entrepreneurial activities in their adolescence, whereas Chalmers entrepreneurs started in their early young adult years. Could this be extrapolated to British and Swedish young entrepreneurs or is this a particular characteristic of the sample we studied? However, entrepreneurs tended to use an informal network as well as informal learning to carry on their first entrepreneurial activity, no matter where they came from.

Regarding the first research question - *how does entrepreneurial learning develop before, during and after students' involvement in universities?* It seems that respondents' entrepreneurial learning follows a pattern. Early stages of the entrepreneurial journey relied on informal learning (TED-talks, conversations with relatives or friends, online resources); but as respondents' entrepreneurial activities involve a more complex structure and a wider network of clients, they become aware of their need of a more formal learning. To satisfy this need, respondents engaged in non-formal education programmes (bootcamps, workshops and seminars) and, when necessary, they enrolled on formal education programmes (degrees or masters). Nevertheless, respondents also used other sources to cover their knowledge gaps that they felt they had by informal learning. Consequently, this shows how interdisciplinarity and how entrepreneurship goes beyond business schools, as suggested, among others, by Gupta and Bharadwaj (2013). In addition, an interesting feature was that respondents sought other people with whom to associate or hire in order to address their knowledge or skills gaps; this increased their awareness regarding the need of a network that could help them to develop their business when they were not able to do it through learning acquisition, which contribute to the mentioned need of more research about the relationship between entrepreneurship education at universities and entrepreneurial behaviour (Matlay, 2008). In fact, it was this awareness which seemed to transform the role of entrepreneurial learning after university into the pursuit of social capital: it was no longer about learning new areas of a business (accountancy, marketing, and programming) but to finding the right person who could be part of their team. However, how universities should respond to this need, as suggested by Man (2007) or Werkins (2010) remains still unexplored.

The second research question - *how does entrepreneurial social capital develop before, during and after students' involvement in universities?* This highlighted the importance of entrepreneurs' relations with a network and its added value. Even though social capital is mostly based on informal networks during the early stages of the respondents' entrepreneurial activity, informal networks are always present on their entrepreneurial journey. Actually, before university, family and friends support was essential for respondents to develop their business, whether to help them to know potential customers or to organise the business. But once they got engaged with university programmes (degree or masters), their social capital relied on informal as well as formal networks. Classmates, guest speakers and academic mentors formed their network and provided them not only with the confidence to be entrepreneurial but also with the resources needed to do it. Consequently, as previously stated (Gordon et al., 2012; Lans et al., 2011), entrepreneurship education programmes provide an initial network. Interestingly, when they had gained entrepreneurship experience they realised that a wider network was central to their social capital. This awareness is what makes them look for specific contacts to develop their network in order to pursue their future career plans goals. Sometimes, this need for social capital lead them to abandon their entrepreneur role to become an intrapreneur within a company, which, in principle, goes against previous results stating that the propensity to be an entrepreneur is increased when s/he gains access to social capital (Bauernschuster et al., 2010).

Conclusion

This paper has explored the relationship between the role of social capital and entrepreneurial learning by investigating the entrepreneurial journey of student and graduate entrepreneurs in two relevant and

well-known European universities. It has described how entrepreneurship education programmes in these universities have been using entrepreneurs to connect students to the 'real world', providing them an initial network of entrepreneurs and the skills to develop their own network. In addition, the real impact of networking on students learning has been explored and some implications have been extracted from it.

In conclusion - *is it possible to establish a relationship between students' entrepreneurial social capital and entrepreneurial learning in universities?* Results suggest that the intertwining of social capital and learning in entrepreneurship occurs before university, at the very first moment that they engage in some type of entrepreneurial activity. Nonetheless, university provides them with a needed maturity to realise that this intertwining is more complex than expected and that universities can provide them with formal and non-formal learning, the network of academics, classmates and entrepreneurs (that act as guest speakers and advisors) they develop during their studies, which allow them to gain informal learning, becomes an essential part of their entrepreneurial social capital.

Consequently, the contribution of this paper is to expose the previously missing value of social networking in entrepreneurship education in universities. As implications, institutionally, it legitimates universities to include social networking activities into formal and non-formal entrepreneurship education. Moreover, at an individual level, it motivates educators to embed these activities within the curriculum that facilitate students' informal learning.

Regarding the limitations of the paper, firstly, although it is possible through this pilot study to establish a relationship between students' entrepreneurial social capital and entrepreneurial learning in universities, it does not allow us to fully understand this relationship and the interconnectedness between formal, non-formal and informal elements of the Bermuda Triangle in entrepreneurial education. More research is needed to understand the entrepreneur's journey by considering not only entrepreneurial activities as critical incidents but other moments of the entrepreneur's life that help them to become successful entrepreneurs.

References

Aldrich, H., and Zimmer, C. 1986. Entrepreneurship through social networks. The art and science of entrepreneurship. In D. L. Sexton, R. W. Smilor (Eds.), *The Art and Science of Entrepreneurship* (pp. 3–23). Cambridge, MA: Ballinger Publishing.

Anderson, A., Park, J., and Jack, S. 2007. Entrepreneurial Social Capital Conceptualizing Social Capital in New High-tech Firms. *International Small Business Journal*. 25(3), pp.245-272.

Ayinla Alarape, A. 2007. Entrepreneurship programs, operational efficiency and growth of small businesses. *Journal of Enterprising Communities: People and Places in the global economy.* 1(3), pp.222-239.

Bauernschuster, S., Falck, O., and Heblich, S. 2010. Social capital access and entrepreneurship. *Journal of Economic Behavior & Organization.* 76(3), pp.821-833.

Béchard, J. P., and Toulouse, J. M. 1998. Validation of a didactic model for the analysis of training objectives in entrepreneurship. *Journal of Business Venturing.* 13(4), pp.317-332.

Bosma, N., Van Praag, M., Thurik, R., and De Wit, G. 2004. The value of human and social capital investments for the business performance of startups. *Small Business Economics.* 23(3), pp.227-236.

Cassell, C., and Symon, G. (Eds.). 2004. *Essential guide to qualitative methods in organizational research*. London: Sage.

Casson, M., and Della Giusta, M. 2007. Entrepreneurship and social capital. Analysing the impact of social networks on entrepreneurial activity from a rational action perspective. *International Small Business Journal.* 25(3), pp.220-244.

Cedefop 2011. Guidance Supporting Europe's Aspiring Entrepreneurs. Policy and practice to harness future potential. Research Paper. No 14. Luxembourg: Publications Office of the European Union. http://www.cedefop.europa.eu/EN/Files/5514_en.pdf

Chen, M. H., Chang, Y. Y., and Chang, Y. C. 2015. Entrepreneurial Orientation, Social Networks, and Creative Performance: Middle Managers as Corporate Entrepreneurs. *Creativity and Innovation Management*. doi: 10.1111/caim.12108

Coombs, P. H., Prosser, R. C., and Ahmed, M. 1973. *New Paths lo Learning for Rural Children and Youth*. New York: International Council for Educational Development (ICED).

Cope, J., Jack, S., and Rose, M. B. 2007. Social Capital and Entrepreneurship An Introduction. *International Small Business Journal.* 25(3), pp.213-219.

Creswell, J. W. 2013. *Research design: Qualitative, quantitative, and mixed methods approaches*. CA: Sage.

Cruz, N., Escudero, A., Barahone, J., and Leitao, F. 2009. The effect of entrepreneurship education programmes on satisfaction with innovation behavior and performance. *Journal of European Industrial Training*. 33(3), pp.198–214.

Dawson, C., Fuller-Love, N., Sinnott, E., and O'Gorman, B. 2011. Entrepreneurs' perceptions of business networks: does gender matter? *International Journal of Entrepreneurship and Innovation.* 12(4), pp.271-281.

Deakins, D., and Freel, M. 1998. Entrepreneurial learning and the growth process in SMEs. *The Learning Organization.* 5(3), pp.144-155.

Eagle, N., Macy, M., and Claxton, R. 2010. Network diversity and economic development. *Science.* 328(5981), pp.1029-1031.

Edwards, L. J., and Muir, E. J. 2005. Promoting entrepreneurship at the University of Glamorgan through formal and informal learning. *Journal of Small Business and Enterprise Development.* 12(4), pp.613-626.

Estrin, S., Mickiewicz, T., and Stephan, U. 2013. Entrepreneurship, social capital, and institutions: Social and commercial entrepreneurship across nations. *Entrepreneurship Theory and Practice.* 37(3), pp.479-504.

European Commission 2012. *Effects and impact of entrepreneurship programmes in higher education.* file://ds.leeds.ac.uk/staff/staff8/buscq/effects_impact_high_edu_final_report_en_7428.pdf

European Commission 2014. *Tackling Early Leaving from Education and Training in Europe: Strategies, Policies and Measures.* Luxembourg: Publications Office of the European Union.

European Commission 2015. *The European Higher Education Area in 2015: Bologna Process Implementation Report*. Luxembourg: Publications Office of the European Union.

Fayolle, A., Gailly, B., and Lassas-Clerc, N. 2006. Assessing the impact of entrepreneurship education programmes: a new methodology. *Journal of European Industrial Training*. 30(9), pp.701-720.

Foxton, F., and Jones, R. 2011. *Social capital indicators review*. UK: Office for National Statistics.

George, M. 2013. *Evaluation of the LEAD programme: a ten-month leadership development initiative for SME owner-managers.* Lancaster: Lancaster University Management School. http://www.lancaster.ac.uk/media/lancaster-university/content-assets/documents/lums/business/LEADEvaluation2013.pdf

Gephart, R. P. 2004. Qualitative research and the Academy of Management Journal. *Academy of Management Journal.* 47(4), pp.454-462.

Gibb, A. 2005. *Towards the entrepreneurial university. Entrepreneurship education as a level for change.* UK: National Council for Graduate Entrepreneurship. http://ncee.org.uk/wp-content/uploads/2014/06/towards_the_entrepreneurial_university.pdf

Gibb, A., Haskins, G., and Robertson, I. 2013. Leading the entrepreneurial university: Meeting the entrepreneurial development needs of higher education institutions. In A. Altmann and B. Ebersberger (Eds.), *Universities in Change, Innovation, Technology, and Knowledge Management* (pp. 9-45). New York: Springer Science+Business Media.

Goldman Sachs 2014. *Empowering entrepreneurs, accelerating growth. Progress report on the Goldman Sachs 10,000 Small Businesses UK Programme*. UK: Goldman Sachs.

Gordon, I., Hamilton, E., and Jack, S. 2012. A study of a university-led entrepreneurship education programme for small business owner/managers. *Entrepreneurship & Regional Development.* 24(9-10), pp.767-805.

Granovetter, M. 1985. Economic action and social structure: the problem of embeddedness. *American Journal of Sociology.* 91(3), pp.481-510.

Greene, F. J., and Saridakis, G. 2007. *Understanding the factors influencing graduate entrepreneurship.* National Council for Graduate Entrepreneurship Research Report, 1/2007. http://www.leedsbeckett.ac.uk/enterprise/resources/assets/publications/reports/report%20-%20understanding%20factors%20influencing%20graduate%20entrepreneurship.pdf

Gupta, N., and Bharadwaj, S. 2013. Agility in business school education through richness and reach: a conceptual model. *Education+ Training.* 55(4/5), pp.370-384.

Henry, C., Hill, F., and Leitch, C. 2005. Entrepreneurship education and training: can entrepreneurship be taught? Part I. *Education+ Training*. 47(2), pp.98-111.

Higgins, D. and Elliott, C. 2011. Learning to make sense: What works in Entrepreneurial Education? *Journal of European Industrial Training.* 35(4), pp.345-367.

Hill, S. E. 2011. *The impact of entrepreneurship education. An exploratory study of MBA graduates in Ireland.* MSc dissertation. University of Limerick. http://ulir.ul.ie/bitstream/handle/10344/1663/2011_Hill%2c%20Shane.pdf?sequence=5

Honig, B. 2004. Entrepreneurship education: Toward a model of contingency-based business planning. *Academy of Management Learning & Education.* 3(3), pp.258-273.
Ibrahim, A. B., and Soufani, K. 2002. Entrepreneurship education and training in Canada: a critical assessment. *Education + Training.* 44(8/9), pp.421-430.
Jack, S., Moult, S., Anderson, A. R., and Dodd, S. 2010. An entrepreneurial network evolving: Patterns of change. *International Small Business Journal.* 28(4), pp.315-337.
Janssen, F., Eeckhout, V., and Gailly, B. 2007. Interdisciplinary approaches in entrepreneurship education programs. In A. Fayolle, (Ed.), *Handbook of research in entrepreneurship education, vol. 2* (pp. 148-165). Glos, UK: Edward Elgar Publishing Limited.
Karlan, D., and Valdivia, M. 2011. Teaching entrepreneurship: Impact of business training on microfinance clients and institutions. *Review of Economics and Statistics.* 93(2), pp.510-527.
Kim, P., and Aldrich, H. 2005. Social capital and entrepreneurship. Hanover, MA: Now Publishers Inc.
Klofsten, M. 2000. Training entrepreneurship at universities: a Swedish case. *Journal of European Industrial Training,* 24(6), pp.337-344.
Knapper, C., and Cropley, A. J. 2000. *Lifelong learning in higher education.* London: Psychology Press.
Lackéus, M., and Williams Middleton, K. 2015. Venture Creation Programs: bridging entrepreneurship education and technology transfer. *Education + Training*. 57(1), pp.48-73.
Lans, T., Verstegen, J., and Mulder, M. 2011. Analysing, pursuing and networking: Towards a validated three-factor framework for entrepreneurial competence from a small firm perspective. *International Small Business Journal*. 29(6), pp.695-713.
Leeds 2015. *Enterprise Impact Report 2014-15.* University of Leeds. http://www.leeds.ac.uk/download/downloads/id/1520/enterprise_impact_report_2014-15
Light, I., and Dana, L. P. 2013. Boundaries of social capital in entrepreneurship. *Entrepreneurship Theory and Practice.* 37(3), pp.603-624.
López-Robles, J. C., Escudero-Marín, M., Parejo-Laudicina, E., Troca-Redondo, J., and Campoy, C. 2014. Implementation of entrepreneurship skills in the nutrenvigen-G+D factors master program: a pilot experience. In J. Gijón-Puerta and P. García-Sempere (Coords.), *Book of Papers. Conference on Enabling Teachers for Entrepreneurship Education (ENTENP2014)* (pp. 93-102). Granada: Editorial Universidad de Granada.
Lundqvist, M. and Williams-Middleton, K. 2008. Sustainable Wealth Creation beyond Shareholder Value. In: WANKEL, C. and STONER, J. (Eds.) *Innovative Approaches to Global Sustainability*. New York, NY: Palgrave MacMillan.
Man, T. W. Y. 2007. Understanding entrepreneurial learning A competency approach. The *International Journal of Entrepreneurship and Innovation.* 8(3), pp.189-198.
Matlay, H. 2008. The impact of entrepreneurship education on entrepreneurial outcomes. *Journal of Small Business and Enterprise Development.* 15(2), pp.382-396.
Matlay, H., and Carey, C. 2007. Entrepreneurship education in the UK: a longitudinal perspective. *Journal of Small Business and Enterprise Development.* 14(2), pp.252-263.
McKeever, E., Jack, S., and Anderson, A. 2015. Embedded entrepreneurship in the creative re-construction of place. *Journal of Business Venturing.* 30(1), pp.50-65.
McQueen, D. H. and Wallmark, J. T. 1982. Spin-off Companies from Chalmers University of Technology*. Technovation.* 1, pp.305-315.
McQueen, D. H. and Wallmark, J. T. 1984. Innovation Output and Academic Performance at Chalmers University of Technology. *Omega.* 12(5), pp.457-464.
Neergaard, H., and Ulhoi, J. P. (Eds.). 2007. *Handbook of qualitative research methods in entrepreneurship*. Glos, UK: Edward Elgar Publishing.
Ngaka, W., Openjuru, G., and Mazur, R. E. 2012. Exploring Formal and Non-formal Education Practices for Integrated and Diverse Learning Environments in Uganda. *International Journal of Diversity in Organizations, Communities and Nations.* 11(6), 109-121.
OECD 2009. *The Impact of the Global Crisis on SME and Entrepreneurship Financing and Policy Responses.* Boulogne: Bel Canto. http://www.oecd.org/industry/smes/43183090.pdf
OECD 2013. *Entrepreneurship at a Glance.* OECD Publishing. http://dx.doi.org/10.1787/entrepreneur_aag-2013-en
Piperopoulos, P. 2012. Could higher education programmes, culture and structure stifle the entrepreneurial intentions of students? *Journal of Small Business and Enterprise Development.* 19(3), pp.461-483.
Pittaway, L., and Cope, J. 2007. Entrepreneurship education a systematic review of the evidence. *International Small Business Journal.* 25(5), pp.479-510.

Pittaway, L., Rodriguez-Falcon, E., Aiyegbayo, O., and King, A. 2011. The role of entrepreneurship clubs and societies in entrepreneurial learning. *International Small Business Journal.* 29(1), pp.37-57.
Rae, D. 2010. Universities and enterprise education: responding to the challenges of the new era. *Journal of Small Business and Enterprise Development.* 17(4), pp.591-606.
Rae, D., and Carswell, M. 2001. Towards a conceptual understanding of entrepreneurial learning. *Journal of small business and enterprise development.* 8(2), pp.150-158.
Sarasvathy, S. D. and Dew, N. 2005. Entrepreneurial logics for a technology of foolishness. *Scandinavian Journal of Management.* 21(4), pp.385-406.
Saunders, M.N.K., Gray, E.D., and Goregaokar, H. 2013. SME innovation and learning: the role of networks and crisis events. *European Journal of Training and Development.* 38(1/2), pp.136-149.
Sharma, P., and Choudhary, A. 2015. Learning in Different Educational Settings; Methodological Concerns. *Journal of Humanities and Social Science.* 20(4), pp.18-25.
Shepherd, D. A., and Douglas, E. J. 1997. *Is management education developing, or killing, the entrepreneurial spirit.* In Proceedings of the 1997 USASBE Annual National Conference Entrepreneurship: The Engine of Global Economic Development, San Francisco, California. ftp://85.185.161.2/YSTP/1/1/ROOT/DATA/PDF/SME/dshepherd.pdf
Skule, S. 2004. Learning conditions at work: a framework to understand and assess informal learning in the workplace. *International Journal of Training and Development.* 8(1), pp.8-20.
Souitaris, V., Zerbinati, S., Al-Laham, A. 2007. Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business Venturing.* 22(4), pp.566–591.
Stam, W., and Elfring, T. 2008. Entrepreneurial orientation and new venture performance: The moderating role of intra-and extraindustry social capital. *Academy of Management Journal.* 51(1), pp.97-111.
Stam, W., Arzlanian, S., and Elfring, T. 2014. Social capital of entrepreneurs and small firm performance: A meta-analysis of contextual and methodological moderators. *Journal of Business Venturing.* 29(1), pp.152-173.
Valencia Arias, A. 2013, La formación de habilidades emprendedoras en los estudiantes de ingeniería. *Latin American and Caribbean Journal of Engineering Education.* 5(2), pp.15-23.
von Graevenitz, G., Harhoff, D., and Weber, R. 2010. The effects of entrepreneurship education. *Journal of Economic Behavior & Organization.* 76(1), pp.90-112.
Werkins, P. 2010. *Recognition of non-formal and informal learning: country practices.* http://www.connect.tsoft.hu/digitalcity/servlet/PublishedFileServlet/AAABEWBX/OECD-Report.pdf
Westlund, H., and Adam, F. 2010. Social capital and economic performance: A meta-analysis of 65 studies. *European Planning Studies.* 18(6), pp.893-919.
Westlund, H., Larsson, J. P., and Olsson, A. R. 2014. Start-ups and local entrepreneurial social capital in the municipalities of Sweden. *Regional Studies.* 48(6), pp.974-994.
Young, L. 2014. *Enterprise for All. The relevance of enterprise in education.* UK: Department for Business, Innovation & Skills and Prime Minister's Office. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/338749/EnterpriseforAll-lowres-200614.pdf