The University as an Entrepreneurial Learning Space: the role of socialised learning in developing entrepreneurial competence

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Abstract

Purpose – The article explores the influence of socialisation upon the constitution and integration of learning leading to the development of entrepreneurial competence while at university, from the learner perspective. Self-reported learning is analysed to illustrate ways in which students make use of institutional and social contributions of the university context.

Design/methodology/approach – The study investigates entrepreneurial journeys of 18 participants, either currently attending or recently graduated from three universities in three countries with both comparable and distinctive contextual elements. In depth analysis of individual life stories, focusing on self-identified critical incidents, is used to illustrate ways in which students, while at university, develop entrepreneurial competence for current and future practice.

Findings – Formal and non-formal learning remain important foundations for entrepreneurial competence development, delivered through designed content-centric structures. Informal learning – particularly mentor supported socialised learning – centring around the learner is key to solidifying learning towards entrepreneurial competence, through know-how and access to resources. The university emerges as an entrepreneurial learning space where students constitute and integrate learning gained through different forms.

Research limitations/implications – Cross-cultural analysis is limited as the article emphasizes the individual's learning experience relative to the immediate university context.

Practical implications – Universities play a critical role as entrepreneurial learning spaces beyond formal and non-formal learning. This includes dedicating resources to orchestrate informal learning opportunities and enabling interaction with the different agents that contribute to socialised situated learning, supporting entrepreneurial competence development. Universities need to take responsibility for facilitating the entirety of learning.

Originality/value – Socialised learning in combination with other forms of learning contributes to student development of entrepreneurial competence while situated in the university context.

Introduction

A significant amount of research and policy initiatives focus on the role of higher education in fostering entrepreneurship and developing entrepreneurial competence (Arthur et al., 2012, Rae and Wang, 2015). For example, a joint policy report from UK organizations addressing entrepreneurial activity[1] urged universities to "institute a systematic overhaul of academic disciplines so that entrepreneurship education is embedded in every subject", recognizing that entrepreneurship is currently "taught primarily through modules in business school courses and extra-curricular activity" (Herrmann et al., 2008, p. 6). This highlights that the delivery of entrepreneurship is seen as significantly limited by universities' organizational structures (European Commission 2008), and even in attempting to address the need for change, emphasis is placed on institutional design (Audretsch, 2014) rather than on the learning experience of the individual (Williams Middleton and Donnellon, 2014). Moreover, while policy argues for the embeddedness of entrepreneurial competence development across educational disciplines to help bridge education and work life (Bacigalupo et al., 2016, Herrmann et al., 2008), how entrepreneurial competence development should be carried out, assessed, and qualified in institutional settings such as formal education at university is unclear and strongly debated (Blenker et al., 2011, Byrne et al., 2014, Fayolle and Gailly, 2008, Lackéus, 2015, Pittaway and

[1] The report is a coordinated effort from The Council for Industry and Higher Education (CIHE), The National Council for Graduate Entrepreneurship (NCGE) and The National Endowment for Science, Technology and the Arts (NESTA).

Edwards, 2012). Indeed, the entrepreneurship education literature has primarily addressed content knowledge – what the student learns (Mwasalwiba, 2010, Neck and Corbett, 2018) – paying less attention to how learning is received and integrated in the individual's personal dominant logic.

Recognizing the emphasis of contributions from formal learning to entrepreneurial competence development, this article rather explores the way in which students utilize the whole learning space in which they are embedded – the university – with specific emphasis on social interaction and how they make sense of the learning gained through interaction. Taking a socialised learning perspective on the individual development of entrepreneurial competence while situated in the university setting is unique, as most socially situated learning studies addressing entrepreneurial learning have focused on family business (Hamilton, 2011) or entrepreneurship in general (Rae, 2006).

Current forms of entrepreneurship education face challenges in delivering learning towards the most personal aspects of entrepreneurial competence. Traditional methods are seen to not correlate well with the development of an entrepreneurial mind-set, which is developed through more experiential approaches (European Commission, 2008; Lackéus et al., 2016, Nabi et al., 2017). There are also challenges integrating uncertainty, a defining component of entrepreneurship (Sarasvathy, 2008), and real-world environments (Bygrave and Zacharakis, 2009, Feldman, 2001) into educational structures which require assessment, grading and control of variation. These challenges mean that to date, most entrepreneurship education research has focused on knowledge and skill development, and much less attention has been paid to entrepreneurial identity construction, involving dynamic processes of internal self-reflection and social engagement (Donnellon et al., 2014, Johannisson, 2016, Lackéus, 2014, Nabi et al., 2017, Nielsen and Gartner, 2017).

In the entrepreneurial learning literature, entrepreneurial competence is shown to be developed through socially situated everyday practice (Hamilton, 2011, Morris et al., 2012, Nabi et al., 2017, Rae and Wang, 2015). Universities have aimed to facilitate socially situated learning by providing or supporting extra-curricular activity, one example being student entrepreneurship clubs. These extra-curricular activities span idea generation, business planning and support, networking events and competitions. While these can simulate learning by doing, learning through mistakes, and role attribution from 'successful' entrepreneurship (Pittaway et al., 2015), this non-formalized setting is mainly seen as contributing to raising awareness about entrepreneurship (Rae et al., 2012). Furthermore, such non-formalized forms face limitations as learning gleaned is not qualified or assessed, nor is the individual supported in making sense of (a sometimes one-off) experience. As a consequence, any outcome for what is offered as extra-curricular activity and which is not seen to correlate well with policy requirements is often positioned outside university core operations and therefore vulnerable to changes in funding (Pittaway et al., 2015, Rae et al., 2012).

When combined, the current literature highlights a lack of comprehensive understanding about how entrepreneurial learning takes place within institutional settings, such as universities, but also recognizes missing links between different forms of learning, and how these forms contribute to developing entrepreneurial competence (Neck and Corbett, 2018, Pittaway et al., 2015). This calls into question the current role of the university in facilitating learning for the practice of entrepreneurship. The aim of this article is to explore, from the learner's perspective, the influence of socialisation upon the constitution and integration of learning leading to the development of entrepreneurial competence while at university. In line with this aim, the research question is: *How do university students engaged in entrepreneurship gain entrepreneurial competence beyond formal entrepreneurship education?*

This article builds upon a situated, socialised perspective on learning and contributes to understanding the different ways in which students (from their own perspective) develop entrepreneurial competence when engaged in entrepreneurship while at university. Building from an understanding that engaging in entrepreneurship is necessary to develop entrepreneurial competence, the article explores if it is enough for universities to facilitate access to entrepreneurial experiences, or if more is needed to support individuals gaining entrepreneurial competence. In the empirical study, students engaging in entrepreneurship while at university communicate the critical incidents of their entrepreneurial journey they perceive as leading to entrepreneurial competence development, including education and key stakeholder interaction. Empirical data is analysed in regard to different forms of learning (formal, non-formal, informal). Additional investigation of informal learning is done to draw out the contribution of situated learning and socialisation.

Theoretical Framework

Entrepreneurial competence can be described as the knowledge, skills and attitude necessary to initiate and engage in entrepreneurial practice (Bacigalupo et al., 2016). Developing entrepreneurial competence includes understanding behavioural changes of the individual as well as taking into account the performative outcome of that behaviour relative to standard expectations – for example the creation of a new firm (Mitchelmore and Rowley, 2010). Embedding entrepreneurial activity in the sophisticated learning space of the university should enable individuals to gain entrepreneurial competence (Baron and Tang, 2009), as embeddedness in the practice of entrepreneurship is shown to contribute to entrepreneurial perseverance (Jack and Anderson, 2002). Increasingly, structured or semi-structured entrepreneurial activity is being integrated into university education (Lackéus and Williams Middleton, 2015, Lundqvist, 2014). And while embedding students in university-based

entrepreneurial activity is seen as emergent practice (Siegel and Wright, 2015, Wright et al., 2017), there is still limited empirical investigation along these lines. Many highlight the challenge of recognizing impactful experiential activities within formal learning structures (Byrne et al., 2014, Johannisson, 2016). This article draws upon theoretical grounds of human learning to inform analysis of how individuals account for entrepreneurial competence constituted and integrated while at university. Within different forms of learning, attention is paid to learning experiences which are learner-centric, future-oriented. Learner-centric places emphasis on how the individuals value the learning themselves (in part through the identification of different events as critical). Future-orientation highlights how individuals intend to improve upon actions taken given that their objective is to develop entrepreneurial competence to be used in practice. Both are argued as contributing to the development of entrepreneurial competence, given that the nature of competence development involves "the ability to manage different existing and future challenges in working life" (Illeris, 2018, p. 1).

Forms of learning

Learning is a fundamental basis of human life, and while it is universally recognized and broadly understood, learning is also an extremely complex concept (Nicolini and Mesnar, 1995) with no generally accepted singular definition (Illeris, 2018). Centuries of scholars, based in the disciplines of psychology, sociology, anthropology, and other fields of study, such as education, associated to human cognition, action, and experience have worked to understand how humans learn (Cole and Scribner, 1975, Jarvis, 2006). It is by no means the aim of this article to comprehensively review the theories of human learning and regardless this could not be appropriately achieved within the space of a journal article. Given the focus on the university context, emphasis is placed on 'adult' learning in three main forms – formal, non-formal and informal learning – and while there is some agreement regarding how these *forms* are defined, there lacks consensus upon the way in which these *forms* can or should be applied (Colley et

al., 2002, Tuschling and Engemann, 2006). For the purpose of this article, the following definitions are used.

Formal learning is intentional and often contained in a certain time, place and/or space (Roberts, 2012). Moreover, formal learning is understood as structured and sequential learning activities that are assessed in line with designed pedagogy, having predetermined objectives, delivered by a designated instructor, and which result in some kind of certification, representing a qualification of the learning achievement (Tuschling and Engemann, 2006).

Non-formal learning is learning that is not provided by an education or training institution and typically does not lead to certification. Nonetheless, it is structured in terms of objectives to be reached, time and support, and is intentional from the perspective of the learner. In an institutional environment, non-formal learning is often designated as extra-curricular.

Informal learning results from daily life activities, without particular structure in terms of designed outcome, time or space, and does not involve external assessment. Though informal learning is often unintentional (Tuschling and Engemann, 2006) or incidental (Marsick and Watkins, 2001), and it is embedded in meaningful activity, building upon the learner's interest (Rogoff et al., 2016). Informal learning "differs in how and how much it includes play, instruction, collaborative or solo activity, contributions to "real" productive goals, and connections with a larger community. Who participates in these settings also tends to differ." (Rogoff et al., 2016, p. 358). Furthermore, informal learning includes learning gained through embeddedness in everyday family and community settings, where learning is ubiquitous and gained through 'osmosis' (Azuma, 1994). In regard to entrepreneurial competence development, family business settings have been understood as providing informal learning in line with this definition, where business know-how as well as rules and values around organizational culture are passed from one generation to the next (Cruz et al., 2012, Hamilton, 2011, Konopaski et al., 2015).

This article removes the 'boundary' of the classroom and expands the learning space to the university as a whole. The learning space thus expands from a primary focus on cognition (as emphasized in formal learning settings) to learning which allows intellectual and emotional domains to be fused (Rogoff et al., 2016). This perspective is taken in an attempt to include 'socialisation of the intellect' (Cole and Scribner, 1975) in learning experience of the individual – recognizing that it is not necessarily possible to distinguish the manifestation of intellectual capability as developed through either thinking-as-content or thinking-as-process, through either natural or contrived contexts, but rather competence (i.e. ability to manage existing and future challenges of working life) that results from 'both-and'. In this vein, Jarvis (2006) articulates that 'it is the whole person that learns', in order to recognize that the (adult) person is socially situated but can also be institutionalized, and both settings contribute to observable outcomes of learning. Recognizing that extensive studies of formal entrepreneurship education have addressed contributions of formal learning to entrepreneurial competence, this article explores the way in which students utilize the whole learning space in which they are embedded – the university – with specific emphasis on the use of (social) 'resources' around them and how they make sense of the learning they gain from these resources.

Social and situated aspects of informal learning

Socialisation is seen as important to individual development (Jarvis, 2006). Socialised learning builds on social cognitive and social learning theories (Bandura, 1977, Bandura, 2001) and recognizes that individuals learn while existing 'in the world' and through interaction with and observation of others. Sfard (1998) uses two metaphors of learning: acquisition of skills and knowledge (acquisition), and as a social process of participating (participation) to a community to help illustrate the differentiation between more traditional learning (acquisition) and more contemporary views, which include the engagement (participation) of the learner (Illeris, 2018). The participation metaphor helps to emphasize the ongoing negotiation process between the

individual and a network of others (Taylor and Thorpe, 2004) contributing to the socialisation of the learning achieved. This learning is aimed towards development of behaviour, thereby recognizing learning gained through interpretation of response patterns of socialisation agents (Bandura, 1969, Bandura, 1977, Berglund et al., 2016, Down and Warren, 2008, Rae, 2005, Rigg and O'Dwyer, 2012, Williams Middleton, 2013). In line with this argumentation, socialised learning is primarily aligned with informal learning, as it is constructed and constituted by the learner; it is learned through participation (embeddedness in everyday activities) (Lave and Wenger, 1991) and even co-participation (Taylor and Thorpe, 2004) in a community (in this case a community of students engaging in entrepreneurial activity while at university), and does not require direct reinforcement (e.g., certification). Socialised learning is seen as central to the development of entrepreneurial competence, as the future-orientation and social contextualization of the learning enables ability to manage the current and future challenges of 'working life' – the entrepreneurial journey. The emphasis on socialised learning involving co-participation also highlights 'meaningful' activity, beyond learning by doing, to included activity legitimized by others positioned in the community (Handley et al., 2006).

Entrepreneurial learning at the university

Rae (2006) defines entrepreneurial learning as "learning to recognise and act on opportunities, through initiating, organising and managing ventures in social and behavioural ways" (p. 40). Prominent researchers within the field of entrepreneurship education (for example Cope and Watts, 2000, Gibb, 1997, Hjorth and Johannisson, 2007, Rauch and Hulsink, 2015) agree upon a definition of entrepreneurial learning which has the potential to change behaviour based on processing of information, with scholars of entrepreneurial learning frequently emphasizing the more personal and less obvious aspects of development during entrepreneurial emergence (Pittaway et al., 2015, Rae and Wang, 2015, Rusk and McGowan, 2015, Williams Middleton and Donnellon, 2014). Research from both streams agree that higher entrepreneurial education

ought to include experiential learning perspectives when aiming to develop competence in the practice of entrepreneurship (Barrett and Peterson, 2000, Collins et al., 2006, Hjorth and Johannisson, 2007, Rauch and Hulsink, 2015, Yballe and O'Connor, 2000).

Experiential learning theory (Kolb, 1984) states that behaviour is developed through learning influenced by environmental factors, building from Lewin's understanding of individual and environment as interdependent when shaping behaviour (Lewin, 1951, Sansone et al., 2004). Furthermore, Kolb and Kolb (2005) emphasize that experiential learning uses a learning space. Cope and Watts (2000) argue that developing entrepreneurial competence is achieved through learning by doing (involving experiential and critical learning incidents). Studying 'the lived experience' of entrepreneurs, Cope found that significant learning involves "alteration of beliefs, viewpoints and perspectives that shape the individual's perception of the world" (Cope and Watts, 2000, p. 106). Taken together, these views reinforce the need to incorporate experiential learning in education programmes that are designed to train people in the practice of entrepreneurship (Edelman et al., 2008, Honig, 2004).

Designing education for entrepreneurial practice is suggested to include: process delivery, ownership of learning by participants, learning from mistakes, negotiated learning objectives, and session adjustment and flexibility (Gibb, 1996). Gibb claims incorporating these design components facilitates a learning environment which provides ownership, control, autonomy and learner-led rewards. Such design places the learner at the centre of the learning process. Entrepreneurial education involving experiential learning has also been described as action-based (Rasmussen and Sørheim, 2006). Action-based approaches, such as an entrepreneurial-directed approach (Heinonen and Poikkijoki, 2006), often combine experiential and participative learning with traditional classroom teaching to guide the learner in application of theory into practice while recognizing contextual contingencies. The main challenge of action-based approaches is the decrease in predictability and control of the teaching situation (Sadler-

Smith and Shefy, 2007), sometimes making it difficult for the student to grasp learning, as it is not structured in a recognizable (traditional) form. Informal learning, including socialised learning, circumvents this challenge by freeing the student to independently connect to real-world co-participatory experience while at university, regardless of engagement in entrepreneurial education (Williams Middleton and Donnellon, 2014, Williams Middleton and Donnellon, 2017), thus also removing the expectation of a traditional format through which the learning is delivered.

Accessing mentors or role models (Sullivan, 2000, Zozimo et al., 2017) provides socialised learning through observation, imitation and modelling, building upon the participation metaphor outlined by Sfard (1998). Mentors facilitate reflection upon actions while individuals actively engage in an emerging (nascent) phase of the entrepreneurial process. Learning through interaction with mentors exemplifies Bandura's general explanation of behaviour developed through Social Learning Theory (Bandura, 1977) using reciprocal determination (Bandura, 1978). Mentoring processes combined with learning by doing (Cope and Watts, 2000, Sullivan, 2000) could be seen to facilitate a decision cycle for testing hypotheses, providing feedback through perception and reaction from the surrounding social network. Contacting mentors is seen as the adoption of a help-seeking behaviour (Lee, 1997). Interaction in a social network (including mentors), for information, feedback or seeking help can therefore be seen to facilitate "generative learning" (Barrett and Peterson, 2000, Gibb, 1997). Entrepreneurial mentors have been shown to employ communication strategies in the forms of persuasion, engagement, criticism and provocation, in order to illicit commitment, compliance and/or resistance from the mentee (Lefebvre and Redien-Collot, 2013), illustrating ways in which mentor feedback and support may contribute to the legitimization aspects of socially situated learning (Hamilton, 2011). Similarly, a study by Rigg and O'Dwyer (2012) used a mentor network to facilitate induction into entrepreneurial practice, where the mentors enabled not only the development of

practical skills, but learning 'how to be' including their status and identity relative to the 'community'.

In this article, learning is categorized relative to the three forms outlined at the beginning of this section – formal, non-formal and informal. Given the specific research question is designed to address alternative means used to develop entrepreneurial competence, emphasis is placed on the critical relationships associated to critical events as the individual engages in entrepreneurship, and thus socialised learning. Relationships are further analysed in an attempt to recognize specific contributions to socialised learning in terms of access to information, feedback, and help-seeking behaviour (accessed support). Finally, it is important to distinguish this study from previous work investigating student intention to become entrepreneurs (for example, the GUESSS study, Sieger et al., 2016), as the emphasis is on the self-reported learner experience of individuals (students) actively engaged in entrepreneurship while at university, and to understand the contribution of this learning towards not only future but also currently applied entrepreneurial competence.

Methodology

The empirical study of this article investigates the (perceived) entrepreneurial journey of students engaging in entrepreneurship while at university. Students (identified in this article as participants) included individuals currently studying at university (i.e. students) and engaging in entrepreneurship and individuals recently graduated from university (i.e. former students) who, while a student at university, engaged in entrepreneurship. In this way, the study captures the self-perception of the individual and their entrepreneurial journey (engagement in entrepreneurship) while being a student at university. This article centres on the self-reported experience of students already engaged in entrepreneurship, as differentiating from studies which focus on the university role in influencing students' entrepreneurial intentions (for

example, the GUESSS study, Sieger et al., 2016). An interpretive epistemological perspective underpinned by a qualitative research approach was used. This allowed for interpretation of the lived experiences of the participants (Gephart, 2004) using the life history technique (Cassell and Symon, 2004). Inductive analysis (Gioia et al., 2013) of transcribed interviews, prioritizing information expressed by the participants, was followed by coding of data, resulting in the generation of different social roles and attribution to types of learning: formal, non-formal and informal; and in relation to socialised learning.

Empirical Settings

In order to access participants (either current students engaged in entrepreneurship or recently graduated students engaged in entrepreneurship while at university, i.e. while a student), three independent universities located in Spain, Sweden, and the United Kingdom were positioned as the general empirical settings. While these settings provide entrepreneurial education, learning and support in various formats, they all operate in accordance to the Bologna Process, which is seen to harmonize systems of higher education in the European area[2]. Table 1 provides baseline information about the three institutions concerning key infrastructure and education which support entrepreneurship at the institution. While the three institutions are located in different geographical and socio-economic areas, thus contributing to a better understanding of the study phenomena across geographical and cultural borders, they were selected as convenient contexts in which the researchers have access to where located, thus this should be considered as a limitation of the study. Moreover, using data from different contexts with varying formats of entrepreneurship education is intended as a way to enrich the analysis, and not to provide comparative international study, as the emphasis is on the self-perceptions of the individual.

[2] https://www.unibo.it/en/international/agreements-and-networks/bologna-process

Table 1. Select Entrepreneurial Characteristics of University Cases

	Chalmers University of Technology	**University of Leeds**	**University of Malaga**
Location	Gothenburg, Sweden	Leeds, United Kingdom	Malaga, Spain
Founding Year	1829	1904	1972
Disciplines	Engineering, Science, Management, Architecture, Life Science organized in 13 departments	Arts & Humanities, Biological Sciences, Business, Social Sciences and Law Engineering, Environment, Math & and Physical Sciences, Medicine & Health organized in 8 faculties	Economics, Life Science, Engineering, Science, Management, Architecture, organized in 18 faculties, and 71 departments
Student/Faculty	11,000 full-time students 1,450 faculty	35,000 full time students 8,000 staff	38,000 full-time students 2,350 faculty
University Infrastructure for Entrepreneurship and Innovation Activity (non-education)	-3 University associated Science Parks -University Incubator and Accelorator -Innovation Office (equiv. to TTO) -Student Union supporting student extra-curricular activity including camps/hacks	-Spark start-up services, -Business incubation programme -Nexus (Innovation & Enterprise Centre) -Opportunities provided by student union -Scholarships/awards	-Technological Park of Andalusia -Business Development Support Unit (spin-off support for 20 yrs) -UMA-ATech joint initiative UMA-PTA: University Incubator Services
Formalized Education Program(s) addressing Entrepreneurship	-2 yr master program in 'Entrepreneurship and Business Design' [Chalmers School of Entrepreneurship] -Project-based bachelor course (7.5 ECTS) for Mech. engineering -Masters level electives (7.5 ECTS) from Entrepreneurship & Strategy div. faculty	-Centre for Enterprise & Entrepreneurship Studies (CEES) offering undergraduate modules across the entire university -Specialist MSc in Enterprise and collabortarive programs: ex. MA Fashion, Enterprise & Society	-Several degree level electives (6 ECTS) delivered by the Dept. of Economics & Business Admin. -Several masters level electives delivered by the Dept. of Economics & Business Admin. -Education through the Link by UMA-Atech Centre
Prioritized Entrepreneurial Accomplishments	As of 2015, Chalmers School of Entrepreneurship (ranked No. 1 Entrepreneurship Edu in Sweden since 2009) has graduated over 500 students with entrepreneurial competence and incorporated more than 75 ventures with 73% survival rate. Univ. incubator recognized as leading incubator in Europe (UBI index).	In 2014/15, CEES taught 1,203 students and launched the MSc Enterprise, and Spark engaged with 885 students and supported 48 start-ups. Significant alumni funding was received to support enterprise and the univereisty was awarded the Times Higher Education "Entrepreneurial University of the Year".	PTA recognized as best practice for Sci & Tech parks (1996); UMA and the University of Seville recognized as a Campus of International Excellence in 2012, under the name Andalucia Tech.

Data selection

Criterion sampling was used (Neergaard and Ulhøi, 2007), following three key criteria for selecting participants to interview: (1) the participant had to either be a student in their final year at university or a recent graduate (i.e. within one year of having completed their university degree) from one of the universities described in the empirical settings; (2) the participant had to have been engaged in entrepreneurial activity; (3) the participant had to have either completed some formal entrepreneurship education (credit-bearing courses) [in following tables listed as EE] or alternatively was without any formal entrepreneurship education [in following tables listed as non-EE], with the total sample representing 50:50 formal [EE] and non-formal [non-EE] educated participants. Gender and country variables were also considered. Selection criteria resulted in the formation of two groups of participants at each institution: (a) participants who completed some formal entrepreneurship education; and (b) participants who had not completed any formal entrepreneurship education. Initially several individuals were contacted at each institution, with the selection of participants made by applying the mentioned criteria. To keep the sample balanced across the universities and the mentioned criteria, six in-depth interviews with participants from each institution were carried out, thus forming the empirical sample of 18 participants. As will be detailed in the empirical settings section, this allowed the research to have a relevant number of participants coming from three different contexts with different institutional approaches to entrepreneurship education, enriching the analysis. The sample includes an equal balance between male and female participants.

Table 2. Participant data

Code	Country	Age	M/F	Status	Formal Eship Edu	Degree	Started University
M1	Spain	22	M	Student	Non-EE	BEng Architecture	2010 UG
M2	Spain	26	M	Student	EE	BEng Informatics Engineering	2010 UG
M3	Spain	28	F	Gradate	EE	BEng Industrial Engineering	2008 UG
M4	Spain	21	M	Student	EE	BSc Marketing	2011 UG
M5	Spain	29	F	Graduate	Non-EE	PhD in Inorganic Chemistry	2003 UG, 2009 G
M6	Spain	25	F	Graduate	Non-EE	BEng Industrial Design Engineering	2008 UG
C1	Sweden	25	M	Student	EE	MSc Entrepreneurship & Business Design	2010 UG, 2014 G
C2	Sweden	27	F	Graduate	Non-EE	MSc Design Sustainable Development, Architecture	2010 UG, 2013 G
C3	Sweden	23	M	Student	Non-EE	BSc Industrial Engineering	2013 UG
C4	Sweden	27	M	Student	EE	MSc Entrepreneurship & Business Design	2006 UG, 2010 G, 2014 G
C5	Sweden	27	F	Graduate	EE	MSc Entrepreneurship & Business Design	2010 UG, 2013 G
C6	Sweden	29	F	Graduate	Non-EE	MSc Design Sustainable Development, Architecture	2010, UG 2013 G
L1	UK	23	M	Graduate	EE	MSc Enterprise	2009 UG, 2013 G
L2	UK	25	F	Graduate	EE	MSc Enterprise	2010 UG, 2014 G
L3	UK	28	M	Student	Non-EE	PhD Tissue Engineering & Regenerative Medicine	2008 UG, 2012 PHD
L4	UK	37	F	Graduate	EE	MA Fashion Enterprise & Society	2000 UG, 2014 G
L5	UK	23	M	Student	Non-EE	MSc Health Informatics & Medicine	2011 UG
L6	UK	24	F	Graduate	Non-EE	BA Philosophy	2010 UG

Data collection

The main researcher of each institution contacted the participants by e-mail and telephone. The interviews were conducted on site, at the home institution of the participant, by the researcher belonging to the home institution. To guarantee the same interviewing procedure among home institutions, an interview protocol was prepared. In addition, two interviewers – the main

researcher at each institution, and an independent researcher distinct from the institutional researcher – conducted the first interview at each institution. This was done to standardize the use of the interview protocol across the institutions. The protocol had two parts. The first part consisted of asking the participants to draw a visual timeline of self-defined key milestones and activities – considered critical incidents (Chell, 2014, Cope and Watts, 2000, Deakins and Freel, 1998). Participants were also asked to specify key actors associated to critical incidents (Deakins and Freel, 1998). In this way, the participants visualized their own entrepreneurial journey, including key relationships. This visual aid was then used throughout the life story technique (Cassell and Symon, 2004), in which the participant provided a verbal history connected to the visual aid, with particular emphasis on the identified key relationships.

The second part of the protocol consisted of unstructured interviews, i.e. lacking any particular script (Creswell, 2013), in order to deepen understanding about each participant's entrepreneurial journey. Despite the lack of a script, each interviewer was able to guide the discussion topics based on the theoretical framework (see Table 3) and the visual aid. The interview concluded with a short discussion of future intentions. Each participant spoke freely to their independently created life history, focusing on the self-designated critical incidents and articulating details about the key relationships connected to the critical incidents (Chell, 2014, Cope and Watts, 2000, Deakins and Freel, 1998). Interviews were audio recorded and, on average, lasted approximately 45 minutes.

Data Analysis

The first coding phase was based on the visual aid. The entrepreneurial journeys drawn by the participants were analysed and compared to establish five themes which contextualized the entrepreneurial journey, emphasizing a socialised learning perspective (see Table 3). This first

order coding, representing the main themes, was used to develop the second order coding, representing more specific categories detailing the previous themes.

Table 3. Emergent themes and categories from data analysis

Themes – First order coding	Categories – Second order coding
Period of time: when the entrepreneurial activity is taking place	During University Post-University *(including periods in between university, if multiple studies)*
Activity associated actor: interaction with others illustrated as critical incident entrepreneurial activity	Business partners *(of the entrepreneur(s))* Customers Family Friends Mates Mentor Non-university business support team *(incubators not funded by the university)* University business support team *(incubators funded by the university)*
Contact settings: ways that they found out who they need to speak to in order to cover their need	Formal Non-formal Informal
Contact initiator: who suggested the interaction/contact	Educator Entrepreneur itself Other
Reasons to contact: reasons behind their interaction with others	Information seeking *(proactive search for and giving of information)* Feedback seeking *(determine adequacy of one's behavior; seek/use feedback to secure goals)* Help-seeking *(asking others for assistance or advice)*

Recorded interviews were transcribed and NVivo v10 software was used to identify patterns and commonalities across all interview data. Inductive analysis (Gioia et al., 2013) of the transcribed interviews was applied. Particular attention was paid to the critical incidents and key relationships identified, using the themes developed from the visual aids. The individual participant was used as the unit of analysis to allow a better understanding of their processes. Data analysis resulted in categories (see Table 3), within the previously emerged themes, which helped explain where and how the participant's learning was developed, and the learning association to the key relationship actor(s) (McKeever et al., 2015).

Two orders of coding were used: a first order addressing main contextualizing themes; and a second order allowing for categorization within the themes. Coding applied to the transcribed interviews, as well as the conclusions generated from the data, were checked by the researchers

(interviewers) to guarantee accuracy and validity. No discrepancies on the coding process or the conclusions generated were identified. Themes, categories, and exemplary quotes were used to help develop findings and conclusions from the data.

Findings

The findings section uses interpretations to present the results, organized around three key themes which are aligned with our research interests: socialised learning, the role of mentorship, and relevance of previous entrepreneurship education. Findings are supported by relevant quotes to exemplify the raw data and to help the reader understand the interpretations made.

Socialised learning

Participants describe their entrepreneurial learning and contribution to entrepreneurial competence development to expand beyond the 'boundary' of the classroom across the university as a whole.

Table 4. Prominent second order coding of participants

First Order Coding Theme	Total Participants	Participants With EE	Participants With non-EE
Period	During University	During University	During University
Activity associated actor	Mentor	Business partner / University business support team	Mentor
Contact settings	Informal	Informal	Informal
Contact initiator	Student	Student	Student
Reasons to contact	Help-seeking	Help-seeking / Information seeking	Help-seeking

Table 4 illustrates that during university, participants initiated contact primarily with mentors, but also business advisors and university incubation actors (depending upon participant's formal education in entrepreneurship), with the main purpose of seeking out help. Participants seek out these actors through organized and informal social interactions, for example spontaneous small talk, student union meetings, or breaks during conferences.

> C3: *"We met a young entrepreneur [25 years old], who has had a company for 7 years and we discussed our specific idea. It was a very useful meeting; he gave us very good advice. We visited the Copenhagen's incubator, too. … In the final session, we met other companies and had the chance to talk with them about their journey".*

Most contacts are initiated by the participants themselves, as they become aware, when embedded in their entrepreneurial journey, that they lack competence and therefore actively seek out someone to guide them. In general, the stakeholder sought after by the participants is an individual willing to take on the role of mentor. *Mentor* includes a broad spectrum of individuals: family members, trusted faculty, university researchers, incubation staff acting outside their formal role, a guest speaker, etc., as partially illustrated in the following interview citations M6 (family member), C4 (incubation staff member) and L3 (academic staff).

> M6: *"My father taught me how to make money with the website; he has been my mentor, actually".*

> C4: *"In 2014 I was on my final master year and I started to work on my own ideas in the Incubator. Our idea provider [Abigail], she has been our main inspirational source from the beginning. She helped us where we encountered problems. [Abigail] is still mentoring us nowadays".*

> L3: *"Two mentors: they [John and the interviewee] have been involved in two different projects and [the Professor] who is [John's] PhD supervisor passively mentor me and he asks me proper questions about [John's] projects when they meet to know what's going on and make me think about it."*

Typically, the participants were found to seek out someone who is seen to have experience in the area or industry sector in which they want to start their entrepreneurial activity, or someone with more general entrepreneurial expertise they perceive as important. Besides a mentor, the participants saw incubator or institution representatives as helpful as they engaged in the start-up process.

The role of mentorship

Seeking out mentorship is seen as driven by three main purposes: seeking information relevant to the entrepreneurial case at hand (such as industry specific knowledge or process know-how),

help and guidance in performing entrepreneurial activity, and feedback on strategies, decisions and performance, both in regards to the individual and the venture pursued. Participants particularly emphasized needing help in their entrepreneurial process, emphasized by adoption of help-seeking behaviour (Lee, 1997). The following exemplary citations from interviews are used to illustrate participants seeking information (M3, L2); feedback (L5, C5); or help (L5, C4, M4).

(1) Information:

> M3: *"I learned about management in the programme. I also got contacts from this programme, all of them are entrepreneurs and we support each other. Most of us are engineers, and we help each other, in terms of knowledge."*
>
> L2: *"For my master dissertation, I focused on developing a business idea related to pet supplements. But I'm not sure [whether] to pursue it. [My supervisor] put me in touch with his friend, [Jane], to interview people in pet products companies, and manufacture companies, etc. [Jane] ended up inviting me to a networking event; there I met [Jill], [Jane]'s friend, and I am currently [part-time] working for [Jill]'s company. So [Jill] was a connection through [my supervisor], through [Jane], through a networking event."*

In both of the citations, the participants address how social connections were used to access important information, for example in terms of engineering knowledge through classmates (M3), or specific industry knowledge relevant for the business idea through a supervisor's network (L2).

(2) Feedback:

> L5: "*It was not until one year after when we thought that could turn [idea] into a business because when someone told us that they really liked it and that they were would pay for this, we thought 'why don't we charge for this?' It never occurred to us".*
>
> C5*: "I sent an application for the European Food and Venture Forum (EFVF) in May 2015 and they selected us for presenting our company. This Forum did not get us any money but a lot of contacts and we talked with a lot of investors and got feedback. […] There we met [Joan] who works part-time as a graphic designer in one of the Forum's companies; we contacted her [to be] a graphic designer for our own company, even though it is working for free. [Joan]'s energy is really good and positive; she is helping us during the whole process of the company. She has started to become a key person"*

L5 illustrates how feedback from potential customer changed the participants' awareness of the business potential of their idea, sparking them into action. In citation C5, participants not only identify the non-monetary value of feedback gained from attending an industry event, but that the event also facilitated access to a new important resource (Joan) who becomes a central part in the team, thus relating to the other two themes of seeking specific information (in this case graphic design) and acquiring help, as Joan provides this competence for free.

(3) Help:

> L5: *"When [partner] and I came back [from masters course in Health Technology], he had a lot of knowledge and contacts from Spark [university business support service] and knew exactly what Spark had to offer in terms of advice and initial funding. Also, we needed legal advice that we couldn't afford so Spark gave us this legal advice. We applied for the Spark scholarship and got one year free office space, also, we attended the Spark Bootcamp. … We also got advice about how to deal with finance, costs, budgets, etc."*
>
> C4: *"[Classmates] have played a huge role both with learnings and life choices because they are very good. During summer 2015, all of them were trying to decide between applying for jobs or to try as an entrepreneur; talking to my classmates helped me with this choice."*
>
> M4: *"In the incubator, if we need some help, the other entrepreneurs could help us or even test the prototypes developed by us."*

In citation L5, the participant speaks to the importance of a university-associated organization in providing help through free resources to develop the business. More often, participants highlight the help provided through peers, either through advice for challenging decisions (C4) or actual development of products (M4).

Relevance of previous entrepreneurship education

Drawing comparisons between non-entrepreneurship educated (non-EE) and entrepreneurship educated (EE) participants illustrates differences in their co-participation activities (key relationships) and their reasons for initiating the relationships. Figure 1 is based on compiled coding in NVIVO of the participants' self-described critical events, and illustrates where learning is situated, for both the entire population but also segmented according to participant's

entrepreneurship education. Figure 1 illustrates that participant's engagement in informal learning in relation to their educational background in entrepreneurship is quite similar.

Figure 1. Learning settings of key relationships

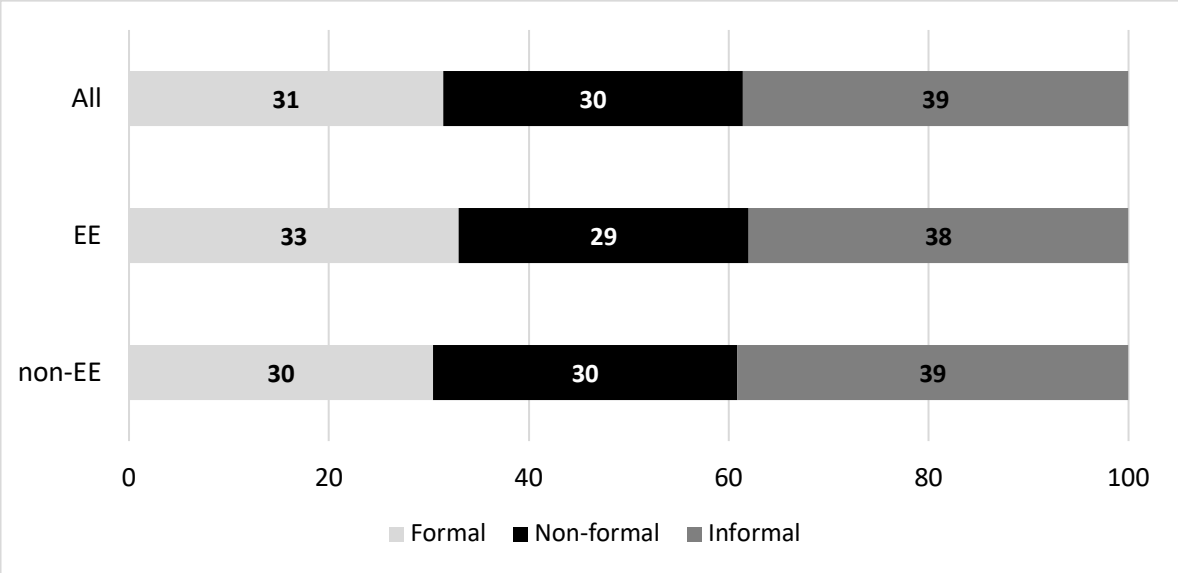
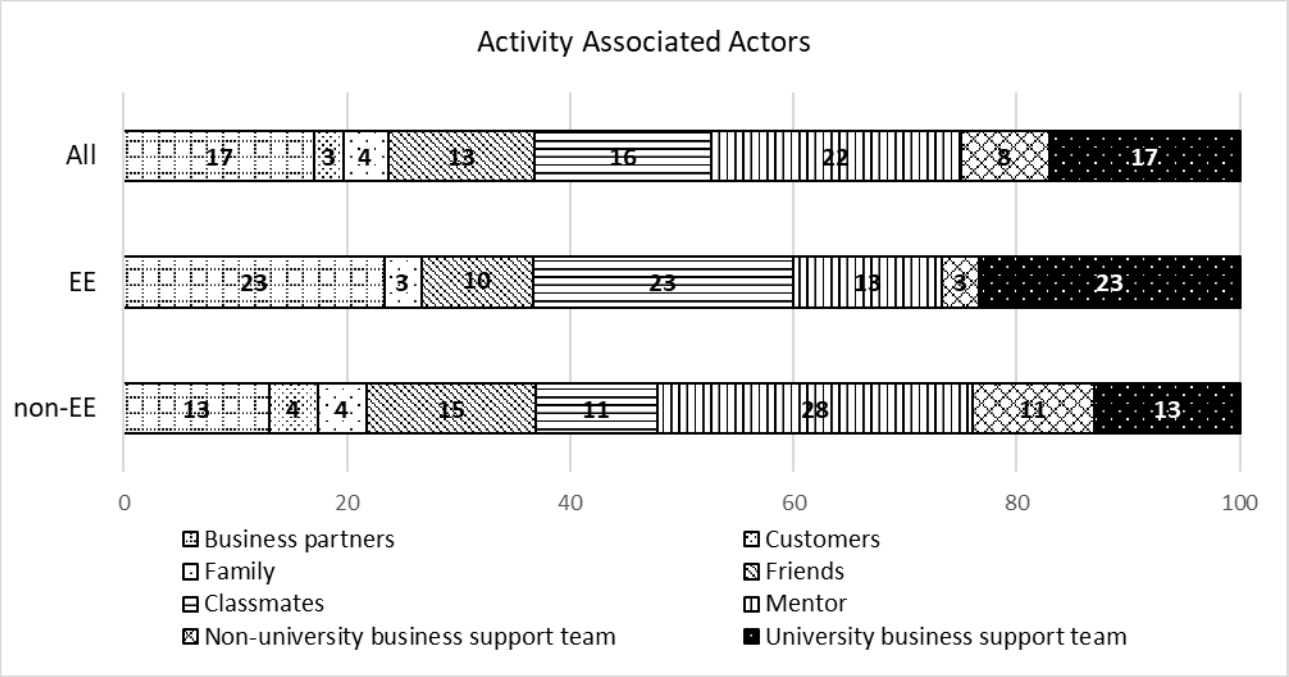


Figure 2, also based on compiled coding, illustrates with whom participants interact to gain entrepreneurial competence, again showing the total participant population as well as segmentation based on participant's entrepreneurship education. Figure 2 illustrates that EE participants rely on their business partners and university business support team for help, feedback and/or information to a greater extent than the non-EE participants. Friends and classmates also seem to play a larger role for the EE participants. Relationships with these actors seem also to displace the reliance on mentors and non-university based business support for the EE participants, in comparison to the non-EE participants. Figure 1 shows that Non-EE participants have a greater reliance on mentors and non-university business support actors to gain access to information or seek help.

Figure 2. Activity Associated Actors



Discussion

Development of entrepreneurial competence is recognized to require engagement in experience (Bacigalupo et al., 2016). By expanding the entrepreneurial learning space to the university as a whole, this article explores the way in which students gain learning through participating in social 'resources' around them, and then use key actors (mentors) help them make sense of the learning they gain from these resources.

The findings of this study illustrate that students, while at university, develop entrepreneurial competence through engagement in entrepreneurship, supported not only by formal education and/or extra-curricular activity, but through socialisation with key actors. This confirms the role of higher education in fostering entrepreneurship and developing entrepreneurial competence, as suggested by the literature (Arthur et al., 2012, Rae and Wang, 2015), while also adding to this role through illustrating the entrepreneurial competence students gain by being situated in the university space. Students are shown to independently contribute to their own development of entrepreneurial competence beyond formalized learning (entrepreneurship education),

though students having educational background in entrepreneurship report being well-situated to integrate acquired knowledge and skills from formalized education with participatory learning from experience (Sfard, 1998).

Universities are recognized as explicitly supporting the structured learning of formal degree programmes and non-formal extra-curricular activities. From this study, these two forms of learning are perceived by the participants as attributing to a slight majority of their overall entrepreneurial competence development. However, positioning the university as a sophisticated learning space (Baron and Tang, 2009), learning becomes more personalized. The findings illustrate the importance of informal learning – gained through stakeholder interaction and mentorship – that, when integrated with the formal and non-formal learning, to help solidify the personalized value of the entrepreneurial competence gained. This indicates that guidance (in the form of mentorship, educational supervision, etc.) plays a vital role in the development of entrepreneurship competence, as this enables individuals to frame the insights gained from experience. This article identifies three themes that help frame entrepreneurial competence development outside the traditional view of the university: socialised learning (facilitating access to information, feedback and help); the role of mentorship; and relevance of previous entrepreneurship education.

By expanding the 'boundary' of the classroom to instead investigate the entire university as a learning space, the focus shifts from a finite emphasis on cognition acquisition to include participatory learning (Illeris, 2018, Sfard, 1998), enabling 'socialisation of the intellect' (Cole and Scribner, 1975). Existing literature points to the importance of the informal and socialised learning embedded in the formal or structured learning spaces (Collins et al., 2006, Edelman et al., 2008, Williams Middleton and Donnellon, 2014) but the participants' perception as presented in the findings more tacitly illustrate the extent of the contribution attributed to this learning setting. Socialised learning is identified as important to participant's entrepreneurial

competence development as the participants communicate learning while existing 'in the world' (Jarvis, 2006) and through interaction with and observation of others (Bandura, 1977, Bandura, 2001), as part of a community (Sfard, 1998) of entrepreneurs, and through an ongoing negotiation process between the participant and a network of others (Taylor and Thorpe, 2004). It is a learning gained through interpretation of response patterns of socialisation agents (Bandura, 1969, Bandura, 1977, Berglund et al., 2016, Down and Warren, 2008, Rae, 2005, Rigg and O'Dwyer, 2012, Williams Middleton, 2013). Participants place emphasis on ways in which they personalize their entrepreneurial competence development and take ownership of their learning. Participants deliberately initiate contact with key stakeholders based on self-awareness of deficiencies information, feedback or access to tacit help (Lee, 1997).

Participants actively seek out mentors through interaction in social networks while situated at university as a means to facilitate "generative learning" complementing cognitive acquisition, as proposed by Barrett and Peterson (2000) and Gibb (1997). Related to this, participants emphasize the importance of receiving guidance to support composition and integration of the learning gained through engagement in entrepreneurship. This guidance most often comes in the form of a mentor, though mentorship is shown to be delivered by a spectrum of different actors (Sullivan, 2000, Zozimo et al., 2017). Learning through interaction with mentors builds upon reciprocal determination (Bandura, 1978), leading to increased self-efficacy and other personally driven contributions to competence development. Typically, the participants are found to seek out someone who is seen to have experience in the area or industry sector in which they want to start their entrepreneurial activity, or someone with more general entrepreneurial expertise they perceive as important. This is an illustration of what has been mentioned in previous literature as mentoring processes combined with learning by doing (Cope and Watts, 2000, Sullivan, 2000, Zozimo et al., 2017). In addition to mentors, participants identify incubator or institution representatives as helpful when engaging in entrepreneurship

(particularly, starting a company). Similar to Curth et al. (2015) this highlights the importance that aspiring entrepreneurs attribute to networking which facilitates learning from personal experiences as well as benefitting from the business contacts and industry specific information. The relevance of previous entrepreneurship education have been mentioned in the literature as having a positive impact on start-up activity (see for example Kyrö, 2005, Reynolds and Curtin, 2008). In this study, participants who completed some form of entrepreneurship education where shown to rely on their business partners or the university business support team when seeking help and/or information, whereas participants without formal entrepreneurship education prioritize contacting a mentor. Not surprisingly, participants with formal entrepreneurship education already have a network of key actors who they can contact for help and information. The participants are therefore well-situated to integrate acquired knowledge and skills from formalized education with participatory learning from experience. Consequently, formal entrepreneurship education is shown to positively influence access to university-based resources supporting entrepreneurship. In addition, the participants develop competence through social interaction in both structured (formal education and extra-curricular activities – using formal and non-formal learning means) and non-structured settings (informal/socialised learning). Not unexpectedly, socialised learning is contingent mainly on where the participants are situated (Lave and Wenger, 1991), thus, learning gained through social interaction transitions from the more structured settings (using formal and non-formal means) to the less structured (using informal means) once individuals graduate from university.

Conclusion

This article calls attention to the emerging role of the university as an entrepreneurial learning space, moving beyond siloed entrepreneurial activity in the form of entrepreneurship education and university entrepreneurship (Siegel and Wright, 2015, Wright et al., 2017). The article

suggests ways in which universities can further integrate entrepreneurial learning based on more personal and less obvious aspects of development during entrepreneurial emergence (Pittaway et al., 2015, Rae and Wang, 2015, Rusk and McGowan, 2015, Williams Middleton and Donnellon, 2014, Wright et al., 2017). Contribution to an understanding of entrepreneurial competence development is made by illustrating ways in which students draw upon different forms of learning while at university to develop their entrepreneurial competence. Development of competence expands beyond current use, as while the student-as-learner is initially situated within the university, socialisation extends beyond the spatial setting of the university. This article points to the importance of integrating learning gained through different forms in order to personalize the cognitively acquired and participatory gained elements. Students are shown to instigate integration of learning, often engaging mentors to complement or supplement knowledge gained through formal or extra-curricular means. This highlights the criticality of guided learning processes, recognized in formal education, but less understood in other forms, in order to aid the learner in reflecting upon their own relationship to knowledge acquired (Pittaway and Thorpe, 2012, Williams Middleton and Donnellon, 2014).

Theoretical contribution includes ways in which entrepreneurship education and entrepreneurial learning literatures may complement one another. For example, findings from the empirical exemplify ways in which entrepreneurial learning takes place within the university setting (Nabi et al., 2017), and links between different forms of learning in contributing to entrepreneurial competence development, thus providing new potential for entrepreneurial pedagogy. Existing theory has emphasised the value of informal and socialised learning (Cole and Scribner, 1975, Lave, 2009, Rogoff et al., 2016). This article extends the literature into the entrepreneurship education sphere by, firstly, explaining to what extent informal learning can be perceived within the 'formal' entrepreneurial learning space and draws attention to the potential value of socialised learning in this context. Moreover, it recognises

and describes the relevant role of mentors combined with learning by doing in the process of entrepreneurial learning (Cope and Watts, 2000, Sullivan, 2000) and how they facilitate "generative learning" (Barrett and Peterson, 2000, Gibb, 1997).

The article also validates research emphasising educational attainment's positive impact on entrepreneurship (see for example Kyrö, 2005, Reynolds and Curtin, 2008). The study illustrates how universities contribute to students (as aspiring entrepreneurs) becoming independent learners, by facilitating contacts that makes socialised learning possible (Williams Middleton and Donnellon, 2017, Zozimo et al., 2017), while also premising ways in which engagement in formal entrepreneurship education qualifies learning gained. This reinforces the role of the university in learning, as the empirical study showed that participant who took part in formal entrepreneurship education refined their socialised learning to seek out qualified information, whereas the participants who were not formally educated in entrepreneurship utilized socialised learning to increasingly seek out help and support. For both groups, the learning gained through the university setting enabled them to decrease their dependence on feedback and increase their self-directed learning. The university is perhaps unique in time, space and structure in being able to integrate often separated forms of learning to prepare the individual aiming to become entrepreneurial (Rae and Wang, 2015, Williams Middleton and Donnellon, 2017). Therefore, universities need to take more responsibility for the entirety of learning that takes place within their boundaries and dedicate resources to orchestrate informal learning opportunities.

Given policy interest in developing entrepreneurial competence while at university (European Commission, 2008), this article suggests that more attention be paid to how to directly fund or at least incentivise informal learning settings. Students may be significantly limited in accessing qualified socialised learning without being situated at the university. This can be illustrated in some of the empirical findings, which show that the socialisation gained while at university

spans beyond the student tenure at university. Person to person relationships remain constant across the transition from university to the outside world, even though the roles these persons take on may change. For example, while at university, socialised learning may be gained through someone primarily seen as a classmate. However, once the student transitions outside the university, the same person may be positioned as a co-founder or an advisor. Contact with business advisors, identified as strong contributors to competence development, are seen to endure, whereas contacts with lecturers or faculty diminish once the student leaves the formal educational context, sometimes even while still within the university setting. The distinction of a role is also seen to blur depending upon how actors are perceived to engage; for example, a faculty member may transform to a mentor. Thus, universities could play a key role in facilitating access to the entirety of learning through dedicating resources to orchestrate informal learning opportunities and enabling interaction with different agents.

Future Research

Several areas for future research emerge from this study, represented through the following questions. How can educators engage in promoting the development of entrepreneurial competence through different forms of learning (formal, non-formal, informal) and what activities and support can universities provide? If and how could informal learning be assessed while at university, and who should be involved in assessment? How can the university be (re) designed to enhance entrepreneurial learning (for students and staff)? What are the implications for the future of universities as centres of knowledge? Also, given the intended limited investigation of cross-cultural analysis in the article, as this was outside the scope of inquiry, there is potential to investigate the culturally situated role of the university, in relation to entrepreneurship, and the influence on informal learning of university students. Addressing these and similar types of questions provides the opportunity to extend understanding of the

university as an entrepreneurial playground supporting personalized development of entrepreneurial competence.

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