Full title:

Understanding the entrepreneurial learning process and its impact on students' personal development: A European perspective

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Abstract

Based on what we know about the multiplex nature of entrepreneurship, we argue that entrepreneurship is a difficult topic to teach. One response has been a shift to constructionist perspectives where learning is seen as an active process of constructing rather than merely acquiring knowledge. We wonder how is it possible for students, lacking much professional experience, to 'construct' useful entrepreneurial knowledge? We address this question by analysing the learning experiences of 54 students and 19 lecturers in different European Entrepreneurship education programs.

The study explores the nature and processes of entrepreneurial learning in the university context. It provides understanding of how learners – across cultures and educational backgrounds – engage in the learning process. We identify three personal qualities, which constitute this process: a multi-dimensional sense of responsibility, independent ways of thinking, and the ability to connect to ones own and other peoples' needs. We identified the particular dynamics in which these qualities interact and develop and conclude with suggestions on how education may stimulate this process.

1. Introduction

This study explores the nature and processes of entrepreneurial learning and teaching in the university context. We argue that entrepreneurial education is more complex than other business topics. In part, this is because of the multiplex nature of what we know about entrepreneurship, such that the content and processes elude a simple pedagogy (Gorman et al. 1997). Defining entrepreneurship embraces behaviors, attributes and skills exhibited at all organisational levels and contexts (Gibb 2005). Also Solomon (2007) argues that mastering the entrepreneurial process requires myriad talents, skills and knowledge. Furthermore, the issue of *what* we teach as entrepreneurship is also manifest in how we can, and how we should teach entrepreneurship (Blenker et al. 2006). Hereby, constructivist learning theories provide solutions. Those perceive learning as a self-responsible process of the learner who is actively constructing knowledge (Kyrö 2005; Loebler 2006) as opposed to positivist approaches that are based on the premise that knowledge itself is objective and can be acquired (Bodner 1986).

However, if learning is considered to be a process of knowledge construction based on individual experience, we are asking how students who do not possess entrepreneurship

experience yet can construct useful entrepreneurial knowledge? How do they learn to be enterprising?

To address this question, we begin by examining the problems associated with enterprise education in universities. We are interested in how the issues surrounding the multifaceted and complex nature of entrepreneurship have been addressed, and how this compares with the typical experiential learning of the entrepreneurial practitioner (Krueger 2007). We contextualise the issue in the university's role as creators and disseminators of higher level knowledge. We next turn to consider constructivism, elaborating on how its philosophical and theoretical roots have led to quite radical, but seemingly convincing, perspectives about learning for enterprise. Our review of the problematic leads to our empirical work where we ask, how do entrepreneurial students engage in the learning process? We address this question by collecting and analysing the individual learning experiences of 54 students and 19 lecturers from four international entrepreneurship education programs held in Denmark, Finland, France and Germany. The methodology section introduces principles of the qualitative research approach and provides details on the sample. We then present the key results of the study and discuss these findings from a social constructivist perspective. We conclude that social constructivism provides a good explanation of entrepreneurial learning processes in a university context. However, learning processes of students are different from those of entrepreneurs and are not based on entrepreneurship practice in the first place. Based on the research results, we frame a model of the entrepreneurial learning process of university students and make suggestions on how to design an engaging learning environment.

2. Literature Review

2.1 The Problematic Nature of Entrepreneurship in Entrepreneurial Education

It is now generally accepted that the nature of entrepreneurship, especially its complexity, variability and contingency, makes it a difficult topic to teach (Gibb 2002). It is furthermore characterised by extraordinary uncertainty and ambiguity (Shepherd and Douglas 1997). Moreover, Johannisson (2002) showed how entrepreneurship is associated with anomalies and irrationality. As he comments, entrepreneurial venturing is reflected in the multiple social constructions in which individual and collective forces interplay. These constructs, our understandings of the entrepreneurial phenomenon, are complex and represent a synthesis of the entrepreneurial self and circumstance (Anderson 2000; Welter and Smallbone 2011). Neck and Greene (2011) propose that entrepreneurship education has to reach beyond the "known world" and deal with the uncertainties and contingencies that will arise in the unknown. Indeed, Jack and Anderson (1999) described this as the art and science of entrepreneurship education, whilst Béchard and Grégoire (2005) and Fayolle and Gailly (2008) see both craft and science. Baumol (1983, p.30) puts this issue very well, "How can we analyse and teach acts whose nature is not yet known and whose effectiveness relies to a considerable degree on the difficulties others have in foreseeing it?" An increasing number of authors suggest to refrain from predictive and exclusively goal-oriented approaches to understanding and preparing for entrepreneurship but to focus on presently available means

to co-create value and thus shape future developments (Sarasvathy 2008, Sarasvathy and Venkatamaran 2011; Read et al. 2009). Also Fayolle and Toutain (2009) depict the entrepreneur as 'tinkerer' coping creatively and flexibly with complex situations.

When we speak about entrepreneurship, we usually mean the process of becoming, thinking, planning, conspiring, and doing the things that lead to entrepreneurship as well as the skills necessary to enact these practices (Pyysiäinen et al. 2006). Thus it seems that entrepreneurship is a performance of the *process* of becoming an entrepreneur (Anderson 2005). Moreover, given the strength of the evidence of how entrepreneurship involves networked individuals and the networking of individuals, it seems difficult to conceive of entrepreneurship as the isolated act of an individual (Drakopoulou-Dodd and Anderson 2007, Fletcher 2006). Minniti (2003) suggests we must include the milieu that supports, drives, produces and receives the entrepreneurial process. Indeed, Korsgaard and Anderson (2011) argue that entrepreneurship is as much a social as an economic phenomenon.

2.2 The Problematic Nature of Entrepreneurship Education and Learning

It seems then that what we know of as entrepreneurship, and what we desire to teach, is a multifaceted phenomenon, sometimes co-created (Jack et al 2004) but always socially enacted (Taylor and Thorpe 2004) and in multiple ways. Henry et al. (2005), reflecting on Fiet's (2000) classic question about whether entrepreneurship can actually be taught, point out a prior issue, that it is not yet entirely clear what we should be teaching. Indeed, Saranda and Scott-Kemmis (2010) argue whilst there has been progress in recent years, it is widely acknowledged (Harrison and Leitch 2005; Corbett 2005; Politis 2005) that much remains to be understood about the processes of entrepreneurial learning. Cope (2005, p. 379) too insisted, "a better theoretical grasp of entrepreneurial learning is imperative".

Anderson (2011) argues that universities fulfil a unique role as creators and disseminators of higher-level knowledge, which cannot be assimilated by everyday experience. Critical ability is the remit and purpose of universities and is founded on higher order skills. Izquierdo (2008) suggests that these are needed for enterprise because higher order thinking often yields multiple rather than unique solutions and it involves uncertainty as not everything that bears on the task at hand is known. Rae (2005) argues for what he calls practical theory; which emerges from the implicit, intuitive, tacit and situated resource of practice.

For practitioners, it appears that in learning to be entrepreneurial, the emphasis is typically experiential. Solomon, Duffy, and Tarabishy (2002) comprehensive review found that "experiential learning" is widespread, thus reflecting Fayolle and Gailly's (2008) point that entrepreneurship education is driven by experience more than by systematic teaching approaches. Importantly, not just learning by doing, but learning *from* doing. Krueger (2007) argues that it is not the experience *per se* but the lessons learned from it that is more important. The learner has to play an active role in gaining experience from their activities. Rae and Carswell (2001) argue that it is through the sense making and interpretation of the experience that learning happens.

Pulling all these demands for enterprise together; co-created and interactive, contextual; reflective and most of all experiential, one view is that constructivism provides a solution.

Indeed, Rae (2005) claims that both entrepreneurship and learning are inherently constructivist, behavioral and social processes.

2.3 Constructivism and Theories of Learning

Constructivism is a theory of knowledge (Gergen 1999) that emphasises how individuals create meaning from knowledge in context. Loebler (2006) argues that it challenges the dominant positivist view of knowledge acquisition. It has, however, become an umbrella term for a variety of "interpretivist" views that share some common features (Duffy and Cunninghame, 1996). Shared assumptions include; learning is an active process of constructing knowledge; instruction supports the process rather than communicating knowledge and that learning is an activity in context. Constructivists claim that meaningful learning is achieved when people try to make sense of the world – when they construct an interpretation of how and why things are – by filtering new ideas and experiences through existing knowledge structures (Snowman and Biehler 2003; Izquierdo 2008). Knowledge and skills that learners acquire by interaction with the world are connected to existing schemes and gradually internalised.

Two broad strands of constructivist theory have emerged; one emphasising individual cognition, and the other the socialised processes of learning. The individual cognitive (psychology) approach derives from Piagetian theory (Piaget 1947) and is closely associated with von Glasersfeld (1995). This view emphasizes the constructive activity of the individual as she tries to make sense of the world. The more socialised view emphasises the socially and culturally situated context of cognition. Drawing on the insights of such theorists as Vygotsky (1962) and Bruner (1966) this approach examines the social origins of cognition. Although nuanced debate continues, in outline, both strands highlight the somewhat counter intuitive idea that learning is constructed by the individual to transform acquired cognition into knowledge.

It is useful to contrast the major developments in learning theory in order to highlight the particular contribution of social constructivism to our understanding of the entrepreneurial learning process. As part of the positivist view, two major learning paradigms are acknowledged. Those are behaviourism and cognitivism which both embrace a multitude of learning theories and result into different approaches to how classroom can and should enable learning processes (Kyrö 2005). Behaviourism understands learning as a change in behavior and suggests a rather passive and instruction based teaching approach that aims at achieving a predefined behavior (Skinner 1953). Knowledge is seen as rigid and inflexible input transferred to the learner who acts as passive recipient and consumer of knowledge (Izquierdo 2008; Loebler 2006). Focusing on the "supply-side" of education, Béchard and Grégoire (2005) term this approach to entrepreneurship education as "supply model". While this model has been established as the dominant approach to entrepreneurship education, mainly in form of traditional business planning courses, it is increasingly criticised for its limiting and unflexible character (Carrier 2007; Honig 2004).

The cognitivist paradigm considers individual *cognitive processes* and suggests a teaching approach adapted to the individual and his/her level of cognitive development (Bandura

1977; Piaget 1947). Béchard and Grégoire (2005) entitle this approach as "demand-model" as it designs education according to the individual needs of the learner. However, cognitivists assume that once an issue is understood in its principle the learner can transfer and apply it to any situation. It does not take into account the arguably experiential nature of entrepreneurial learning (Gibb 2005; Rae 2005) as learning *by* doing and learning *from* doing (Rae 2001), and as a reflection on practice (Cope 2005; Jack and Anderson 1999).

Contrastingly, the constructivist view maintains that learning outcomes are not predictable because each learner may interpret reality differently and knowledge cannot be discovered nor achieved but has to be constructed. This approach is termed as competence-model by Béchard and Grégoire (2005, p.116) as education provides space for students to "organize the resources at their disposal (i.e., knowledge, abilities, etc.) into competences that can be mobilized for action". Therefore, constructivism suggests that the learning process is governed and directed by the learner (Gergen 1999; von Glasersfeld 1995) while lecturers function as coaches who accompany the process and provide space for learning and reflection. It is thus worth noting that constructivism is a theory of learning, not a theory of teaching. In extremis, constructivist approaches may even be argued to have little to do with "teaching"!

Table 1
Implications of Learning Paradigms and Demands of Entrepreneurial Learning

Learning paradigm	Behaviourism (Objectivist view)	Cognitivism (Objectivist view)	Constructivism	Entrepreneurial learning
Learning is…?	A replicable change in behavior	Individual cognitive process of gathering and processing information	Individual construction of cognitive schemes based on experiences/actions taken in the world	Based on experience & actions taken in the world, exploratory, creative, context bound
Ontological basis – idea of the world/ Nature of being?	*Empiricism* – World can be controlled through reason	*Rationalism* – Man as information producer and processor	*Constructivism* – World is constructed by the individual	*'Pragmatism'* (Kyrö 2005, p.93) – The world is made
Pedagogical basis – where and how to learn?	Learning in controllable classroom situation, where knowledge is passed on from lecturer to learner	Learning as individual cognitive process of memorizing, sense-making, organisation of information	Learning processes of the individual are embedded in social and cultural context	"Learning as complex and diverse process dependent on action taking place everywhere" (Kyrö 2005, p.93)
Role of the teacher?	Presenter - Passing on information	Facilitator/Tutor: Ensuring individual appropriation of knowledge	Coach/ Developer: Conversing with students about knowledge	Coach / developer : Provides space for entrepreneurial experiences and reflection
Role of learner?	Passive recipient/ consumer of knowledge	Active Participant/ process information based on cognitive developmental level	Main actor/ Active producer of knowledge	Actively constructing knowledge and meaning

As a theory of knowledge, constructivism seems to provide a better explanation of how knowledge is created within the complex, chaotic and unpredictable context of entrepreneurship. Learning as explained through processes of accommodation and the organism's thrive for cognitive balance provide a solution for the procedural and fluid nature of entrepreneurship, that constantly adapts to a rapidly changing business environment. Moreover, the experiential basis of constructivism and the idea that all knowledge is created in a social and cultural context acknowledges the arguably experiential basis of all entrepreneurial action and its embeddedness into context. Arguably, this provides a solid explanation for how entrepreneurs learn and construct knowledge through and from their entrepreneurial practice (Bouchikhi 1993), becoming reflective practitioners (Krueger 2007; Schön 1983). But a question occurs when trying to understand entrepreneurial learning processes of students – who possess little or no entrepreneurship experience to construct knowledge from.

We are thus asking how university students who do not possess entrepreneurship experience, learn to be enterprising?

To answer this question we explore *how* learners of entrepreneurship actually engage in the learning process by investigating their perceived learning needs, objectives and roles in that process.

3. Methodology

The study is based on a constructivist methodology (Gergen 1999). Constructivism does not assume that there is one reality to discover, but that there are social *processes* of *reality construction* – and thus asks for *how* something comes to being (Fletcher, 2006; Silverman 2006; Silverman and Marvasti 2008). This work looks at how university students taking part in an entrepreneurship education learn to be enterprising. We seek to understand their learning processes and the way they create meaning from their actions. In line with constructivist methodology, we aim at understanding the *process* of learning ("*how*?") and then take a look at intentions and motives ("*why?*") lying behind the process (Charmaz 2006; Silverman 2006). Social constructivism assumes realities to be constructed *by the individual* and within its *social and cultural context*. Consequently, our study explores the social constructions of the individual learner and their closest learning environment – their peers and lecturers.

3.1 Research Design

The research design builds on Alberti's (2004) model of key issues in entrepreneurship education, which points out six issues relevant to understanding and investigating entrepreneurship education. Those are *Pedagogies, Goals, Contents, Assessment, Educators and Audiences*. Also Fayolle and Gailly (2008) recommend a similar framework when dealing with entrepreneurship educations but distinguish reflections on ontological and educational level. Our study uses Alberti's framework, which Loebler (2006) suggests to

reflect on entrepreneurial learning from a social constructivist perspective. The six key issues of the framework were shaped according to the particular context of the study and addressed in the following way:

- *Audiences* – Addresses the *role of the learner* in the learning process*,* which in this case are university students
- *Educators* – Refers to the *role of the educators*, the program lecturers*.*
- Goals – Addresses individually perceived *objectives and expected learning outcomes* of the education
- *Assessment* – Explores the interviewees' understanding of how learning outcomes should best be evaluated.
- *Contents* – The question of contents ('*what'*) is less relevant to the research question. This key issue is inversed and instead of asking *what* can be taught – it is asked what *cannot* be accomplished by the education – where are its *limitations.*
- *Pedagogies* – The understanding of "where and how to learn" (Kyrö 2005, p.93) is investigated through the question of how *learning can best be stimulated* through education.

All of the key issues are addressed from the learners' *and* the lecturers' perspective to compare and contrast their perceptions. Semi-structured interviews were chosen as most appropriate interview method. The interview guideline allowed us to address all elements of the framework but also provided space for individual expression of thoughts to identify structures of meaning creation (Silverman and Marvasti 2008).

3.2 Research Sample and Methods

The research sample consists of 54 learners and 19 lecturers of altogether 4 international entrepreneurship programs. Programs were chosen based on their officially communicated approach to entrepreneurship education, which was identified to be in line with social constructivist principles. To analyze the programs' perspective on learning we focused on four educational dimensions arguably in line with both constructivist principles and current views on entrepreneurial learning:

- The understanding of *learning* as exploratory, experiential and created by the learner (Gergen 1999; von Glaserfeld 1995; Loebler 2006);
- An overall experiential approach to *pedagogy,* using interactive and participative forms of teaching (Fayolle and Gailly 2008; Kyrö 2005);
- *Lecturers* functioning as coaches or facilitators providing space for experiences and reflection (Anderson 2011; Izquierdo 2008; Kyrö 2005; Loebler 2006;);
- A view on the *learner* as main actor of the education and responsible for the learning process (Gergen 1999; von Glaserfeld 1995; Loebler 2006)

The identification process was based on desktop research on the programs' websites followed by a direct exchange with the program directors via email or telephone. The following table provides an overview of the investigated programs, their duration, the participant profile and the size of the sample.

Table 2
The Research Sample

Program	Duration	Institution/ Place	Participants	Sample
01 IMEET – International Master of Entrepreneurship Education and Training	2 year postgraduate Master / part time	International postgraduate program, organized by Aarhus University / Interviews held during workshop in Mikkeli/Finland (Sep 2008)	Entrepreneurship Lecturers and Consultants from Europe	13 entrepreneurship educators (6 danish, 6 dutch, 1 english) 1 lecturer (danish)
02 Kaospiloten Aarhus, graduate entrepreneurship program	3 year graduate Master	Danish Entrepreneurship school /Interviews held at the school in Aarhus, Denmark (Jan 2009)	Mostly Danish graduate students with entrepreneurial aspirations	31 students (29 danish, 1 Cuban, 1 Iceland) 3 lecturers (Danish)
03 SMILE - Extra-curricular modules to support self-management competencies of future entrepreneurs	2-4 day seminars	Institute as part of the University of Leipzig, Germany/ Interviews held during a 3 day seminar in Leipzig (Jan 2009)	German students and graduates of the University of Leipzig / all disciplines	7 students (German), 2 lecturers (German)
04 COEUR – "Competence in EuroPreneurship", Extra-curricular Entrepreneurship program	Annual 5-day workshops held at one of the partner institutions	Network of European Higher Education Institutions in France, Germany, UK, Portugal and Poland /Interviews held during annual workshop in Dijon, France (Sep 2009)	European under-, graduate and postgraduate students from partner universities / all disciplines	16 students (5 German, 2 French, 2 Lithuanian, 3 Swedish, 3 Scottish, 2 Austrian)

The interviews were collected within a period of 12 months from September 2008 till September 2009. To investigate the learning process from a constructivist perspective, a qualitative approach (Dey 1993) and a direct exchange with the target group is chosen to gain understanding of their sense-making processes (Charmaz 2006; Glaserfeld 1992). Methods of data collection and analysis are based on principles of Grounded Theory (Glaser 1967) whereby a constructivist approach to Grounded Theory (Charmaz 2000) was chosen. Charmaz (2000, p.184) argues for the inherently constructivist nature of Grounded Theory and states that the constructivist approach is coherent with Strauss' basic intentions in that it retains "the fluidity and open-ended character of pragmatism".

3.3 Sampling process and data analysis

To gather data, we applied principles of theoretical sampling (Glaser 1967) and proceeded as follows. Program 01 (IMEET) presents a part time master program for entrepreneurship educators and was chosen to investigate the perspective of *lecturers* of entrepreneurship on the key elements of our research framework. The second program (Kaospiloten) presents the largest sample and was meant to contrast the first set of data with the perspective of the *learner.* Thereby, we looked for similarities and discrepancies in their understanding of learning. The Kaospiloten present a long-term program (3 years full time) whose influence on

the learners' perceptions became apparent in the data. To understand the extent to which students' opinions may have been influenced by the intensive nature of the program, the short-term program SMILE (3-day workshop) was examined next to maximize the difference of the property 'duration of program'. And finally, given the fact that each program hosted a number of different cultures, the property 'cultural variety' of participants was maximized in the last program (04 COEUR) that welcomed six different European cultures. At this stage, a saturation of the emerging theory was reached and no further data was collected. However, despite the number of different cultures across all samples, the majority is of northern and central European origin and their responses may possess a certain coherence than cannot be generalized across Europe. The cultural dimension of the sample thus clearly presents a limitation of the study.

We used methods of open, axial and selective coding (Corbin 1988; Strauss 1998) to develop theory. Data was organized and analyzed with the help of the software QSR-NVivo (Richards 2005), arguably in line with principles of Grounded Theory (Hutchison et al. 2010) and recommended as software for data analysis. The interview guideline was identical throughout all samples, as the objective of the study remained the same. The average length of an interview was about 20 minutes. While data was collected, transcribed and transferred into Nvivo by one researcher, the emergence of the major themes and subthemes was jointly realized with two further researchers – a process, which gradually progressed after each set of data was collected until agreement on saturation was achieved.

4. Results

The analysis of the interview data provided insight into the overall nature of the entrepreneurial learning process. The nature of the study allowed us to contrast the learning needs and preferences of students with the lecturer's understanding of these needs. Interestingly, when looking at the learners' responses, the individual perspectives on learning throughout the entire sample are characterized by strong coherence. Despite their different nationalities, disciplines and entrepreneurship education experience, the students' responses clearly show recurrent patterns and dynamics, which altogether seem to constitute essential dynamics of the entrepreneurial learning process. We will depict this process along the major stages we identified.

4.1 Engaging through Responsibility

As most obvious outcome of the study, students across all programs demonstrate a wish to actively take *responsibility* for their learning by wanting to contribute to, and influence on learning processes instead of being passive consumers of knowledge input.

> My role as a student is to – you have a responsibility to follow the course that you want to do – and be prepared for the lectures (Danish 1st year student, program 02, Aarhus).
> You should be there because you want to be there (Swedish student, program 04, Dijon).
> To do the best we can – to make the most of the time we have with the lecturer (Scottish student, program 04, Dijon)

Students explicitly highlight the responsibility that learners bear in the learning process and that their role is to actively make use of that responsibility by engaging in the education. This aspect is also reflected in students' understanding of the limitations of the education which most students clearly identify within *themselves*.

> There are only the limitations that you make yourself. If you think you gonna reach the sky – you reach the sky – education is just the foundation – everything is possible (Danish 1st year student, program02, Aarhus).
>
> No, I don't see limitations – no other than my own self confidence to do the things I would like to do (Danish 1st year student, program 02, Aarhus).
>
> There's nothing you can't do if you really want to do it (Scottish student, program 04, Dijon).

Their responses account for a strong feeling of responsibility for their learning and development, but also enable them to recognize developmental needs and take actions accordingly. Moreover, this feeling of responsibility goes beyond their individual learning and entails the wish to contribute to the learning progress of their classmates.

> [My role is] to learn and to learn within the group and with the team. So, it's not only about my learning – it's about a sharing process – where others can learn from – me as well – and contribute (Danish 1st year student, program 02, Aarhus).
>
> First of all, it's commitment to what I am doing – it's taking action if I feel or sense that things are not inspiring for a lot of people – see if we can push things in a way were it creates more value for the learning (Danish 1st year student, program 02, Aarhus).

A feeling of responsibility for both their own and their peers learning seems to be a major driving force in the learning process. It motivates them to influence and change the education in a way they consider to be valuable.

4.2 Learning in context: Connecting to Self, Others, and the World

Another central recurrent aspect is the understanding of learning as a socialized process and therefore as something stimulated through social exchange. Generally speaking, students attribute learning processes to all kinds of learning through experiences and interactions with their social surrounding.

> I like when you go and speak to your tutors or peers about what you just learned, sometimes when I struggle to pick something up I can email speak to or phone a lecturer and if I speak with my peers about what we just learned I always understand it better – it puts it in perspective and I guess that's the easiest way (Scottish student, program 04, Dijon).
>
> (…) also interaction – It's so good – you really feel that you are growing a little bit with the interaction with other people" (German Student, program 04, Dijon).

Speaking to and communicating with others, whether peers, tutors or teachers appears as most natural and helpful way to understand and learn something. Thereby, the social exchange happens in the scope of their learning environment – with peers and lecturers – and seems to allow for a sort of testing and locating of their learning within a low-risk environment. As a further step in this learning process, students would like to expand this testing to a practical application of the input.

> [I learn best, when it's] A different mix – when it's theoretical and when you put the theory into action (Danish 1st year student, program 02, Aarhus).

> First you learn a bit and then you try to practice it and are allowed to make mistakes, because mistakes are very good to do and then you can learn from them (Swedish student, program 04, Dijon).

When trying out theory through practical experiences, learners appreciate the possibility for trial and error processes. The possibility to learn from both successful and unsuccessful experiences seems to be an important stimulation of entrepreneurial learning as it enables students to gradually explore reality by finding out what works and what doesn't. Moreover, students attach great importance to personally relating to the lecturer and to entering into a dialogue as opposed to a one-sided knowledge transfer.

> It's to have this dialogue with the students – I think it's the most important thing for a teacher to have (Danish 1st year student, program 02, Aarhus).
>
> They [lecturers] have to consider who it is they are teaching something to – you can't just use the same way of doing things with old business men or with people like us (…) I think it's just important to meet people where they are (…) and create this personal connection (Danish 1st year student, program 02, Aarhus)

Learners would like lecturers to connect to them through direct communication and exchange to explore their learning needs and to adapt to their learning rhythm and interests. Moreover, learners seem to engage in learning based on the quality of this exchange. Thereby, the lecturers' experiences provide an access to learning. It seems that through the lecturers' stories and shared experiences, students in some way are able to experience this knowledge and that way learn from it.

> [Lecturers should] use themselves – tell about their own experiences and not only the successes but also the failures – you know like look into peoples' eyes and tell all the true stories to them – like they mean it (Danish 1st year student, program 02, Aarhus).

Moreover, to help students engage in the learning process lecturers should be able to relate to the world outside classroom. Thereby, the lecturer is considered to be a linking element and should have had real life experiences him- or herself.

> (…) teacher should have experience in that subject – if he or she teaches marketing and knows just about it from studies (…) but never applied it in real life, so how he or she will be able to teach me? (Lithuanian student, program 04, Dijon)

Thus, as some sort of alternative to first-hand experience in the business world, learning seems to occur through experiencing the knowledge of the lecturer. The more authentically this experience is shared, the better students can connect to it as they literally live through it.

Finally, a further stimulating source of learning seems to lie in the learners' wish to somehow create an *inner* connection – to their self and their learning needs. Thereby, learning processes may happen through a teaching which allows for a certain discovery and development of their person.

> I think to me it's very important that an education is dealing (…) with yourself as a person (…) when it comes to creating a good business it's all about yourself and what you want (…) it's so essential to know yourself (Danish 1st year student, program 02, Aarhus).
>
> Because you're confronted with yourself and I really appreciate this – that you just start to reflect on where am I at the moment? Where would I like to get? What are my goals and perspectives? (German student, program 03, Leipzig/translated from German).

Discovering and expanding the self is described as highly valued form of learning and a key resource for future entrepreneurial success as it sheds light on individual potential and aspirations.

4.3 Independent thinking as individual need and social challenge

In the context of an experiential application of theory a further source of learning is the conscious *reflections* on applied learning.

> The lecture I learned most was (….) were we had a very intense way of doing that shifting all the time [between theory and practice] (…) and then reflecting upon it – very frequently – so it would be like reflecting while doing it (Danish 1st year student, program 02, Aarhus).

Through reflecting on learning – after and even during applied learning experiences – students seem to undergo a further learning process essential to understanding and evaluating the meaning and use of the prior learning steps and to prepare and understand next steps in their education. In this context, reflection becomes a means to mirror students' learning; it enables them to connect to their learning needs and possibly presents a learning process itself. Consequently, this leads to a further essential component in the learning process – which is *independent thinking*. The capacity to reflect on ones learning requires critical ability whose stimulation is demanded by entrepreneurship students.

> (…)[My learning depends on] how the lecturer can involve in the audience by giving small tasks and raising questions and not just a lot of answers to start with (Danish 1st year student, program 02, Aarhus).
>
> One thing was really good in this workshop, I did other similar workshops where you bring entrepreneurs but then there's already a game where you're supposed to play and there's like the right answers! Here it's "find an idea" - and that's the task (Swedish student, program 04, Dijon).

Students express their desire to undergo an education, which raises questions within them and challenges them to find their own answers. We identified the development of *independent reflections* as both essential to the process but also in potential conflict with the learners' need for social integration. While a number of students from the long-term program demonstrate strong abilities for independent thinking, some students from the short-term programs visibly struggle with their dependence on others' opinions.

> I would like to do something completely different from what I studied (...) and the problem was that I never had the courage and never saw the possibilities because I never succeeded and people always said "you can't do it" – and now I am here and this is the second day of the seminar and I start thinking "maybe I can do it" and this is what I really like (German student, program 03, Leipzig/translated from German)
>
> I would like to be more self-confident and know what I am talking about because I have learned to deal with other people, and I have reflected on what I truly want for myself (German student, program 03, Leipzig/translated from German)

Being confident and courageous enough to pursue their objectives means not being dependent on their fears and sorrows and above all not to depend on other peoples' opinions but knowing *how* to deal with those. This ability seems to be intertwined with a strong connection to who they are what they want for themselves – as mentioned in a previous paragraph. Social dependencies seem to prevent students from both realizing and doing what

they would like to do. Again, this sort of confidence correlates with the duration of the educations as students from the long-term program 02Kaospiloten have developed it to a greater extent. However, as shown in the quote above, the participation in a 2-day program seems to have already made a difference to the learner.

4.4 Entrepreneurial learning and personal development

While students' responses demonstrate an overall strong coherence, there have been differences in the degree to which the above-mentioned qualities appear to be developed within learners. Thereby, correlations seem to exist with length and intensity of the programs. However, we depicted a strong desire of learners across all programs and educational backgrounds to develop all of the above-described qualities:

- Knowing *who they are* and where they want to go;
- being able to *connect* to others to learn and progress in their endeavors;
- taking *responsibility* and consequently action towards their ideas and aspirations;
- and to *critically* consider learning contents and think on their own.

Developing these qualities seems to be their major learning objective. Some learners express this quite explicitly.

> I feel that during my entire education we were hardly ever prepared for professional life, you get some facts and some topics and subject areas in which you become well versed, but you are not at all educated to either integrate that in a reasonable way or to somehow be able to recognize yourself where to use that stuff *(independent thinking)* and how to achieve that by yourself *(taking responsibility)*. That has been completely neglected (…) I do not feel competent at all. And I know people, who have been equipped with that along their way, and who handle that with much more self confidence and who say "I've got an idea and now I will look for the right people *(social connectivity)* and I will realize it *(taking responsibility and action)*"(…) And that was the reason why I try to take – maybe far too late – but still try to take the opportunity to enrich myself in that respect (…)"(German student, program 03 SMILE, Leipzig, translated from German).

The student from the short-term program above raises most of the previously addressed issues. He feels to lack these abilities and clearly expresses his regret and wish to personally develop towards this direction. Surprisingly, none of the students were purely focused on factual knowledge on how to run a business or mentioned business creation as primary objective for participation. The learning they seek for clearly is of personal nature.

> Knowledge about myself – I want to develop myself (…) It's not that I'm looking for specific skills or I want a specific job – I really just want to develop myself (Danish 1st year student, program 02, Aarhus).
> [The education was successful] when I found out that this was the right place for me' – because law wasn't – and when I became more happy and relaxed (Danish 1st year student, program 02, Aarhus).

What engages them in the learning process is less related to the creation of a profitable business, but to processes of personal development and the connection to their individual needs in order to achieve personal satisfaction with what they do.

5. Discussion and conclusions

We summarize that the results of our study draw a comprehensive and dynamic picture of the entrepreneurial learning process in a university context. The major conclusions we draw and discuss in this section are the following.

a) Constructivism generally provides a good explanation of entrepreneurial learning in a university context and is strongly in line with students' expressed learning needs.

b) Entrepreneurial learning seems to be a dynamic process related to a particular form of personal development.

c) This process involves the development of a set of personal qualities who interact and emerge in a certain dynamic.

Looking at the learning process, *responsibility* clearly emerges as a driving force. It enables learners to actively engage in the learning process and to contribute to its direction as called for by constructivists (Gergen 1999; von Glaserfeld 1995; Loebler 2006). Responsibility furthermore encourages learners to take action and thus allows for experience driven forms of education (Fayolle and Gailly 2008) and 'pragmatism' (Kyrö 2005) as ontological basis of an entrepreneurial learning paradigm. But it also spurs discussions and reflections on practices – thus, supporting the development of reflective practioners (Krueger 2007; Schön 1983).

Moreover, responsibility helps learners engage in the obviously *social nature* of the entrepreneurial learning process (Rae 2005; Drakopoulou-Dodd and Anderson 2007; Fletcher 2006). Indeed, an essential role in the learning process is taken by social exchanges and learning through and from discussions amongst peers and lecturers. Thus, entrepreneurial learning appears to be a co-creation of knowledge (Jack et al. 2004) supporting the profoundly constructivist understanding that cognition is of social origin (Vygotsky 1962; Bruner 1966).

As a further element in the learning process, learners seek to *think independently* through for example open learning processes as suggested by Loebler (2006). In line with more recent discoveries (Sarasvathy and Venkatamaran 2011), students clearly refuse goal-oriented approaches and pedagogies providing them with pre-defined answers as described in the 'supply-model' by Béchard and Grégoire (2005).

But learners also apply *criticality* to weigh up their own experiences against the light of others' experiences and to judge whether and how their experiences fit with their existing concepts (Snowman and Biehler 2003; Izquierdo 2008) and their self and self-knowledge as argued by Anderson (2000). However, this appears to be a particularly challenging process as critical ability may collide with other peoples' opinions and consequently challenges the learner's social relations. Indeed, it seems that the entrepreneurial learning process eventually enables learners to integrate their seeking for both social integrity *and* individuality. Learners possessing this ability are capable to see their activities and entrepreneurial aspirations in the light of a "bigger picture" and demonstrate responsibility on a societal level.

Moreover, the understanding of who they are, and the process of fitting this self-knowledge with their circumstances (Anderson 2000), presents an essential issue and primary learning objective for most students. However, this connection to their self seems to be neither

naturally developed nor a stable component. It obviously takes time to be established and re-established as demonstrated by the sample.

To sum up, we can see that entrepreneurial learning seems to be a developmental process during which learners develop and integrate a number of personal qualities. These qualities seem to interact in a certain dynamic and some seem more difficult to achieve and integrate than others. The figure below captures the dynamics of this developmental process.

Figure 1
Developmental processes of entrepreneurial learning
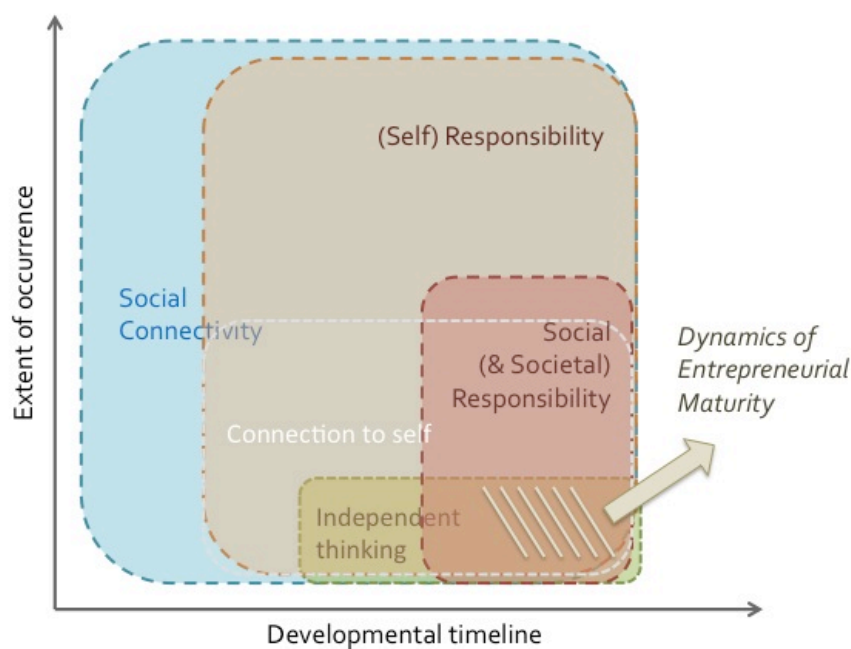
We conclude that the entrepreneurial learning process is of a dynamic, cyclical and on-going nature. It seems to take students towards an individual readiness for entrepreneurial activities, which we call *entrepreneurial maturity* in the figure above. The qualities emerging from this outcome can thus not be considered independently but as components of a dynamic that continuously seeks balance.

6. Contribution, Recommendations and Limitations

The outcomes of our study provide insight into the entrepreneurial learning process in a university context. We gain understanding of how learners of entrepreneurship engage in the learning process and shed light on the developmental processes and dynamics this entails. While many authors have argued for the single components of this process in different

contexts of entrepreneurship literature, it is the particular combination of the single elements and the understanding of their dynamics in which they interact that seems to be the major contribution of the study. We recommend for follow-up research to address a larger and culturally more consistent sample and to contrast those with students of other disciplines and/or non-constructivist educations to explore potential differences and commonalities to their learning processes.

However, we can see a number of implications on how to stimulate the entrepreneurial learning process on a pedagogical level (where and how to learn), which opens up to the creation of a potentially endless number of educational methods. To respect the framework of this article, we would like to concentrate on the base note in the entire learning process: *Responsibility*.

Responsibility appears to be a key quality, helping learners to first engage in the learning process and then in an entrepreneurial way of living. To develop this quality in learners it seems essential to connect to their current level of autonomous learning and start from where they are. Accordingly, exercises of minor or major scale can be used to engage them in the learning process (e.g. from being a class observer to realizing a film on a local enterprise). But, whatever the exercise, it is important to transfer responsibility for the entire process – planning, realization *and* its outcomes (e.g. presenting and discussing their classroom observations or organising a public presentation of their films and actively seeking feedback on their work). At the same time, the educational framework should be a somehow safe and low-risk environment. It should encourage learning from failure, so that taking responsibility is not connected with fears and anxieties but rewarded with personal growth and learning. Gradually, a more social and even societal dimension should be integrated into their exercises (e.g. partner projects, projects with community and local associations). This will lead students to higher levels of reflections on their learning and naturally confront them with the remaining aspects of the entrepreneurial learning process: Independent thinking, social and inner connectivity.

Finally, we are aware that today, the implementation of entrepreneurial forms of education – accommodating uncertainty, change and individual development – is challenging within current administrative, organisational and political boundaries of most educational institutions. The creation of an entrepreneurial learning environment will take time, patience, and entail a number of pedagogical and educational reforms. Those need to touch on the extension and transformation of learning spaces and materials (beyond classroom), and staff (e.g. coaches, therapists, artists), a more autonomous access to financial resources (e.g. creative or collaborative forms of sponsoring), and a shift in attitude about how learning outcomes should be assessed (not based on perfection but individual development). Thus, organisations have to take on a more entrepreneurial approach to education. And still, the institutional approach is secondary. Reforms should start with those leading the classroom. Educators need to demonstrate *entrepreneurial maturity* themselves and create a learning environment with sufficient space for personal growth and learning. *But, how can we help existing educators to feel at ease in an education that has no predefined objectives and results? Where failure is an essential and constructive element of learning*? A lot more reflections need to be given to these questions. Stronger collaborative and cooperative forms

of learning amongst educators, across institutions, and together with their students may certainly be a beginning and can help diminish fears and doubts. Thus, entrepreneurship educators may have to take on the role of an open-minded learner again to experience themselves the transformative impact of entrepreneurial learning.

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