Introducing a New Framework for Understanding Learning in an Entrepreneurship Education Ecosystem

Birgitte Wraae
UCL University College Denmark/TU Berlin

Jacob Thomsen
UCL University College Denmark

This paper investigates how all actors in an entrepreneurship education ecosystem learn and gain entrepreneurial knowledge. For that purpose, a new conceptual framework for understanding the dialogic relationship between stakeholders is presented. Furthermore, the paper establishes a link between entrepreneurship education and entrepreneurial ecosystems. By studying six international cases all involved in the same entrepreneurial curriculum, interviews and observations were performed with basis in the conceptual framework.

The findings add valuable insight into how learning in an entrepreneurship education ecosystem takes place in ever changing environments. The paper contributes to development of learning for stakeholders and correlating development between maturity and entrepreneurial skills.

INTRODUCTION

The university paradigm is changing as new tasks are being added to the educational institutions (Gibb and Haskins, 2013). The amount of different tasks varies and covers the aspect of university activity as well as community engagement. At the same time there seems to be a growing demand for introducing students to entrepreneurship courses as it is widely recognised that entrepreneurship not only can stimulate economic growth but also contribute to developing students with new skills and competencies (Pilinkienė and Mačiulis, 2014).

Furthermore new journals (Liguori et al, 2018) arise focusing on entrepreneurship education from a pedagogical approach, which puts pressure on the understanding of teaching, learning and poses the question is entrepreneurship a core course or a didactic tool? Entrepreneurship is a dominant driver to motivate and enhance an entrepreneurial mind-set, seeking best practices and exploring opportunities and means (Sarasvathy, 2001) of either social, cultural or economic sort. As such, the key to entrepreneurial success is action by individuals (Ács et al., 2014).

It seems only natural to view the educational sector as a part of an entrepreneurship ecosystem. This is supported by Isenberg (2010) who argues that an ecosystem should be built around local conditions. Recent studies confirm that entrepreneurship ecosystems are an important factor in Entrepreneurship

Eductation (EE) programmes (Maritz, 2017). Furthermore, Isenberg (2010) argues for including the private sector as well. The public sector cannot do it alone.

Ecosystems are often broadly defined in the literature and have various focuses, like industrial, digital, innovation and entrepreneurship (Pilinkienė and Mačiulis, 2014). The actors in the entrepreneurship ecosystem are various and include Financial capital; Educational institutions; Culture; Support measures; Human capital; Markets; Government institutions; Non- government institutions; Entrepreneur; Large and small enterprises (Pilinkienė and Mačiulis, 2014). Furthermore, the entrepreneurial ecosystem is considered as "an emerging organizational form that in many instances has yet to be legitimized and institutionalized" (Foss & Gibson, 2015, p. 249). The entrepreneurship ecosystem is also characterized by three factors: opportunities, skilled people and resources in different combinations (Ahmad and Hoffmann, 2008). Furthermore, these three factors describe six key determinants affecting entrepreneurial performance: regulatory framework, market conditions, access to finance, R&D and technology, entrepreneurial capabilities and culture (Ahmad and Hoffmann, 2008; Pilinkienė and Mačiulis, 2014). Entrepreneurship, entrepreneurial performance and entrepreneurship ecosystems are thus closely linked. Also, the role of universities in developing an entrepreneurship ecosystem is vital when it comes to supporting such a system (McKeon, 2013) as they can provide the means, the resources and lastly the necessary infrastructure to develop an entrepreneurial community (Fetters et al., 2010). Finally, the local university can act as anchor organization in the process of generating knowledge (Clarysse et al., 2014) which argues for universities expanding their interaction between themselves and both the industry and the government (Etzkowitz, 2014). A recent study (Guerrero et al., 2017) confirms that the entrepreneurial university to some extent plays a role in the entrepreneurial behavior.

The overall theme in this paper is therefore to investigate how the educational environment in the entrepreneurship education ecosystem can contribute to learning and knowledge generation for not only students but for all the involved actors as well. The purpose is thus investigating EE within an entrepreneurship education ecosystem. We start by presenting a conceptual framework for understanding the connectivity between the involved actors using the dialogic to illustrate the relationship. We then bring the framework into practice by studying how and what the involved actors learn in connection to an entrepreneurial project.

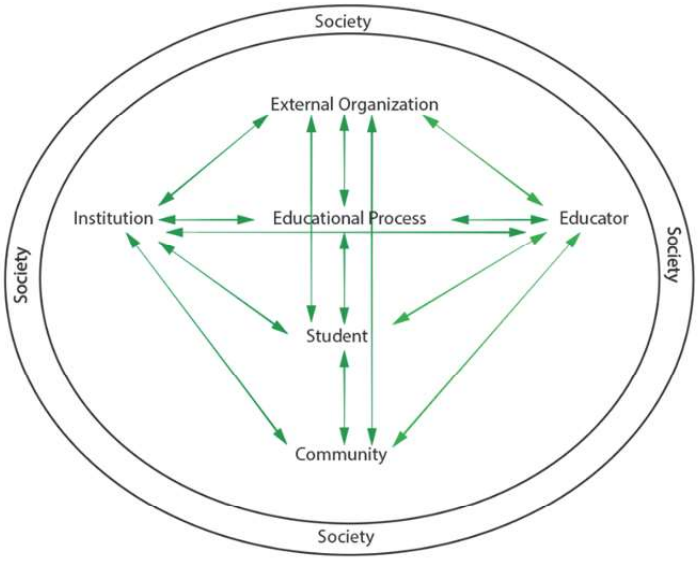
THE ENTREPRENEURSHIP EDUCATION ECOSYSTEM

The learning ecosystem is described as 'a complex community and environment where the learning interacts within a blended environment where time, place and space are ever changing' (Brush, 2014, p. 28). This supports the argument that entrepreneurship ecosystems both evolve and expand via the specialization of knowledge and innovation hence the university-based entrepreneurship ecosystem (Fetters et al., 2010). Another characteristic is that the actors within this ecosystem do not directly compete (Clarysse et al., 2014).

Brush (2014) pinpoints that the university-based entrepreneurship ecosystem depends on the internal activities of the institution along with the connected stakeholders.

In the order to understand how learning can take place, we present a conceptual framework for describing an entrepreneurship education ecosystem shown in figure 1. With the framework we introduce a detailed illustration of relations between all stakeholders in the ecosystem.

FIGURE 1
THE ENTREPRENEURSHIP EDUCATION ECOSYSTEM



Brush (2014, p. 32) defines the stakeholders as those that 'are social and human components of the school…..all of those involved in the three aspects of entrepreneurship curriculum, co-curricular activities and research'. Each stakeholder represents different needs, motivation and connections which is vital when establishing a productive ecosystem (Brush, 2014).

Besides presenting stakeholders, the framework also presents the different dialogic relationships that exist between the different actors illustrated with arrows. A dialogic relationship means that the actors are not only connected but that their actions will influence the other parts as well (Jones and Matlay, 2011). As seen in the framework no less than therteen dialogic relationships are represented, each marked with a number.

The students are in the context of higher education from AP Degree to Master level. This means that students who are accepted at higher education must have graduated from an upper secondary education, where the element and sub-focus is to form cultivated students. We therefore state that students contain equal elements of knowledge, critical reflection on knowledge, have a personal reflection in connection to knowledge and can identify and act on the known (Dolin et al., 2017). The personal maturity skills are those expected before entering an AP Degree, and the entrepreneurial skills are elements to enhance during the curriculum course. Nevertheless, we believe that is it crucial to further enhancement and adapting entrepreneurial skills that the student is emotionally present and using his or her personal maturity skills during the entire project.

This is supported by Chang and Rieple who have translated both entrepreneurial and personal maturity skills (2013). Entrepreneurial skills are student abilities to act and work with the ability to develop a concept and a business plan, environmental scanning, opportunity recognition and advisory board and networking. Where to personal maturity skills are student abilities to act and perform as a self-aware, creativity and be accountable for being selective in presentences and to copy emotional and be present in curriculare session of educational learning processes. In our model we do not not distinguish between business or non-business students. Students are students.

The educator plays an important role due to the direct contact with the student in form of teaching, mentoring, etc. Also, the educator often is the link between the student and the external organisation as well as the community. Often the student's contact with and perception of the institution goes through the

educator. It is the responsibility of the educator to determine the appropriate approach including course material when planning a course. The role of the educator pertains to (Fulgence, 2015):

- Educator as a trainer; teaching the students the required skills to perform a job.
- Educator as participant in outreach activities; working both with students and the general public.
- Educator as a creator of an entrepreneurial learning environment; creating a stimulating context.
- Educator as assessor; assessing the outcomes of entrepreneurship in the classroom.

Institution is in this context widely defined as it includes universities of applied sciences as well. According to Audretsch (2014) entrepreneurship becomes an integrated part of the university via actions, leadership and thinking with the aim of building a sense of entrepreneurial capital. Universities undergo three stages to be classified as entrepreneurial, the latter being that the university connects with the community (Etzkowitz, 2013). Universities can transform 'the businesses and lives of people in the community' (Ratten, 2017, p. 312) using both formal and informal ways. The entrepreneurial university counts a large group of different stakeholders, hence the need for a strategic direction at both the local, regional and national level (Ratten, 2017). Finally, the university needs ways to support entrepreneurship; including finding ways to implement entrepreneurial activities in order to enhance entrepreneurship (Ratten, 2017). Implicitly, the university also has the role as changer of mindsets (Ratten, 2017).

Community is consciously widely described as it can contain different elements and actors which also implies a need to understand how to manage the diverse groups of people (Ratten, 2017). Furthermore, to bridge the gap between academia, represented by the university, and practice, people must consider themselves as being a part of an entrepreneurial community (Ratten, 2017).

External organisations represent both private and public companies as well as interest organisations. Gomes et al. (2016, p. 10) describe how the business ecosystem consists of 'suppliers, distributors, outsourcing firms, makers of related products or services, technology providers….'. This description proves useful as well in trying to define who the company partners could include. It also shares an insight into how company partners are part of other ecosystems as well. The public sector is also included as stakeholder which means public services for the citizens and the society, has a slow but determined volatil change in demographic terms, which means more older people in many countries (Osborne and Brown, 2005). Osborne and Brown (2005) also emphasize that global economy changes, demand for administration in the public sector, citizen expectations, and political changes put pressure and demand for innovation and changes in a historical planned nor than emergent culture. Common for all external organisations are their need and interest for innovation and product development thus being a part of the entrepreneurship ecosystem as well.

Educational processes can be described as an internal task at the university. It includes two of the activities Brush (2014) links to the internal domain of the internal entrepreneurship ecosystem, the entrepreneurship curriculum and entrepreneurship co-curricular activities. Educational processes are not just about delivering knowledge, but they comprise creative and imaginative use of the knowledge as well (Gibb and Haskins, 2013). As the creation and reflection of knowledge plays an important role in the entrepreneurship education ecosystem, it is placed as a stakeholder as well (Brush, 2014; Clarysse et al., 2014; Fetters et al., 2010). The learning is dependent on the context of which the learning process is designed either in a context, which is based on generic case assignment (independent) or real life external partner (dependent) (Piihl & Phillipsen, 2011). The context dependent design for the learning process is a key for enhancing all stakeholders in the ecosystem, and also to stimulate entrepreneurial learning (Kolb and Kolb, 2005), to be discussed later in this article.

The surrounding society will inevitably always be a part of the ecosystem even though it might appear farther away from the activities in the local ecosystem. It represents changes and trends in the national government, as well as policies from for example the European Union or the United Nations. Each level represents an agenda for entrepreneurship and the strategies determined by ministry and the

European Union which will affect the ecosystem. The effect of the society for the local entrepreneurship education ecosystem varies depending on sector, industry, etc.

ENTREPRENEURIAL LEARNING IN THE ENTREPRENEURSHIP ECOSYSTEM

In general learning is said to contain six elements (Kolb and Kolb, 2005):

1. Learning must be seen as a constant process in which you need to engage the students
2. All learning is relearning
3. The learning process is driven by conflicts, differences and disagreements in which the learning takes place
4. Learning is the result of a holistic process
5. It is from synergetic transactions between the learner and the environment that learning occurs
6. Learning is created when creating knowledge

These six elements embrace our understanding of how to act in the field of entrepreneurship education (EE). We support the notion, that EE should focus on students learning through an entrepreneurial process in which students create opportunities using who they are, what they know, who they know and their everyday practice as a foundation (Sarasvathy, 2001; Thrane et al., 2016). As such, this fits the view from Kolb and Kolb (2005) that learning is a constant and holistic process, also driven by conflicts which is an unavoidable part of going through the entrepreneurial process.

The pedagogical elements of the entrepreneurial curriculum can be perceived as a fusion of a disciplined approach (Aulet, 2013). Neck and Greene (2011) describe the how EE consists of three known worlds; the entrepreneur, the process and the cognitive world. They argue for approaching EE from the method world. This approach includes elements of starting business, games and simulations, design-based learning and holistic reflections (Neck and Greene, 2011). Overall, the aim of the chosen pedagogical approach is to form an entrepreneurial mind-set and a metacognitive approach to opportunities in each stakeholder (von Hippel, 1994). Furthermore, the pedagogical approach links to the setting of EE, which from the curricular perspective is content dependent knowledge based and leads to knowledge construction, and from our perspective enhances the entrepreneurial mind-set (Piihl & Phillipsen, 2011).

A proposition towards developing a core reflective entrepreneurial mind-set, we would argue that the mind-set will be effective both in an entrepreneurial and intrapreneurial context. This is supported by Neck and Greene (2011) we assume that that the definition of entrepreneurship also includes intrapreneurship.

Neck and Greene (2011) argue for serious games, observation, practice, reflection, curriculum and design as the primary pedagogy with action as the pedagogical implications. Beside the above-mentioned assumption, the method also includes assumptions that the it will apply to all groups of students, that the focus is on doing then learning in a continuous process and finally, that the method applies in an unpredictable environment.

LINKS BETWEEN THE ENTREPRENEURSHIP EDUCATION ECOSYSTEM AND LEARNING

As described above, the entrepreneurial ecosystem is framed by stakeholders which interact together focusing on the educational process, leading towards learning for the stakeholders. The learning link can be defined with support from Piihl & Philipsen (2011) which structures overall are two modes, (1) a independable and (2) a context dependable setting. The context dependable setting is understood as an

authentic case determined as a core element in the learning process (Kolb & Kolb 2005). Kolb & Kolb (2005) clarify that learnings takes place in a dependent context where we claim that conflicts, differences and disagreements are natural element.

An elaborate approach to the understanding of actual output for students is defined as threefold, learning to become an enterprising individual, learning to become an entrepreneur and in this ecosystem context, learning to become an academic (Fayolle & Gailly, 2008). The overall understanding for the link between learning and the entrepreneurial ecosystem has a holistic approach which demands and most likely will be empowered by conflict and disagreements (Kolb & Kolb, 2006). Defined by the urgent need for an effectual approach (Sarasvathy, 2001) to learning could be the key mind-set for increase in all three learning areas defined by (Fayolle & Gailly, 2008) in mode 2) and the dependable setting, presented by Piihl & Philipsen (2011).

Student learnings are supported by Isenberg's (2010) domains for the entrepreneurial ecosystem linking, specific entrepreneurship training (Educational institutions), entrepreneur´s networks (Networks), early adopters for proof-of-concept (Early customers) and visible successes (success stories) to the three learning dimensions presented by (Fayolle & Gailly, 2008).

The ecosystem definition by Maciulis & Pilinkiene (2014) is similar to the stakeholders' part of the empirical research of this paper; we believe that the stakeholders will achieve some of the same macro and micro impacts as Maciulis & Pilinkiene (2014) are suggesting, such as from a micro perspective, value and innovation creation; The level of firms' productivity; Influence to innovation. From a macroeconomic perspective the overall impact is to enhance competitiveness (Maciulis & Pilinkiene, 2014, p.368).

METHODOLOGY

The overall purpose of this study is to understand learning in the entrepreneurship education ecosystem as perceived in the framework presented in figure 1. The goal is to understand the different relations and learning, including learning outcomes between the involved stakeholders. Another and a more practical goal is to use this insight to test our developed framework in real-life cases in a university setting.

The study is based in the paradigm of social constructivism and the thoughts of cooperative learning in the sense that students enrich their learning and gain working experience to add to their academic curriculum (Gergen, 2015). Even though Gergen (2015) originally refers to cooperative learning as when students work part-time in outside organisations, we argue that a project of this kind is a cooperative learning albeit in a minor scale. Furthermore, this project being studied could be argued to be a learning circle in which all participants 'build, share and express knowledge' (Gergen, 2015).

The chosen methodology is a case study that among other things is characterised by exploring a phenomenon within a number of real-life contexts (Saunders, Lewis, & Thornhill, 2012; Yin, 2014). The case study is ideal when wanting to capture both a multidimensional view and the dynamics in a given context (Järvensivu & Törnroos, 2010). Another argument for using a case study is a wish to understand the how and the why for the involved stakeholders participating in in this project (Saunders, Lewis, & Thornhill, 2012; Yin, 2014).

Using the case study adds two different sources of evidence by observing the event taking place and interviewing involved persons in the event (Yin, 2014). Our cognitive process, hermeneutic learning- and research approach, provides the possibility to develop a model for conducting further research in the ecosystem. The level of accuracy and enhancements of learning output of stakeholders could lead to formalization of quantitative data collection in future studies of the ecosystem.

Case Studies

This case study is based on an entrepreneurial project called DEMOLA. DEMOLA is an curricular elective across the universities and universities of applied sciences. They are course owners of DEMOLA meaning that they have given resources to implement the cross curricular course into all educational

programs. All participating universities have a strategy in which innovation and entrepreneurship are incorporated. We are aligned with entrepreneurial structural understanding of Foss & Gibson (2015) that universities are built upon five dimensions which are to stimulate and support entrepreneurial initiatives and curricular activities.

Each DEMOLA team consists of 5-6 students from various education programmes with different skill sets; each team is assigned to one DEMOLA case with a project partner. The project partner collaborates 3-5 hours or more with the team. For each team a DEMOLA facilitator guides and facilitates the learning process with the company partner and the student team. In DEMOLA and in this paper, the coordinated work between students, company and the facilitator is called co-collaboration.

Concretely we have studied six different DEMOLA cases in three countries illustrated in figure 2.

Kolding Golf Club, Denmark

This case focuses on saving time and fuel when greens cut grass on the 90 tee boxes on the two courses in Kolding Golf Club. The current work process for the greenskeeper is, stop the machine, remove the tee markers on the tee box, start the machine and cut grass, stop machine, place tee markers, start machine and drive to next of the 89 uncut tee boxes, etc.

Syddansk Sundheds Innovation, Denmark

The blood-test department at Kolding Hospital, a part of Hospital Lillebaelt, wants to become the most child-friendly hospital in Denmark. They receive many children every day. To make a diagnosis, a blood-test is often required and for many children, this is a scary experience and if it is their first encounter with the health sector it can be very influential on their future interaction with the hospital.

TITSA Case 1 and Case 2, Spain - Same Case with to Team of Students

TITSA seek the total and correct management of the waste generated in the TITSA fleet maintenance workshops, with special attention to hazardous waste, in order to participate efficiently in the environmental sustainability of our environment.

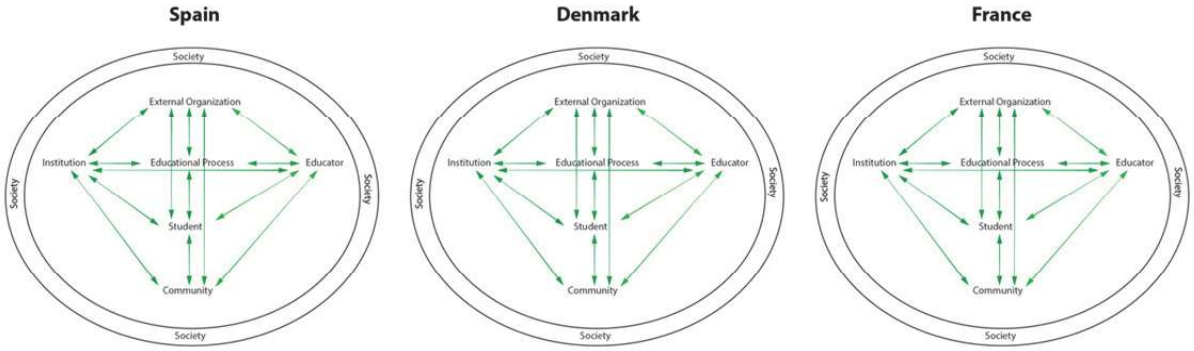
Startup of the Future, France

The case is a global perspective case, where Sophia Antipolis would like fresh eyes and perspectives on the further development of the university incubator environment. The new ideas should be found with inspiration from domains abroad in the US or in Asia, how accelerator programs and incubators are effective and develop tech startups.

Dream Life in a High Tech Park, France

The Sophia Antipolis case is focused on the future; how should, can and must the new and future technology park look in 2030 to support the next generation of tech startups. How can Sophia Antipolis become more attractive for the companies which are already part of the environment.

FIGURE 2
ENTREPRENEURIAL ECOSYSTEMS IN CASE COUNTRIES



The external organizations represent the participating organizations that have a 'real life' challenge or a business opportunity they want to have solved or they want to gain new radical input for. The cases, challenges, are described above.

Here the institution represents ten different educational institutions that put in the resources in terms of money and manpower (educators).

Ten educators facilitate the educational processes and also, supervise the student teams who cooperate with the company partner in teams.

The students are both business and non-business students. As mentioned earlier they represent different levels of education and also a wide range of different studies.

Community is here defined as a close society in general possible for the stakeholders to influence for changes and other curricular and extracurricular EE activities. As such, we argue that stakeholders are a part of the framework because each municipality also has overall strategies for entrepreneurship education including how entrepreneurship can create value.

Educational Process is in the center of this project with new ways of teaching entrepreneurship education. The setting and the stakeholders provide the students the opportunity to try to work with real life challenges under supervision while still having a responsibility to perform because the company partners expect a usable outcome of the project. The teaching/learning methods are to a large extent inspired by practices of entrepreneurship education framework (Neck, Greene, & Brush, 2014), Kolb & Kolb (2005) and Neck and Greene (2011).

1. Play: the opportunity to learn entrepreneurship by playing games.
2. Reflections: trying to impact the mind-set and skill-set of entrepreneurial learning (Fayolle & Gailly, 2008)
3. Empathy: developing skills to feel and understand others and act on the gained experience
4. Creation: developing creative skills
5. Experimentation: communication, problem solving and collaboration (Neck, Greene, & Brush, 2014). Driven by lean-startup feedback loops (Eisenmann, 2012) as an iterative process.

Each DEMOLA course has a duration of three months and contains 7-10 milestones. A milestone is a workshop with all DEMOLA student teams, main facilitators and a lead facilitator. One of the authors has the role of lead facilitator for the Danish project investigated in this study. The lead facilitators determine the pedagogical approach and content of the workshops. When the teams work with an exercise during a workshop, the main facilitators guide the teams and challenge their progress. The number of milestones

and workshops differ from each DEMOLA country. The main facilitator's task is, besides assisting the process during the milestones, to support and facilitate the process of each team between the milestones, to make sure that the team delivers, is on track with the curriculum and prepared for the next milestone. The facilitator moderates the process in order to push each student and the project partner to learn, evolve in and during the process and to apply their skills to the project.

All case studies took place 3rd and 4th quarter of 2017 in France, Spain and Denmark, respectively.

Interviews

To study the learning relation and experienced value output between university and company partner, student, educational processes and community (relation 1, 4, 6 and 9 in figure 1), we interviewed six of the ten educators, 27 students and five external organisations.

All stakeholders are individually interviewed, whereas the students are interviewed in their respective teams thus using focus group interviews. All questions are related to the research questions in combination with the theoretical framework presented in figure 2.

All interviews were recorded and transcribed and afterwards analysed in NVivo.

Observations

Besides the interviews, we asked the facilitators connected to the six cases to observe the students. The observations are related to the entrepreneurial and personal maturity skills. 21 students were observed during the project. The facilitators were asked to observe the general characteristics of the students, the physical setting and materials involved and the level of self-awareness, accountability, emotional coping and creativity.

RESULTS

The results were found by investigating 10 different sources with 45 references from the interviews with all stakeholders, company partners, students and educators. The presented results give an insight into the learning of the different stakeholders hence the learning and motivation from each participant in the ecosystem as well as an understanding of the overall ecosystem. Overall, the results give an insight into the 'how' and the 'why' of what takes place in the ecosystem (Yin, 2014).

Entrepreneurship Education Ecosystem

Each stakeholder is motivated by different elements and reasoning for participating in this project. The three most prominent reasons they all seem to have in common are learning without barriers, working interdisciplinarity and developing a new mindset.

First, a project like this breaks down barriers that are more visible outside of a project like this. Here there is no visible power distance. As one of the students explains: "It's not a hierarchy, but the board says yes or no" (student, France) about the focus being on the product. The external organizations are very much aware of this as well, and find that working with students thus also facilitators adds a new perspective on students. They become more that someone looking for a position in the company. "For me it is a group with skills and proposals so I don't consider them only as students" (External organization, France).

"The fact that they are young gives motivation by itself. And we are surprised because first we thought the students were relieved from their student commitment but they do this in their extra time and that motivate us. Students come because they want to help and solve the problem, that is their motivation that motivates us." (External organization, Spain)

The experience is mutual from the student perspective. "We feel they listen. They want to hear our idea" (student, Spain).

Second, and strongly connected to the findings above, is working interdisciplinarity. The facilitators find that they have a special role:

"I like being the catalyst between the two parties because there is a power distance from the start between the professionals and the non-professional, between a company and the students. And the power distance I like to break down" (Facilitator, Denmark).

A majority of the students uses the interdisciplinarity as a motivation for participating in this extra-curricular activity. As one student expresses: "You have one kind of mindset, you have one way to do things……..It might be nice to experience other ways, plus, I guess I'll have to work with others in professional life" (student, Denmark). Other students tell that working interdisciplinarity involves sharing your own knowledge with others and taking on the role of an educator.

It supports the view that entrepreneurship education ecosystems can act as a new setting for learning and knowledge creation as well as a new learning room without any barriers.

Third, the ecosystem enhances the possibility of developing new skills and competencies. This is prominent for all stakeholders. Students talk about developing a new mindset. They are very much aware that the solutions they present are going to be used in real life, but only if the solution is good enough. For them this way of learning 'forces' them to think differently from classical learning situations.

"I want to ask questions, I want to do, I want to try, to fail, to try again and the only way to do this is to be in collaboration with companies and to have a real-life project to work on" (student, France).

The external organizations find that the student solutions add new perspectives in their way of thinking about product solutions as the students think without the ordinary barriers.

For the facilitators the complexity of the challenge presents another way of teaching, meaning that they need to develop new ways of interacting especially with the students.

Educational Processes in the Ecosystem

Overall, the educational process in this project assists each stakeholder in their learning as they all have to rethink how they work in their respective daily lives.

The students feel challenged because they have to take a new kind of responsibility: "I've really had a hard time knowing that 'just do what you want.' But I do not know what I want, because usually I get told what I want" (student, Denmark). On the other hand, they experience the freedom as a new opportunity for learning and furthermore, not feeling like a student adds value for their self-development.

The facilitators experience the educational process as positive as well because they can see how it affects the students. As one of the Spanish facilitators notes, the knowledge that the challenge is real is a deal-breaker for the learning. This is supported by the external facilitators that view students as highly skilled.

The five elements, play, reflection, empathy, creation and, experimentation seem to work well in this kind of project. The students felt that they, due to play, learned to think differently. The facilitators found that reflection is a large element of students' learning. The fact that it is a real-life challenge enhances the level of reflection according to the facilitators. The students find that working interdisciplinarity with other students as well as external organizations, forces them to reflect on how they act internally in the respective team. Students also find reflections a significant part of having to deliver a product to the external organization. A French student explains how everything needs to be considered and reconsidered to make sure that what they do adds value. Working in teams enhanced the level of empathy because the students had to be aware of the other team members. At the same time, they needed to have an awareness in relation to the external partner and whether the liked or disliked the suggested solution. Both facilitators and students found the creation element to first challenge then become an important part of both self- and product development. All the beforehand mentioned results basically describe the last element: experimentation. Since the student had to deliver a solution they must collaborate and communicate to find the right solution for the company.

As we shall see later, this matches the observations of the students and how their maturity skills were developed throughout this project.

Learning in the Ecosystem

The six elements of learning (Kolb and Kolb, 2005) correspond well with the above results from our study, namely that learning is created in different situations when working interdisciplinarity including finding a common ground in relation to the team, the challenge and the external organization. Another element characterizing the learning is being out of your comfort zone, as one Spanish student describes it.

The external organizations learn via the team work with the student team. They take part in a process in which a product is developed over time and through an iterative process. One could argue, that they relearn as well since they have a certain kind of level of knowledge about the product and work processes and so forth.

Relearning might also take place for the facilitators. They learn how to act in a setting that is different from the classical classroom including how to perform teaching and interact with both students and external organizations.

As such, the learning is a holistic iterative process that goes well with the five elements from educational processes as they support that learning takes place.

Maturity Skills

The observations showed teams' different levels of accountability, that is, taking personal responsibility for resolving problems. A few team members were late, indicating a lack of or a low level of accountability. The majority of the students however, showed a high degree of accountability and awareness in that they had to solve the given challenge because an external organisation depended on getting a solution. The team members seemed to be good at organising themselves according to their respective competencies. The emotional coping seemed high as well in trying to be an active partner in solving the challenge. Furthermore, some contributed positively to the team spirit with their awareness of the other team members. The latter is also linked to accountability when taking an active responsibility for how the team functions. Some students showed that participating in the entrepreneurial project helped them towards a better understanding of their own competencies and how to use their study choice in the future. Students with a high degree of self-awareness are often connected with an equivalent level of accountability and emotional coping and vice versa. Only a few students were noted to act creatively; on the other hand, too many creative students in one team might pose a problem as well. Despite the lack of evidence for creativity among the students there seemed to be a high degree of learning, which corresponds with the findings from the interviews with both students and the facilitating educators.

Entrepreneurial Skills

It can be discussed whether it is possible to obtain entrepreneurial skills before the student has a defined level of maturity skills, which the data does not conclude. The data does though uncover that several students have clear expectations to adopting entrepreneurial skills during the educational process. Different perspectives and skills are highlighted to be acquired and present in their understanding of new valuable learning from the process, which we define as intangible learning output from the learning process.

One student is curious and would like to test and see if she is able to communicate her knowledge within complex law and children to other students. Understood as an expectation to adopt the entrepreneurial skill environmental scanning (Chang & Rieple, 2013) and to affect other students to enhance their entrepreneurial skill, opportunity recognition (Chang & Rieple, 2013) with new knowledge the student, would like to transfer to other students and develop new valuable knowledge.

Another student reflects on the stakeholder of educators, which she does not see as a teacher, but more as I guide, to lead her in the process. We interrupted this as the students is enhancing her entrepreneurial skill, advisory board and networking (Chang & Rieple, 2013).

A Danish student would like to improve and learn new methods, different from the program his major education is from. Developing new business ideas and business model practicing, in which he highlights that he in the future will work in diverse teams, and therefore is expecting to adopt entrepreneurial skills,

understood as the ability to develop a concept and a business plan, environmental scanning and opportunity recognition (Chang & Rieple, 2013).

Lastly, a French student is studying business management and takes on the task of managing a diverse team, which is interpreted as hands on experience practicing the entrepreneurial skill environmental scanning (Chang & Rieple, 2013).

"Well, personally I want to be able to manage a diverse team. Today it is from a diverse cultural background, it will be people from different nationalities and this is my personal purpose of DEMOLA. But there is also a collective purpose in order to research these characteristics. We are a part of it, we are also students whose journey it is but also to disrupt and create concrete solutions to real companies that we are not just like another student." (Student, France)

CONCLUSIONS

The purpose with the study was to investigate how the educational environment in the entrepreneurship education ecosystem could contribute to learning and knowledge generation for the involved stakeholders presented in our conceptual framework for understanding the entrepreneurship education ecosystem. Thus, bringing the framework into practice by studying how and what the involved actors learn in connection to an entrepreneurial project.

The conclusions are several. For one, the developed framework has proven useful to describe and understand the different relationship in the ecosystem including that a dialogic relationship exists between the stakeholders. Furthermore, we argue that even in very local projects - investigated in three different countries - the framework has its use as there clearly is a local ecosystem when external organizations and educational institutions work together. The educational institution in the ecosystem in general plays a vital role along with the chosen educational processes. This thus corresponds with Brush (2014) who argues that learning takes places in an ever-changing environment.

Second, the framework can be used to understand the learning of each present stakeholder in the ecosystem. Learning does take place when different stakeholders, on the initiative of the educational institution, participate in entrepreneurial cross-curricular activities (Kolb & Kolb, 2005). Moreover, learning in the ecosystem also reflects the dynamic interconnectivity between the partners, which adds energy to the learning process as a synergetic transaction (Kolb & Kolb, 2005).

Third, it is clear that there is a pattern between maturity skills and entrepreneurial skills (Chang & Rieple, 2013). The students observed demonstrated a positive level of maturity skills, correlating with the desire and expectations of developing and co-developing entrepreneurial skills as an output from the educational process. Furthermore, the level of creativity among the observed students did not seem to hinder the educational process, where from another perspective the focus on empathy seemed to empower the education process (Brush 2014) and make room for progress in each project, which could be a sign of development of the entrepreneurial skill environmental scanning (Chang & Rieple, 2013) and a driver for the all six stages of learning (Kolb & Kolb, 2005).

FURTHER IMPLICATIONS AND LIMITATIONS OF THE STUDY

No study is without limitations. Even though we can conclude that learning is taking place, the study does not reveal the learning in relation to each stakeholder as such. Still, we do not yet know how the individual learns in the ecosystem.

We acknowledge that our results can be influenced by the different educational systems in the three participating countries thus also different cultures and attitudes towards both teaching and learning. These factors have not been taken into consideration as our primary goal was to get a larger understanding of learning in entrepreneurship education ecosystems. Furthermore, the need for a control group in this kind of study can be discussed.

This case study was based on the international project DEMOLA which is a three-month project. It could be interesting to investigate whether the time frame influences the result of the study, which is why we propose to test the framework in short term projects as well.

Furthermore, it could be interesting to study the output of a learning process in an ecosystem and what kind of output is important in this kind of learning process. We therefore suggest to investigate the importance of tangible or intangible output further.

Likewise, it could be interesting to look at the diversity and skills of students in cross-multi-facility teams, and the significance of level of maturity and entrepreneurial skills (Chang & Rieple, 2013) and different fields of study as well as the size of the team.

We know from Brush (2014) that the internal activities at the educational institution influence the entrepreneurship education ecosystem in general thus representing the entrepreneurship capabilities. This includes the role of the entrepreneurship educator as well. It is known from other studies that the educator plays a significant role in the knowledge development of the students (Anderson and Jack, 2008).

We recommend studying the role of the educator as a stakeholder in the ecosystem further, including how to develop the necessary entrepreneurial skills of the educators that enable them to act in such an ecosystem.

Lastly, we recommend using our conceptual framework to if not measure then to get an overview of which role the educational institution has in relation to an entrepreneurship education ecosystem; that is, creating an overview of its mission and strategies in the area of entrepreneurship education. No doubt the role of the educational institutions is important in supporting the entrepreneurship education ecosystem (Brush, 2014; McKeon, 2013).

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