



Norwegian University of
Science and Technology

Opening the «Black Box» of Learning in Action-Based Entrepreneurship Education

Assessing how a Learning Environment
stimulates Entrepreneurial Learning

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AIM OF THIS THESIS

The aim of this thesis is to open the “black box” of learning within action-based entrepreneurship education programs to gain insights in how a learning environment stimulates entrepreneurial learning.

This thesis will be conducted by the completion of the following points:

- An exploration of current literature within the research field of entrepreneurship education and innovative teaching methods.
- An empirical study of how faculty delivers entrepreneurship education, how students practice entrepreneurial learning, and how interaction within a community of practice stimulates action-based entrepreneurial learning.
- Propose a conceptual model of action-based entrepreneurial learning.
- An analysis and discussion of the empirical findings commented in light of the literature review.
- Conclusion and main implications of the research.
- Limitations of this thesis and recommendations for further research.

PREFACE

This paper is the result of a master thesis conducted by Amalie H. Egeberg and Kaja Skovborg-Hansen, both students at the Norwegian School of Entrepreneurship at the Norwegian University of Science and Technology (NTNU). The purpose of this thesis has been to open up the “black box” of learning within action-based entrepreneurship education programs to gain insights in how a learning environment stimulates entrepreneurial learning.

The authors want to thank their academic supervisor, Roger Sørheim from NTNU, for his valuable insights, advices and constructive feedback. He has been an important motivator throughout the process of writing this master thesis, which the authors will be forever grateful for. The Department of Industrial Economics and Technology Management at NTNU has given the authors an opportunity to travel abroad to conduct interviews and their financial support is highly appreciated. A big thank you also goes to the students at NTNU School of Entrepreneurship, Chalmers School of Entrepreneurship and Sten K. Johnson Centre for Entrepreneurship for their willingness to participate in focus group interviews. Additionally, the authors wish to express gratitude to the faculty members who were interviewed for participation in this study. The authors also wish to thank Martin Lackéus for allocating time and for providing valuable insights within the chosen field of research. Lastly, the authors want to thank Torgeir Aadland, Charlotte Sørensen and Eli Fyhn Ullern for reading through this thesis and providing the authors with essential feedback.

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ABSTRACT

There exists an agreement among scholars that entrepreneurship can be taught, and the action-based approach is claimed as an appropriate teaching method to let students gain entrepreneurial competences within an academic context. The literature review in this thesis demonstrates the lack of empirical in-depth studies of how learning transpires within action-based entrepreneurship education, and few articles have empirically accounted for how a learning environment enhances entrepreneurial learning. This underlines a need for more empirical research examining entrepreneurial learning through social relationships. The purpose of this thesis is to open up the “black box” of learning within action-based entrepreneurship education programs to gain insights in how a learning environment stimulates entrepreneurial learning. Three research questions have been designed to fulfill the purpose of this thesis, where the authors have investigated how action-based entrepreneurship education is delivered by faculty, how students practice action-based entrepreneurial learning, and how learning materializes through interaction within a community of practice.

In order to answer the research questions, secondary data through a literature review and primary data through qualitative research have been obtained and combined. Since the authors have studied a contemporary phenomenon in real-life context, a case study design has enabled a possibility to investigate how action-based entrepreneurial learning occurs, and how a learning environment stimulates the students’ learning. Based on a literature review, a conceptual model of action-based entrepreneurial learning has been developed. This conceptual model has been further developed based on insights from in-depth case studies. The authors selected three university programs; Chalmers School of Entrepreneurship, NTNU School of Entrepreneurship and Sten K. Johnson Centre for Entrepreneurship. All three have extensive experience with action-based learning, which ensured relevant empirical data. All the programs provide new venture creation as a part of the educational curriculum. Empirical data has been acquired through individual interviews with the faculty and focus group interviews with students of the program. The empirical findings have been analyzed and discussed with the aim of understanding the interaction between the individual student, co-students and faculty.

The authors found that proactive behavior, the level of motivation, educational background and the level of effort are all important characteristics of the students attending action-based

entrepreneurship education programs. The empirical findings underline that action-based entrepreneurship education programs requires the faculty to operate as facilitators, where they provide an educational framework that the students can operate within. Further, it was found that faculty should have confidence in the students taking responsibility for their learning at the same time as the students need to take responsibility in obtaining entrepreneurial competencies. The empirical findings also emphasize a need for guidance in where the students focus their actions and in their process of reflection. Summarized, the faculty should support and challenge their students, rather than being controllers of learning. By investigating the involvement of students and faculty within a learning environment, the authors have identified how students enhance each other's learning through share of knowledge, engagement and support. It has become evident that learning materializes through collective learning between co-students, and the culture that is created within action-based entrepreneurship education programs is seen as essential for how students learn. This underlines how entrepreneurial learning should be understood as a social phenomenon, rather than purely individual.

The main contribution of this thesis is how entrepreneurial learning is stimulated by the interaction between students within a community of practice, termed student-to-student learning. Based on theoretical perspectives and in-depth case studies, a conceptual model has been developed to obtain an overall understanding of the research scope. This can provide higher educational institutions that want to establish or further develop their action-based entrepreneurship education programs, with a deeper understanding of how entrepreneurial learning takes place within such programs. This thesis further provides students with a deeper understanding of their requirements and responsibility of learning. When the students recognize their role within action-based entrepreneurship education, they are able to adjust their expectations to the educational program and act accordingly. You cannot judge a book by its cover, and the same can be applied for action-based entrepreneurship education, where the “black box” of learning has to be opened up to grasp the meaning of entrepreneurial learning as student-to-student learning.

SAMMENDRAG

Det er enighet blant forskere om at entreprenørskap kan læres, og den praksisbaserte tilnærmingen er diskutert som en hensiktsmessig metode for å la studenter tilegne seg entreprenøriell kompetanse i en akademisk kontekst. Litteraturstudiet gjennomført i forbindelse med denne masteroppgaven viser til mangelen på empiriske studier av hvordan læring innenfor et praksisbasert entreprenørskapsprogram oppstår. Det er lite forskning som har gjort rede for hvordan praksisbaserte læringsmiljøer er med på å styrke den entreprenørielle læringen, noe som krever mer empirisk forskning på hvordan entreprenøriell læring oppstår gjennom sosiale relasjoner. Formålet med denne masteroppgaven er å åpne den “svarte boksen” av læring innenfor praksisbaserte entreprenørskapsprogram på universitetsnivå, for å få innsikt i hvordan læringsmiljøet påvirker den entreprenørielle læringen. Tre forskningsspørsmål har blitt utformet i samsvar med oppgavens formål, hvor forfatterne av denne oppgaven har undersøkt hvordan praksisbasert entreprenørskapsutdanning blir levert av fagstab, hvordan studenter praktiserer entreprenøriell læring, og hvordan læringen oppstår gjennom interaksjon i et praksisfelleskap.

For å besvare forskningsspørsmålene har sekundærdata blitt innhentet gjennom et litteraturstudie og primærdata gjennom et kvalitativt studie. Ved å gjennomføre et kvalitativt studie innen et relativt nytt forskningsfelt, har forfatterne fått mulighet til å undersøke hvordan praksisbasert entreprenøriell læring oppstår, og hvordan et læringsmiljø stimulerer til slik læring. En konseptuell modell har blitt utviklet på bakgrunn av litteraturstudiet i denne masteroppgaven, og videre utviklet i henhold til empirisk data. For å forsikre relevant data valgte forfatterne å utføre en studie av tre universiteter i Skandinavia som har over en lengre tidsperiode benyttet praksisbasert læring som en del av deres utdanningsprogram; Chalmers School of Entrepreneurship, NTNUs Entreprenørskole og Sten K. Center for Entrepreneurship. Alle programmene utdanner masterstudenter samtidig som de gir studentene muligheten til å starte bedrift som en del av utdanningen. Empirisk data ble innhentet gjennom individuelle intervjuer med representanter fra fagstab og intervjuer med studenter ble gjennomført som fokusgrupper. Den empiriske dataen er analysert og diskutert i tråd med oppgavens formål, med den hensikt å forstå samspillet mellom den individuelle student, medstudenter og fagstab.

Forfatterne har avdekket at studentenes proaktive oppførsel, motivasjon, utdanningsbakgrunn og innsats er viktige når studentene skal tilegne seg entreprenøriell læring. Det fremkommer av studiet at fagstaben opererer som fasilitatorer, hvor de tilbyr et pedagogisk rammeverk som studentene kan få utfolde seg innenfor. Empiriske funn understreker viktigheten og behovet for at fagstab gir studentene tillit, samt stiller krav til studentenes ansvar for egen læring. Samtidig må studentene ta dette ansvaret, og forstå hvordan de bidrar til egen og medstudentenes læring. Det viser seg at fagstaben bør følge opp studentene ved å få dem til å reflektere over sine aktiviteter og læringsprosess. Ved å studere hvordan studenter og fagstab involverer seg innenfor et læringsmiljø har forfatterne identifisert at deling av kunnskap, engasjement og støtte blant medstudenter har betydning for studentenes entreprenørielle læring. Det har vist seg at studenter tilegner seg entreprenøriell kompetanse gjennom kollektiv læring, og kulturen som er tilstede i disse studieprogrammene er sett på som essensiell for studentenes læringsprosess. Kunnskap blir sett på som en kollektiv aktivitet der læringen blir alle sitt ansvar. Dette underbygger hvordan entreprenøriell læring bør sees på som et sosialt fenomen, i stedet for å kunn gi det et individuelt fokus.

Det viktigste bidraget fra denne masteroppgaven er ny innsikt i hvordan entreprenøriell læring stimuleres av samspillet mellom studenter i et læringsmiljø, forstått som student-til-student læring. Dette kan gi utdanningsinstitusjoner som ønsker å etablere eller videreutvikle sine praksisbaserte programmer en større forståelse for hvordan entreprenøriell læring oppstår innen et studentdrevet læringsmiljø. Det har vist seg at fagstaben spiller en viktig rolle som fasilitatorer av læring, og hvordan denne rollen krever at de gir støtte samtidig som de stiller krav. Videre gir denne studien studenter som deltar i slike utdanningsprogram innsikt i deres rolle i programmet, både med tanke på deres ansvar for å tilegne seg entreprenøriell kompetanse, men også hvordan de bidrar inn i programmet gjennom kontinuerlig tilbakemelding. Dette vil kunne gi dem muligheten til å justere sine forventninger til utdanningen, for videre å kunne praktisere læringen i tråd med disse forventningene. Man kan ikke dømme en bok basert på dens forside, og det samme har vist seg å gjelde for praksisbasert entreprenørskapsutdanning. En må undersøke hva som er innenfor den “svarte boksen” for forstå hvordan entreprenørielle læringen er studentdrevet.

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CHAPTER 1: INTRODUCTION

Entrepreneurship education is characterized as a relatively new field of study, which has experienced a rapid growth in research from the 1990s (Kuratko, 2005; Lockyer & Adams, 2014). Entrepreneurship is seen as an important mechanism for economic development through employment, innovation and welfare effects (Schumpeter, 1947), and entrepreneurship education is seen as one of several strategies for increasing entrepreneurial activity (Lackéus & Middleton, 2011; Mwasalwiba, 2010; Vesper & Gartner, 1997). However, entrepreneurship education is a fragmented field of study, and the confusing application of the term has far-reaching effects on applied teaching methods (Mwasalwiba, 2010). There seems to be a general understanding of dividing teaching methods within entrepreneurship education into two main groups; traditional methods and innovative methods (Mwasalwiba, 2010; Arasti et al., 2012). Innovative methods aim to teach different skills for the students to become more entrepreneurial (Rasmussen & Sørheim, 2006), which can be called learning through entrepreneurship (Tautila, 2010). Entrepreneurial learning has been discussed as *“learning that occurs during the new venture creation process”* (Pittaway & Cope, 2007, p. 212), which encompasses the “learning-as-you-go process” and the argument that entrepreneurs are action-oriented. Action-based entrepreneurship education (ABEE) could be discussed within the innovative branch, where the aim is to provide students with the opportunity to experience the reality of creating new ventures through the practical application of knowledge (Lockyer & Adams, 2014). Giving students the opportunity to create new ventures as part of the educational curriculum could be argued as the purpose of ABEE (Arasti et al., 2012, and serves as the basis for further discussion of learning within ABEE programs in this thesis. However, it should be noted that entrepreneurship education could be characterized as action-based even though venture creation is not part of the educational curriculum (Neck & Greene, 2011).

The concept of action-based learning is not new, but the theoretical discussion of this learning method within entrepreneurship education is (Lackéus, 2013). Still, the action-based approach is by several scholars discussed as the appropriate method to let students gain entrepreneurial competences within an academic context (Tautila, 2010; Mwasalwiba, 2010). To the knowledge of the authors of this thesis (hereafter the authors), entrepreneurship education as a field of research lacks in-depth case studies of how learning transpires within ABEE programs. Scholars state that action-based learning should be delivered within an environment

that facilitates continuous experience with an ingenious blend of challenge and support (Pittaway & Cope, 2007), but few articles have empirically accounted for how an action-based learning environment enhances entrepreneurial learning (Lackéus, 2014). The purpose of this thesis is therefore to open up the “black box” of learning within ABEE programs to gain insights in how a learning environment stimulates entrepreneurial learning.

1.1 Research Questions

RQ1: How does Faculty deliver Action-Based Entrepreneurship Education?

Current literature discusses how faculty should establish a context for student learning, which requires them to operate as facilitators (Pittaway & Cope, 2007). However, it lacks a deeper understanding of how faculty should manage their role as facilitators of entrepreneurial learning, and which level of involvement this role requires. This has led to the following research question; *How does faculty deliver action-based entrepreneurship education?* By investigating how the faculty delivers entrepreneurship education, the authors aim to understand the faculty's level of involvement in the students' learning. This could further give valuable insights in the involvement of the faculty within a community of practice. The authors define faculty as the key personnel involved in the development of the ABEE programs, which includes administrators, researchers and lecturers closely tied to the delivery of the educational program.

RQ2: How do Students practice Action-Based Entrepreneurial Learning?

Current literature discusses how students have to relish independence and take responsibility for their own learning (Lehman, 2013), thus has an active role in the learning process. However, the authors have identified a gap in entrepreneurship education research in relation to the role of the students, both concerning what this role requires and the contribution of students within the program. This led to the second research question; *How do students practice action-based entrepreneurial learning?* By investigating how students practice entrepreneurial learning, the authors aim to get a deeper understanding of how the students perceive and practice their role within the program. The richness of entrepreneurship education lies in how it is personally experienced, often in the moment (Lockyer & Adams, 2014), which underlines the relevance of studying entrepreneurial learning from the students' perspective. Additionally, it needs to be an alignment between faculty and students concerning their understanding of entrepreneurial learning and the objectives of entrepreneurship education (Vesper & Gartner, 1997), which points to the importance of investigating the role of both of them.

RQ3: How does a Community of Practice stimulate Action-Based Entrepreneurial Learning?

Some scholars argue that learning takes place within a community of practice (Hamilton, 2011), where the entrepreneurial identity of the student is socially constructed through interaction with others (Benwell & Stokoe, 2006; Giddens, 1991). However, to the knowledge of the authors, the literature lacks a further discussion of the involvement of students and faculty within a learning environment. This calls for more empirical research examining entrepreneurial learning through social relationships. This has led to the third research question; *How does a community of practice stimulate action-based entrepreneurial learning?* By investigating the interaction between faculty and students, as well as how learning occurs between co-students, the authors aim to understand how entrepreneurial learning materializes through interaction.

1.2 Contribution

There are several unanswered questions regarding how entrepreneurs learn (Politis, 2015), where few articles have empirically accounted for how entrepreneurial learning occurs within an ABEE program. This thesis is able to complement current literature with new theoretical understanding of how learning materializes through interaction within a community of practice. The main contribution of this thesis is how entrepreneurial learning is stimulated by the interaction between students, termed student-to-student learning. Based on theoretical perspectives and in depth case studies, a conceptual model has been developed to obtain an overall understanding of ABEL.

The in depth case study underlines how entrepreneurial competences could be seen as socially constructed between students, driven by engagement, support and the share of knowledge within a learning environment. The culture created within ABEE programs is found to be essential for how students learn, where knowledge is seen as a collective activity where the learning becomes everyone's responsibility. The thesis contributes with a deeper understanding of the role of faculty, where it is found that faculty should operate as facilitators, rather than controllers, through the action of supporting and challenging the students. Further, the case study provides new insights in the importance of the faculty having a certain level of confidence in the students taking responsibility of their own learning, combined with facilitating the students' reflection. Another contribution is the understanding of how entrepreneurial learning is more student-driven than what current literature has given

the impression of. This thesis provides a deeper understanding of the role of students, where it is found that ABEE requires action-based students. Students with proactive behavior, different educational backgrounds, motivation for becoming entrepreneurial and a high level of effort, is found to be essential for creating an engaging, supportive and sharing culture, which in turn enhances their learning. Further, this thesis contributes with new insights in how students could be looked upon as givers, not only through their creation of value outside the classroom as argued by Lackéus (2016), but also by their contribution within the program through feedback on the program content.

Through investigating the learning environment within ABEE programs, the authors have been able to open the “black box” of entrepreneurial learning. The case study contributes with information regarding innovative learning methods, which has been the research scope of this thesis, and therefore the results will not necessarily be applicable to understand more traditional entrepreneurship education. It should be noted that the thesis does not have a normative purpose, nor does it take a stance and prescribe a certain way of delivering ABEE and practicing ABEL, but rather provides a deeper understanding of how entrepreneurial learning transpires within a learning environment. The empirical findings may be useful for higher educational institutions that offer ABEE, by giving the faculty a better understanding of how the students perceive the current learning methods. Further, the case study could give higher educational institutions who want to establish an ABEE program a deeper understanding of how entrepreneurial learning is enhanced by its learning environment, which underlines the challenge of just copying the program structure and content of an existing ABEE program. Further, the case study provides students with an understanding of their responsibility and contribution within an ABEE program.

The following chapter explores current literature within the research field of entrepreneurship education and innovative teaching methods. An elaboration of the research methodology follows. Chapter four presents the empirical findings from the case study, followed by chapter five, which includes a cross-case analysis and discussion of the empirical findings commented in light of the literature review. This chapter also provides a discussion of the revised conceptual model. Chapter six concludes this thesis with results and the main implications of the research. Lastly, the authors present the limitations of this thesis and recommendations for further research.

CHAPTER 2: LITERATURE REVIEW

Initially this chapter will present what previous and current literature says about entrepreneurship education, and different kinds of entrepreneurial learning methods. Further, literature discussing ABEE and ABEL will be presented, also in light of its social context. Lastly, implication of contextual factors will be presented.

2.1 Overview of Applied Literature

Based on the research questions, the authors have selected different themes considered as relevant to the questions (Appendix 1). The most common themes are entrepreneurship education and entrepreneurial learning. A large amount of the literature links entrepreneurship education and entrepreneurial learning. However, few articles combine the role of students, faculty and the learning environment when discussing entrepreneurial learning, which makes it difficult to understand how learning occurs through social relationships. Further, it lacks a theoretical discussion combining the themes; experiential learning, ABEL and community of practice. As mentioned, ABEL is a relatively new field of research, which lacks both theoretical and empirical discussion. When searching for ABEL on Web of Science, only four results were shown, where only two of the articles were seen as relevant for this thesis. Further, in articles used, the theme ABEL is rarely mentioned, and few articles discuss this type of learning in relation to the role of both students and faculty, which strengthens the relevance of this thesis.

2.2 The Importance of Entrepreneurship Education

Laukkanen (2000) states that entrepreneurial education programs that contribute in regional development need to gain more academic attention and discussion. Universities have been given a role as active contributors to regional economic development, where the offering of entrepreneurship education could be seen as an important initiative (Rasmussen & Sørheim, 2006). According to Lockyer and Adams (2014), a future goal is to educate more entrepreneurs, where entrepreneurship education is seen as the main strategy for achieving this. Both the demand for, and the offering of entrepreneurship education has grown, which is seen as a result of the increasing support of entrepreneurship received from many stakeholder, including policymakers, academia and students (Lackéus & Middleton, 2011; Mwasalwiba, 2010; Vesper & Gartner, 1997). There exists a lack of consensus between policy makers and professors when discussing entrepreneurship education. Policy makers have an economic perspective and want to reduce unemployment, but this broad perspective does not take into

consideration how the education should be implemented to create an adequate learning environment (Gibb, 2002).

2.2.1 Different Approaches of Entrepreneurship Education

According to Mwasalwiba (2010), there are crucial definition issues in relation to entrepreneurship education, which could have an effect on the design of entrepreneurship education programs. Moberg (et al., 2012, p. 14) defines entrepreneurship education as “*content, methods and activities supporting the creation of knowledge, competencies and experiences that make it possible for students to initiate and participate in entrepreneurial value creating processes*”. Lockyer and Adams (2014, p. 288) have another definition where entrepreneurship education “*focuses on the development and application of an enterprising mindset and skills in the specific contexts of setting up a new venture, developing and growing and existing business, or designing an entrepreneurial organisation*”. According to Lackéus (2015) any education that allows students to learn by creating new kinds of value to others could be deemed as entrepreneurial. He further discuss how entrepreneurial education could be understood as helping students to learn how to optimize their future prospects by becoming more proactive, action-oriented, creative and self-opportunistic (ibid.). The term enterprise education is also used when discussing entrepreneurship education. These two terms are quite different when people try to understand what is meant by entrepreneurship (Lackéus, 2014). One term is wide and one narrow, and often it can be a risk for confusion according to these terms. The narrow definition relates to the entrepreneurship education, which focuses on developing competences necessary to set up a new venture or a business, including business development, self-employment i.e. (Lackéus, 2015). The wider definition, enterprise education has the aim of developing competences necessary to generate and realize ideas, and focuses on personal development, mindset, self-reliance, and to become entrepreneurial (ibid.). How these definitions are being used, and which approach different programs use, often affect educational objectives, which audience the programs target and how faculty teaches students entrepreneurship (Mwasalwiba, 2010). It is recommended that any discussion on entrepreneurial education have to start with clarifying which definition is used.

Very few authors have attempted to directly define ABEE, and the theoretical discussion is still in its early stages (Gielnik et. al, 2015; Mwasalwiba, 2010). According to Rasmussen and Sørheim (2006), entrepreneurship education programs that actively use an action-based learning approach, could be understood as ABEE. It is argued that one of the distinguishing

characteristics of ABEE programs is the creation of a new business as the result of the program of study, which underlines how these programs could also go by the name venture creation programs (Lackéus et al., 2011; Lockyer & Adams, 2014). According to Mwasalwiba (2010), the definition of ABEE should reflect the objectives of the education. These programs are often evaluated based on how many businesses the program produces, but the truth is that even though many new ventures are created, many also fail, which reflects the reality (Lockyer & Adams, 2014). This underlines that the number of new ventures created is not necessarily a good parameter for evaluating these programs. The aim of an ABEE program could rather be seen as providing students with an opportunity to experience entrepreneurship, but also gain valuable knowledge within business development (ibid.). Even though definitions have a way of making things more certain than they are (Kolb, 1984), it is seen as useful to clarifying how ABEE could be understood. Based on current literature and the scope of research, the authors define ABEE as the creation of new ventures through the practical application of theoretical knowledge within an academic context. This will serve as the basis for further discussion.

2.2.2 Entrepreneurial Learning

Questions concerning whether entrepreneurial traits are inborn or made have led scholars to question if entrepreneurship can be taught (Henry et al., 2005). Fiet (2001, p. 1) notes “*there is an on-going debate in the entrepreneurship academy about whether we can actually teach students to be entrepreneurs*”. However, according to Mwasalwiba (2010), the question if entrepreneurship can be taught, is irrelevant since recent theoretical and empirical studies have proven that it can. The question should rather be how should it be taught? This question could be linked to the theoretical assumptions within the field of research, which could be seen as problematic since entrepreneurial learning theory is a relatively new field of study (Henry et al., 2005). According to Minniti and Baygrave (2001, p. 7) “*a theory of entrepreneurship requires theory of learning*”. Developing knowledge about entrepreneurial learning is becoming a feature of study in entrepreneurship; however, the literature has been criticized for lacking an explicit definition of entrepreneurial learning (Pittaway & Cope, 2007). Entrepreneurial learning could be understood as “*learning that occurs during the new venture creation process*” (ibid., p. 212), and is characterized as an “*extremely complex dynamic phenomenon*” (Warren, 2004, p. 8).

Hägg and Peltonen (2014, p. 1) define entrepreneurial pedagogy as a “*toolbox of new tricks*”, where the teaching techniques are innovative. Entrepreneurship programs often have different types of objectives, both measurable and more general and complex ones (Arasti et al., 2012). Increasing the success probability of new ventures is one of the main objectives of entrepreneurship education, where education should both create new ventures and help entrepreneurs to form and grow (Pittaway and Cope, 2007; Mwasalwiba, 2010). However, entrepreneurial education should not only be seen as the mere creation of a business. Several scholars argue that entrepreneurship education is generally aimed to create or increase entrepreneurial attitudes, spirit, and culture among individuals and in the community in general (ibid.; Kuratko, 2005). Based on this the authors understand entrepreneurial learning as the creation and increasement of entrepreneurial competences, defined as knowledge, skills and attitudes that affect the willingness and ability of the students to perform the entrepreneurial job of new value creation (Burgoyne, 1989; Sanchez, 2011).

2.2.3 Different Approaches of Entrepreneurial Learning

Lehman (2013) argues that entrepreneurship education includes a new method of teaching, where the educators focus more on the student’s ability to use, apply and act in their learning process, rather than focusing on understanding, knowing and talking. Entrepreneurship can be taught in many ways, but there seems to be a general understanding of dividing the different methods into two main groups; traditional methods and innovative methods (Mwasalwiba, 2010; Arasti et al., 2012). These methods could be understood in light of their objectives, where learning that is based on theories of the entrepreneur and teaching those that are interested in the theme entrepreneurship could be seen as traditional. While a traditional method is understood as students learning about entrepreneurship as a phenomenon, an innovative method is to teach different skills for the students to become more entrepreneurial (Rasmussen & Sørheim, 2006). Innovative methods are more geared towards those who are interested in practical learning and the aim is to prepare the participants to have an entrepreneurial career (Koch, 2003). Based on this, innovative methods could be seen as more action-based, and traditional methods as more passive (Arasti et al., 2012). Frazão (et al., 2008) state that when teaching entrepreneurship it is necessary to replace the traditional way of learning with more reflexive and action-oriented learning. It is further argued that the traditional way of teaching does not allow students to become entrepreneurs and do not give them the right competences. Arasti (et al., 2012) emphasize that traditional methods are less effective when teaching entrepreneurship, and such methods just prepare students to work for

an entrepreneur, and do not become entrepreneurs themselves. However, the traditional approach is the most common learning method in entrepreneurship education on higher level (Frazão et al., 2008; Mwasalwiba, 2010). Further, entrepreneurial teaching is frequently categorized into three branches; teaching “about” entrepreneurship, teaching “for” entrepreneurship and teaching “through” entrepreneurship (Lockyer & Adams, 2014; Lackéus, 2014). Teaching about entrepreneurship is based on a theoretical approach, and provides a general understanding of the field. Teaching for entrepreneurship is based on an orientated approach with the aim of giving students the right knowledge and skills. Teaching through entrepreneurship could be understood as an experimental approach, where the students go through an actual entrepreneurial process (Lackéus, 2014). According to Taatila (2010), learning through entrepreneurship is the appropriate method to gain entrepreneurial skills.

2.3 Action-Based Entrepreneurial Learning

Rasmussen and Sørheim (2006) remark that entrepreneurship education with the aim of learning “through” entrepreneurship could be defined as ABEE. Entrepreneurship scholars emphasize the role of action when discussing entrepreneurship. Action is important because starting a new venture requires continuous actions to pursue business opportunities, gather resources and establish a viable business structure (Gielnik et al., 2015). Action-based learning has been discussed as a bridge between knowledge producing academic and value creation processes (Lackéus, 2013), with the aim of providing students with the opportunity to experience the reality of creating a new venture (Lockyer & Adams, 2014). This learning approach is seen as a method to engage students more actively and to make entrepreneurship training more effective, which is also described as experiential learning (Kolb & Kolb, 2008). Further, action-based learning relies on a process that links both experiential learning and theoretical knowledge (Pittaway & Cope, 2007), which underlines how it could be delivered within an academic context. It exists different approaches to action-based education, where the venture creation approach is discussed in relation to education on a university level. This approach allows the students to start a real-life venture as a formal part of curriculum with an intention to continue running the venture after graduation. However, there are significant challenges with this method, which underlines the difficulty of infusing ABEL in education (Lackéus, 2016).

2.3.1 Learning-By-Doing-What?

Even though learning through entrepreneurship is by many scholars seen as the most effective method to learn entrepreneurship, there is still a question of learning-by-doing-what?

According to Lackéus (2016) learning by creating value could have a strong impact on developing entrepreneurial competences and also on the motivation of the students. This leads to the discussion of creating value as a stepping stone when infusing entrepreneurship into education (ibid.). Based on this, entrepreneurship education in the frame of this thesis could be seen as new venture creation. According to Rasmussen and Sørheim (2006) these educations give students an opportunity to set skills into practice. It is said that many entrepreneurial students thrive on learning that is followed by immediate application to either their own ventures or a live case study (Lehman, 2013). There is an agreement among educators that teaching methods within ABEE have to be more creative, and less scientific (Arasti et al., 2012). Still, Lackéus (2016) argue that traditional education and previous educational philosophies have not emphasized the creation of value, and the purpose of an entrepreneurial process is to let students gain entrepreneurial competences by going through an actual entrepreneurial process of creating value to others. Allowing students to act “in more altruistic ways” during their education, can trigger learning where students are seen as givers, rather than takers (ibid.).

The definitional essence and general objectives of ABEE influence the forms, course contents and target audience. The course content should be developed and delivered based on a clear view of the type of graduates the faculty intends to produce (Mwasalwiba, 2010). The aim of these programs is seen as both providing students with an opportunity to experience entrepreneurship, and to gain valuable knowledge within business development (Lockyer & Adams, 2014). Gibb (2002) states that it is no absolute agreement of how educators should teach their students to become entrepreneurs, and there is also little mentioned about how entrepreneurial learning relates to both theory and practice (ibid.). According to Heinonen and Poikkijoki (2006) experience can be organized on the basis of theory, and learning can take place as a combination of theory and practice. Learning is ideally a process involving both experience and theoretical knowledge in various forms. *“While the central focus is on new venture creation, there does not appear to be a high degree of conceptual agreement as to what should ‘surround’ this, and what is drawn from the established disciplines should be prioritized and ordered”* (Gibb, 2002, p. 238). Challenging the students is essential, where

learning coaches, mentors and tutors should constantly set requirements, create time pressure and challenge the student's taken-for granted knowledge and way of thinking (Pittaway & Cope, 2007). In other words, emotional exposure has to be carefully managed through tutorial and course design. Further, Kristensen (1999) argues that to be able to develop entrepreneurial students the higher educational institution should offer high quality teaching, use new pedagogical methods and mobilize students to use their network and each other in their learning process.

ABEE is seen as progressive education and requires the teachers to connect theoretical curriculum content to each student's own unique experience (Lackéus, 2016). This is a complex process, which underlines why several institutions still relies on more traditional practices. Dewey (1938) points to the need of a plan for what to do, how to do it and why education should overcome the destructive battle between traditional and progress education. Gielnik (et al., 2015) found that matching training and real-world tasks to increase transfer between them is valuable and a central part of ABEL. This is based on how students learn actively to analyze and evaluate the status of their venture alongside action principles taught in training programs. Through training within planning and implementing plans, as well as setting up and operate a business, students could develop skills in action planning and developing stronger entrepreneurial goals (ibid.). It should be noted that action-based learning is not necessarily meeting academic standards, and can be hard to grade compared to academic courses. This underlines the challenge of designing an action-based entrepreneurship program on a higher educational level, were master students should both successfully graduate while starting a new venture. Having the students create a new real-life organization as formal part of their education is both rare and administratively complex (Lackéus, 2013), and does not integrate well into existing curriculum for most teachers (Lackéus, 2016).

2.3.2 Individual Learning

According to Kolb and Kolb (2005) learning is the major determinant of human development, and how individuals learn shapes the course of their personal development. Harkema and Schout (2008) discuss the classic definition of learning, which includes how learning is a change in behavior, as a result of experience or practice. There are different approaches of learning, but they all include how people gain knowledge or skills either through traditional teaching methods, studying or more practical assignments that provide the students with

experience (ibid.). Experiential learning offers another perspective on the creation of knowledge compared to traditional educational methods. Experiential learning theory (ELT) can be seen as highly connected to how individuals learn through an action-based approach, understood as “*the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience*” (Kolb, 1984, p. 41). The experiential learning process aim to learn the students of a particular subject, but also let the students learn more about their own learning process (Kolb & Kolb, 2008). The perspective emphasizes the central role that experience play in the learning process, where learning should be seen as a holistic process consisting of four main stages. The experiential learning cycle, as shown in Figure 1, is a dynamic view driven by the “*resolution of the dual dialectics of action/reflection and experience/abstraction*” (ibid., p. 2). This learning cycle emphasizes that the learner touch all the bases, experiencing, reflecting, thinking and acting. The learners can have different preferences for employing different phases of the learning cycle, which underlines the concept of learning styles.

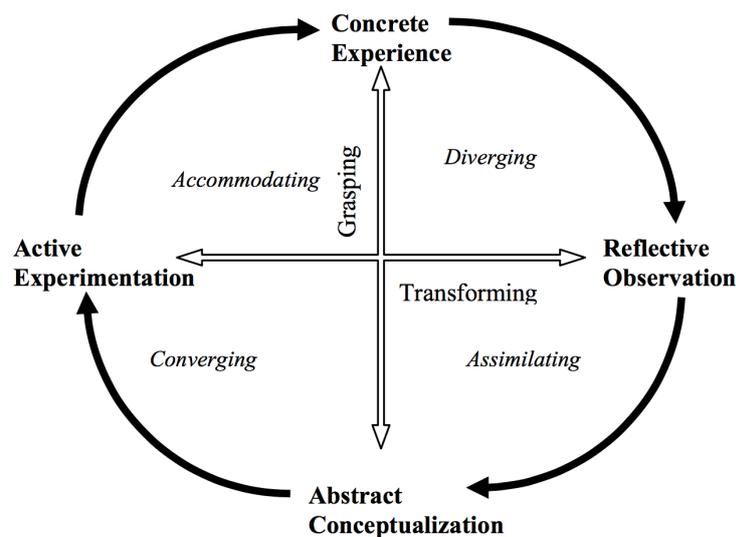


Figure 1: Experiential Learning Cycle (Kolb & Kolb, 2008)

The concept of learning styles describes individual differences in learning based on the learner's preference for employing different phases in the learning cycle. This underlines the challenge of designing an educational program that is customized to every student being part of the program.

2.3.3 Collective Learning

It should be noted that isolating the individual characteristics of entrepreneurs from situational characteristics might affect the understanding of an entrepreneur's success (Unger et al., 2009). This is further emphasized by Markman and Baron (2003), who argue that an entrepreneur's success also relies on the social competences of the entrepreneur since they operate within a social context. Rae (2005) argues that entrepreneurial learning can be interpreted as a personal and social emergence of an entrepreneur, which underlines the relevance of discussing learning as co-created. Entrepreneurship education is seen as enabling the students to develop a sense of “who they are”, and in that sense going through a personal journey. However, several scholars argue that entrepreneurial identities are developed through relationships, dialogue and interaction, which underlines the understanding of entrepreneurship as socially embedded (Fletcher & Watson, 2007, Falck et al. 2010, Granovetter, 2000). This perspective is empowered by the statement of Vygotskij (Kjernland, 2014), where the development of entrepreneurial competences is seen as derived through interaction with other people. Based on this, collective learning could be understood as preceding individual learning. It is emphasized by MacPherson (2009) that learning from others, self-directed learning and critical self-reflection are some of the highly efficient ways of acquiring knowledge and information needed to develop a business. According to Lackeus (2016) a viable way to increase learning and engagement is to let students learn by helping others. Based on a worked-based learning perspective, problem solving becomes a social activity rather than in individual and analytically detached process (Raelin, 1997). It is further argued that acquiring knowledge is a collective activity, and in this respect becomes a collective responsibility. This type of interpersonal interaction could be referred to as intersubjectivity, defined as the understanding that occurs between people (Rogoff, 1990). This philosophy avoids the division between the individual and the social (Biesta & Barbules, 2003), where educational philosophy should emphasize communication, cooperation and co-created learning. This is complemented by the argument of Raelin (1997), who states that practitioners often learn best through the share of theories and experiences.

2.4 Community of Practice

Within the supportive and stable environment of a university, students are able to explore their entrepreneurial capabilities. Stimulating emotional exposure is connected to creating a learning environment that reflects the way of life, where entrepreneurs live with high levels of uncertainty and complexity, and having the opportunity of engaging in community of practice

of enterprising behavior (Gibb, 2002). Pittaway and Cope (2007) argue that the community of practice perspective complements the action-based learning approach since learning is linked to the conditions in which it is learned. The concept of community of practice underlines how learning should be understood within its social context as an inseparable aspect of social practice (Hamilton, 2011). According to the socially situated learning perspective *“learning, thinking, and knowing are relations among people engaged in activity in, with, and arising from the socially and culturally structured world”* (Lave, 1991, p. 67). Kolb and Kolb (2008) state that situated learning theory enriches our understanding of how learning spaces extend beyond faculty and the classroom, and how learning is a construct of the student's experiences within the social environment. The social dimension shapes both experiences and learning, and could be described as a “process of co-participation” where entrepreneurs operate in social communities of practice. This underlines that learning is developed and framed within a communal context (Pittaway & Cope, 2007). When individuals are engaged in an environment in which they interact, a common identity could be created based on a set of explicit and tacit elements that may take the form of interests, ideas, tools and documents that are shared among the members of the community (Wenger et al., 2002).

Kolb and Kolb (2008) argue that it is necessary to have conversational spaces where the students are stimulated to share and discuss their experiences. The creation of a communal work context could be conducted through proactive, project-based activity and reflective practice. Wenger (et al., p. 2002) further emphasize the importance of having members within a community of practice located in the same physical space. The importance of making space for conversational learning is further emphasized, since significant learning can occur in spontaneous conversations among the students (Kolb & Kolb, 2005). Harkema and Schout (2008) underline how co-operation can be stimulated through working in an open space to be able to discuss ideas and decisions before taking action. Entrepreneurial learning is created in a community that shares experiences through free-flowing knowledge, where the community contributes to solving problems, promoting the spread of best practices and develop the student's professional skills (Wenger & Snyder, 2000). Experiential learning in higher education can be achieved through the creation of a learning environment that promotes growth-producing experiences for learners (Kolb, 1984). Further, the concept of learning spaces can be discussed when describing how a learning style occurs through transaction between the person and the environment (Kolb & Kolb, 2008). Co-operation with other

students results in the student's attainment of learning through entrepreneurship, and to gain experience with solving real-life problems, and develop own business ideas (Venesaar, 2008).

Students are motivated by those around them, which underlines the potential impact of the environment they operate within (Lockyer & Adams, 2014). Working on a real life problem is seen as essential for encouraging entrepreneurial learning, and giving the students a level of independency that could lead them to feel both responsible and emotionally attached to their project. Emotional commitment is an essential dimension of entrepreneurial learning, which could be stimulated through self-selecting venture teams and ideas, and the use of learning coaches and mentors (ibid.). In accordance to this argument, action-based learning should be delivered within an environment where students continuous experience an ingenious blend of challenge and support. A supportive tutorial design is required to manage the emotional exposure, which points to the importance of a relationship-based approach to learning (Pittaway & Cope, 2007). The social structure, such as moral codes and the established ways of doing things, have an influence on the acts of individuals (Hägg & Peltonen, 2014). The members of a community of practice develop a shared history together with particular values, beliefs, ways of talking and doing things (Drath & Palus, 1994). It should be noted that the creation and maintenance of a community of practice could be seen as the result of a dynamic process, where learning occurs as co-learning between the participants within the community (Heinonen & Poikkijoki, 2006).

2.4.1 Actors Within a Community of Practice

Entrepreneurial programs have internal and external stakeholders, which are all interested in what they could gain from the education, either by being *“directly involved, affected by it, or because they need information to make decisions that impact it”* (Duval-Couetil, 2013, p. 401). Internal stakeholders are understood as the students attending the program, and the faculty administering the education. External stakeholders could be alumni (previous students that have taken the same educational program), companies and regional partners (ibid.). Mentors are presented as key stakeholders, which contribute with critical resources and knowledge, and provides guidance in the students' process of *“learning how to be”* (Middleton, 2013). Harkema and Schout (2008) remark that having mentors from a business network is an important element within the pedagogical concept of entrepreneurial learning. It is important to consider the target audience when designing an entrepreneurial program to be able to deliver learning that meets the specific group of participants (Klofsten, 2008). Further,

Gartner and Vesper (1994) argue that when designing an entrepreneurship education program, the faculty should consider both the prior knowledge and skills of incoming students.

The Role of Faculty

Gibb (2002, p. 253) argues that the “*key role of the teacher is to develop students’ ability to give wider meaning to their experience and allow exploration of personal theories that underpin their behavior and understanding of certain situations*”. According to Kolb (1984) the education process begins with bringing out the beliefs and theories of the learners, and then integrate new and more refined ideas into their current belief systems. Teachers in an entrepreneurial program need to be experts in many different areas, but most importantly, brilliant to teach others how to achieve entrepreneurial skills (Fayolle, 2013). According to Arasti (et al., 2012) the main task of a teacher is to provide the students with theoretical knowledge on entrepreneurship and business planning, and give students instructions for how they should find and test business ideas. Unfortunately, teachers are often not well trained to teach entrepreneurship, which results in low motivation and commitment from the professors when delivering entrepreneurship education. It lacks robust advices for how to deliver action-based education, which underlines the challenges of delivering it. According to Lackéus (2013) the framework of action-based teaching proposed by Piotr Galperin could be used. The framework recommends faculty to implement a six-stage teaching approach, focusing on facilitating a learning process where the students set goals, take action, reflect upon the consequences of the action, and transform reflection to knowledge, which becomes cognitive tools. The faculty’s duties are facilitating learning at individual and team level through design of interaction and provision of resources and development skills/tools; team formation; general guidance, advice and support (Middleton, 2013).

A challenge can arise if the professors have low ability to take risks, develop new teaching methods and modify methods to new research (Frazão et al., 2008). Heinonen and Poikkijoki (2006) discuss how the faculty should make students reflect upon their own experiences and put them in a wider context. In this way, the students get an opportunity to make their own theoretical interpretations. According to Lackéus (2016) students need feedback from teachers, peers and/or external stakeholders to be able to reflect around what they experience. The reflection should make students connect personal experience to theoretical knowledge, where students are engaged to enhance their own learning. Further, the faculty should provide

feedback on the effectiveness of students learning efforts. This requires faculty to play an active role in the reconstruction of experience into knowledge (Kolb & Kolb, 2005).

There are many variables and factors to consider and evaluate when developing and teaching courses within entrepreneurship, and Lehman (2013) argues that the faculty should have an entrepreneurial mindset to enable an effective learning approach. A qualitative study conducted by Klofsten & Serio (2008) found that the team behind an entrepreneurship education program should have personal experience with starting and managing a new venture. According to Arasti (et al., 2012), the effectiveness of an entrepreneurship education program relies mostly on the skills and knowledge of the teachers, and how they use different methods to deliver knowledge to the students. How faculty members believe entrepreneurship should be taught could also have implications for how the program is designed and carried out (Zappe et al., 2013).

The Role of Students

According to Arasti (et al., 2012) ABEE could be relevant for students with various socio-demographic characteristics, and with different levels of involvement and ambitions for the entrepreneurial learning. Some scholars argue that some people may be better suited to become entrepreneurs than others, and matching the entrepreneurs' personal characteristics and the requirements of activities of being an entrepreneur is seen as important for entrepreneurial success (Markman & Baron, 2003). There has been a growth in interest among psychology-based researchers in the entrepreneurs' personal characteristics as predictors of success, where the competences, motivation, cognition and behaviors of the individual are seen as important (Baum & Locke, 2004). The student's own motivation to become an entrepreneur is seen as an essential part of entrepreneurial learning (Harkema & Shout, 2008). It has long been argued that human capital attributes such as education, experience knowledge and skills are critical resources for success in entrepreneurial firms (Unger et al., 2009). However, it is also argued that human capital may not result in success if the entrepreneur does not have the aspiration, nor the motivation for starting a new venture. It is found that motivational factors have direct effects on new venture performance (Baum et al., 2001), which could be discussed in light of an entrepreneur's passion for work. Previous research has identified the importance of the entrepreneur's enthusiasm, especially in relation to facing uncertainty. It is suggested that passion is the most observed phenomenon of the entrepreneurial process, where entrepreneurial behavior is described as "*passionate, full of*

emotional energy, drive and spirit” (Bird, 1989, p. 7-8). Further, Souitaris (et al., 2007) argue that entrepreneurial attitudes and intentions are affected by the inspiration of entrepreneurs, which underlines how students should fall in love with an entrepreneurial career. The argument that one should hire people with the most adequate profile and potential to contribute to success of the organization (Markman & Baron 2003), underpins how the recruitment process of students in an ABEE program should consider the students’ individual characteristics.

Students learn differently, have different roles, and it can be expected that they emphasize learning in different ways (Pittaway et al., 2010). Heinonen and Poikkijoki (2006) discuss the importance of students having an active role in the learning process. Students that participate in an entrepreneurial process have to relish independence, flexibility and innovative ways of doing things (Lehman, 2013). Students should be stimulated to set their own goals and build their own way of learning by collecting *“their own luggage and select their personal mode for transport”* (Heinonen & Poikkijoki, 2006, p. 525). Gielnik (et al., 2015) underlines the importance of including modules in the training, particularly focusing on the identification of business opportunities, where the students think of who they are, what they know and whom they know, is valuable since starting a new business requires a multitude of preparatory steps. It is further noted that this has to be initiated and accomplished by the students themselves. However, Gibb (2002) remarks the challenge of moving away from traditional learning methods, and let the students recognize the importance of emotions, feelings and motivation in their learning process.

According to Lackéus (2016), previous educational philosophies have somewhat neglected the role of the students by their focus on students as consumers of education. Further, it is argued that students are highly engaged and creative when they are encouraged to use their knowledge to create value for people outside the classroom (ibid.). The students’ duties are to learn how to create a new firm and apply learning to developing the project with intention to incorporate, at the same time as fulfilling educational requirements (Middleton, 2013). When students are seen as givers of entrepreneurial learning, they should be challenged to apply curriculum content and knowledge to key issues and problems within their ventures. This requires a belief that students are capable of taking this responsibility (Lackéus, 2016).

2.5 Implications of Contextual Factors

Entrepreneurship is a complex process and entrepreneurship education cannot be analyzed isolated from its context. It has to be understood in relation to factors such as culture, networks, resources and environment conditions (Rasmussen & Sørheim, 2006). A qualitative study conducted by Klofsten and Serio (2008) found that entrepreneurship training is delivered through cooperation between the university and external resources, such as early-stage investors, science parks and other universities. This underlines how an entrepreneurship education program should be analyzed in light of its internal and external resources (Harkema & Schout, 2008). Bruyat and Julien (2001) argue that in order to understand entrepreneurship, both individuals, projects, environmental factors and links between them it has to be studied over time. Entrepreneurial success is environment-dependent, which implies that entrepreneurial knowledge and skills should be customized to the context (Carayannis et al., 2003). This underlines how an ABEE program should be designed according to the needs within the region it is located (Klofsten & Serio, 2008). The regional context influences education objectives, the outcomes of the study program, resources involved, and how the culture is created (Matlay, 2005; Fayolle & Klandt, 2006).

Vesper and Gartner (1997) argue that a high quality program should have available support for their students, such as counseling, advising, mentors, and in that way help them to succeed. The resources the faculty has available could be discussed in connection with a “*resource base*” theory, which is defined as all resources an organization has available to perform value-based activities (De Wit & Meyer, 2014). A resource base can be split into two categories, both tangible and intangible resources. The tangible resources include physical resources, e.g.: learning offices and financial resources. “*A growing trend is for the universities to own incubator facilities and provide training through that type of organization*” (Klofsen & Serio, 2008, p. 5). The intangible resources are connected to the people in the organization, and have to be developed over time. These resources could be divided into relational and competence resources. Relational resources could be understood as the co-operation or use of external resources such as early-stage investors, science parks and other universities, where the faculty should introduce the students to people who might be able to facilitate their success (Kyrø, 2015). Competence resources include the faculty’s knowledge, attitudes and capabilities of teaching action-based education (De Wit & Meyer, 2014). Additionally, Lehman (2013) discusses advisory boards as a synergistic energy for

creation of new entrepreneurship programs. It is a team activity to create an entrepreneurship program, and including an advisory board can give the program more connections with the environment through an extended network, and some of the participants in the board can serve as mentors for the students.

2.6 Conceptual Development

The literature on entrepreneurship education, combined with theory on learning methods provides a theoretical understanding of ABEL. It is evident that entrepreneurship education is a fragmented field of research, where different learning objectives and various teaching methods could be seen as a result of this (Gielnik et al., 2015; Mwasalwiba, 2010). The literature presents two different teaching methods; traditional and innovative ways of learning (Arasti et al., 2012). These methods should be understood in relation to the division of the three learning objectives; teaching about, for and through entrepreneurship (Lockyer & Adam, 2014; Lackéus, 2015). ABEE is discussed within the innovative branch, where students are learning through entrepreneurship. According to literature, the aim of ABEE is to provide students with the opportunity to experience the reality of creating new ventures through the practical application of knowledge (Lockyer & Adams, 2014). The students are given hands-on experience with entrepreneurship, which stimulates the students to take responsibility for their own learning.

In accordance with the literature review, the authors have developed a conceptual framework. As shown in Figure 2, the literature points to how ABEL is affected by its social environment (Pittaway & Cope, 2007; Hamilton, 2011; Cope, 2003; Lave, 1991). The faculty delivers support, challenge, feedback and program content to the students in the learning environment, which affects the individual learning cycle of the students. Learning has to be understood as a combination of individual and institutional factors, operating within a context. Access to external resources is influenced by the program's surroundings, and is seen as important for how the faculty delivers learning. It is argued that action-based learning requires a community of practice that is both challenging and supportive, which is created through the interaction between students and faculty (Pittaway & Cope, 2007). The students are seen as responsible for their own learning, which underlines the importance of giving them the opportunity to take this responsibility. The faculty are seen as coaches rather than tutors, who provides the students with guidelines. In other words, action-based learning should provide the students with a certain level of freedom to generate knowledge on their own (Lackéus, 2016).

Summarizing current literature, the theoretical gap on how individuals learn within an ABEE, together with what the students contribute with, becomes evident. This underlines the relevance of conducting an empirical study with the aim of gaining a better understanding of how entrepreneurial competences are developed through collective learning in a community of practice. This conceptual model falls short in relation to characterizing how ABEL materializes through interaction among students within a learning environment, not only between students and faculty.

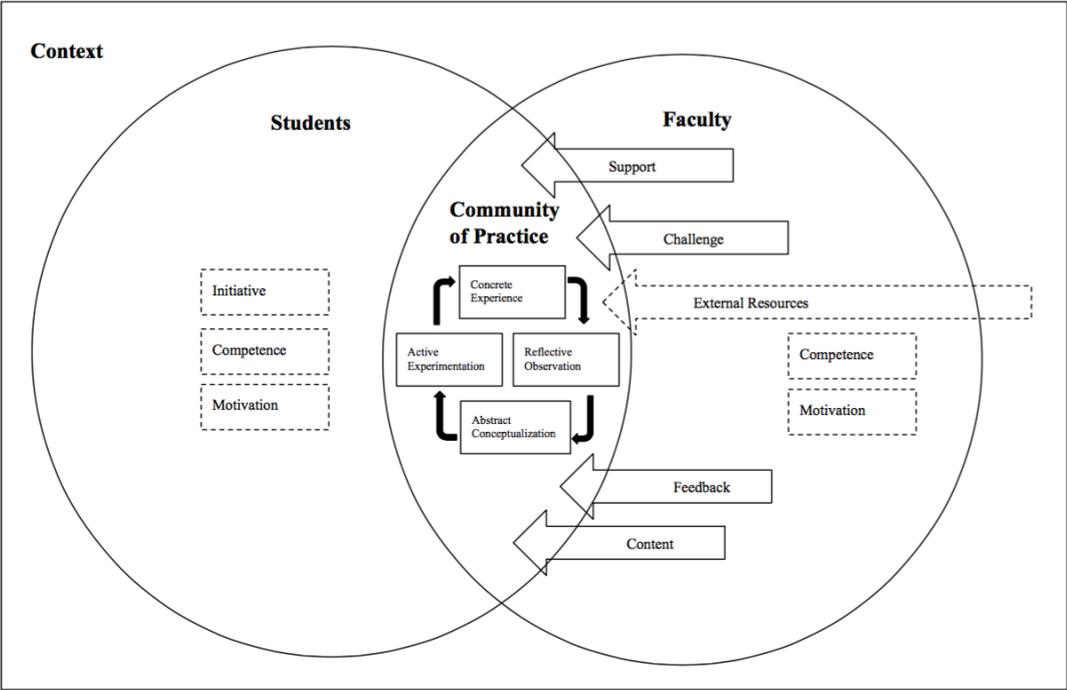


Figure 2: Conceptual Model of Action-Based Entrepreneurial Learning

CHAPTER 3: METHOD

This chapter presents the chosen method for this thesis and the reasoning behind it. First, the chapter considers the procedures applied in the search for literature and the limitations connected to it. Further, the research design will be presented, where the use of case method will be discussed, continued by covering the selection of cases, the execution of interviews and the conduction of data analysis. Finally, the challenges of the chosen research design will be presented.

3.1 Literature Review

A pre-study conducted by the authors during the fall 2015 serves as the point of departure for this thesis. The literature review in the pre-study was performed with the aim of obtaining an overview of current research on entrepreneurial learning and ABEE. A thorough literature search is important when building theory, since it “*provides the accepted definitions, domains of where a theory applies, previously identified relationships along with empirical tests, and specific predictions of other theories*” (Wacker, 1998, p. 368). The authors looked into definitions, concepts, and theories used in the field of investigation and based on this established a definition of ABEL. This definition served as a starting point for further investigation. Findings from literature within the field of entrepreneurship education have been combined with learning theories to be able to develop a conceptual model for how entrepreneurial learning transpires within ABEE. The literature review presented in this thesis builds on the work of the pre-study, supplemented with additionally literature. Theory of collective learning has been investigated, since the empirical findings emphasize how learning is socially constructed. Further, theory in relation to selection and recruitment of students has been added, based on how the empirical findings underline the importance of the students’ personal characteristics when gaining entrepreneurial competences.

3.1.1 Structured and Semi-Structured Search

The authors started out by reading articles recommended by their supervisor. The authors further used *Web of Science* as the main database for acquiring relevant literature, due to its academic credibility. An introductory literature search through structured searches was applied, which is seen as a useful method to get an overall picture of what has already been written about the field of research (Dalland, 2007). The search was done based on different keywords connected to ABEL (Appendix 1). Predefined search strings have been used when identifying articles through databases. Further, literature have been acquired through semi-

structured searches, where both forward and backward snowballing have been applied (Appendix 2). A combination of these methods has allowed the authors to gather literature within a larger scope of research, which has been necessary since ABEE is a relative new field of research. A total of 78 articles were identified, published in the time period from 1984 to 2016 (Appendix 3). This mapping underlines the lack of literature within the chosen field of study. This aligns with the findings of Lackéus (et al., 2011), claiming that descriptions and references to ABEE are limited, lacking contributions before the turn of the millennium.

3.1.2 Limitations of Literature Review

The authors may not have been able to identify all relevant literature on themes related to entrepreneurial learning and ABEE, which could be seen as a limitation. The literature review on entrepreneurship education has been more extensive than theory regarding pedagogical issues, which may have resulted in overlooking themes within learning. The authors have been partly limited to NTNU databases, which could to some degree result in the authors missing relevant research on the field of study. The authors found most of their articles from Web of Science, but have also tried to obtain articles found in the reference list of well-recognized articles in other databases. The authors have used times cited as an academic credibility, however, since entrepreneurial learning and ABEE are quite new fields of research, many of the articles used have not yet been cited. Lastly, studying ABEL has required a combination of theory within the fields of entrepreneurship and pedagogy, which has proven to be methodological challenging. Being caught in the middle of two different research fields that apply different terminologies and are analyzed on a micro and macro level has required the authors to combine theories that not necessarily fit easily together. However, the authors found that these fields to some extent complement each other, which has contributed to valuable insights into a research field that lacks theoretical discussion.

3.2 Research Design

Based on the lack of systematic exploration into the area of ABEE (Lackéus & Middleton, 2011), and the aim of going into depth of the chosen field of study, the authors have chosen a multiple case study approach to generate theory (Eisenhardt, 1989). In accordance with the recommendations of Yin (2003), the authors have conducted an exploratory case study of three ABEE programs to be able to answer “how” type of research questions. Based on the research scope of this thesis, it has been crucial to study ABEE programs that have new venture creation as part of their educational curriculum to be able to answer the research

questions. Qualitative evidence has been obtained by interview as data collection method. The authors have conducted individual interviews with faculty members, and focus group interviews with students. This was done to study how faculty delivers education and how students practice it, and how they interact with each other in relation to learning in the context of the educational program. The case study approach has enabled the authors to deal with a full variety of evidence, at the same time as understanding the dynamics present within single settings (Eisenhardt, 1989). Thus, the authors have acquired extensive amount of qualitative data of individual and collective learning experiences, together with interpretations of how a learning environment stimulates ABEL.

3.3 Selection and Presentation of Cases

The selection of cases is an important aspect of theory building (Eisenhardt, 1989), where cases should be chosen carefully to be able to compare them and replicate findings across the cases (Yin, 2003). With a limited number of cases, it could be useful to study extreme situations and polar types in which the concept of interest is “transparently observable” (Eisenhardt, 1989). The authors therefore chose to study ABEE programs that have both graduated master students and produced new ventures, which makes the faculty, and the institution in general, experienced within delivering entrepreneurship education to students. However, such programs are rare on a global level (Lackeus & Middleton, 2015), which underlines the challenge of selecting cases for this thesis. For a multi case research the cases need to be similar in some way (Stake, 2013), where the authors identified four criterias that needed to be fulfilled by the programs to be able to answer the research questions:

- Defined as School of Entrepreneurship, understood as educational programs initiated at universities, delivered by faculty to master students, and where new venture creation is part of the educational curriculum.
- Offers action-based entrepreneurship education; which enables the authors to focus on entrepreneurial learning through entrepreneurship.
- Having the objective of both graduating master students and producing new venture; this is based on the authors’ wish to examine programs with the same educational objectives.

- Have already graduated master students and produced new ventures; this is because the authors want to study programs that have reached their objectives, and have extensive experience with action-based learning in the context of entrepreneurship education.

The following programs meet all four criteria's; Chalmers School of Entrepreneurship (CSE), NTNU School of Entrepreneurship (NSE), and the master's program at Sten K. Johnson Centre for Entrepreneurship at Lund University (SCE), and was therefore selected for this thesis. It should be noted that it do exist more venture creation programs than those mentioned above, however, for the study of a phenomenon, the cases selected will be many fewer than all cases that exist (Stake, 2013). NSE is located in Norway, while CSE and SCE are located in Sweden. By selecting programs operating within a Scandinavian context, the authors were to some extent able to reduce noise from potential cultural differences. Since the authors examine the learning environment within ABEE programs, cultural differences between the cases may have disturbed the analysis of culture within these programs. Further, the authors' supervisor recommended these cases, and was able to set the authors in contact with key faculty members. The authors initiated contact with other programs in Norway and Denmark, but these programs were not able to participate. Based on the authors' aim of understanding the dynamics present within single settings, the number of cases was limited to three. Nevertheless, three cases still gives the authors the ability to explore both similarities and differences within ABEE programs, which in turn may have increased the transferability of the findings. All three programs are well recognized for their entrepreneurship education, and originate from well-established universities. By this, the three programs were seen as able to provide empirical data that could be relevant for other programs interested in establishing an ABEE. Further, the programs provide a supporting infrastructure and a range of resources that enable the students to launch their ventures. The new ventures that have their origin in the program are based on either the students' own ideas, or ideas obtained from external environments or the communities surrounding the universities. Documentation has been used to obtain information about the program infrastructure of each case, to be able to compare the cases in relation to the structure of the program.

3.3.1 Chalmers School of Entrepreneurship

CSE was founded in 1997 and is a two year master's program integrated as part of Chalmers University of Technology's strategy about being an entrepreneurial university. CSE run their incubation process through Chalmers Ventures, which is a daughter company of Chalmers University of Technology. Chalmers Ventures is responsible for recruiting ideas, the initial valuation of the ideas and providing early-phase seed funding to these ideas. The program has four tracks; two venture creation-tracks, where students create ventures within different industries, a corporate-track, where the students work with innovation in established firms, and an Intellectual Capital Management track, focusing on strategic IP management. The faculty consists of about 10 members, including 2 administrators and 8 lecturers and researchers. The program admits around 50 students each year, where 30 students attend the Venture-Creation tracks. Fourth and fifth grade do not take courses together and do not share the same work space. The fifth graders are sitting at the Chalmers Ventures incubator, while the fourth graders have their courses in another location. The students at CSE start working with their ventures during their second year, and the faculty are responsible for constructing the student teams and the ideas they shall work with. This is based on the preferences and priorities drafted by the students prior to the selection. Each student team is assigned a business coach from Chalmers Ventures with the responsibility to guide the students and the venture, but the main responsibility for the business development vests within the student team.

3.3.2 NTNU School of Entrepreneurship

NSE was founded in 2003 and is a two year master's program provided by the Department of Industrial Economics and Technology Management at the Norwegian University of Science and Technology. NSE has one venture creation-track, where the students start their own ventures as part of the educational curriculum. The students have a workspace located at the university, where both fourth and fifth grade sit together. The workspace is closely linked to a innovation center shared by NSE and several student organisations working with innovation and entrepreneurship. Several of the lectures and business presentations are held in this center. The students at NSE start working with their ventures during the first year of the program, and are responsible for selecting both ideas and team members themselves. The faculty consist of about 9 members, including administrators, lecturers and researchers. NCE recruit approximately 35 students each year, and operates a program with approximately 70 students in total.

3.3.3 Sten K. Johnson Centre for Entrepreneurship

The Master's programme in Entrepreneurship was established in 2007, owned by the Lund University School of Economics and Management, and the courses and program management are handled by Sten K. Johnson Centre for Entrepreneurship (SCE), which is a part of the Department of Business and Administration. It is a one year master's program, which provides two tracks; New Venture Creation Track (NVC), and a Corporate Entrepreneurship and Innovation Track (CEIN). The program consists of 50 students in total, where on average 30 students attend NVC. The faculty consists of about 18 members, including administrators, lecturers and researchers. The students decide both the team composition and the ideas themselves. SCE cooperates with the VentureLab incubator, which has workspaces at Ideon. The NVC students are provided with workspace at Ideon through the program. The faculty provides each student with one individually designated mentor from the local industry, and the students also have the possibility to use the so called "mentor pool" of the program.

Characteristics	CSE	NSE	SCE
Length of study program	Two year	Two year	One year
Year of establishment	1997	2003	2007
Responsible University	Chalmers University of Technology	Norwegian University of Science and Technology	Lund University School of Economics and Management
Provides a new venture creation track	Yes	Yes	Yes
When do the students start working with their ventures	Second year	First year	First year, second semester
Available workspace provided by the program	Yes	Yes	Yes
Students attending the program (graduating 2016)	30	35	30
Accept international students	Yes	No	Yes
Students decide team composition and idea themselves	No	Yes	Yes
Mentorship program	Yes, business coach for each venture team	Yes, business coach for each venture team	Yes, individual mentor for each student

Table 1: Characteristics of Selected Cases

3.4 Selection and Presentation of Respondents

3.4.1 Students

By interviewing students the authors aimed to get an understanding of their perception of action-based learning, how they practice their learning, how they contribute to their own learning and how they use faculty and available resources in their learning process. The use of focus groups gave the authors the possibility of leading the theoretical discussion of ABEL into greater depth, which enabled the authors to discover new information (Flick, 2015; Tjora, 2011).

The authors came in contact with the students through a student contact recommended by one of the faculty members in each case. The student contact was further used as link between the authors and the respondents. The authors sent out a form to all the students interested in participating, where the final group composition of respondents was based on the students signing up at different time slots. The respondents are from different venture teams, with different educational background, which enabled the authors to capture the variation in opinions and experiences. The respondents from NSE and CSE are on their last year of their master, but at SCE this selection was not necessary since it is an one year program. In accordance with Tjora (2011), the authors aimed to recruit 6 informants for each focus group to enable several opinions being represented at the same time as making the students feel safe within the group. As shown in Table 2 the respondents vary in age, gender, educational background and startup experience, and the authors were able to recruit between 4-6 students for each focus group.

	<i>Focus Group</i>	<i>Interview Length</i>	<i>Gender</i>	<i>Age</i>	<i>Educational Background</i>	<i>Startup experience prior to the program</i>
NSE	6 respondents	01:23:42	Female: 3 Male: 3	24-26: 6	Technology: 2 Engineering: 3 Social Science: 1	Yes: 1 No: 5
	6 respondents	01:23:23	Female: 3 Male: 3	21-23: 1 24-26: 3 27-29: 2	Technology: 1 Engineering: 2 Social Science: 1 Teacher: 1 Economic: 1	Yes: 4 No: 2
CSE	5 respondents	01:16:03	Female: 2 Male: 3	21-23: 2 24-26: 2 27-29: 1	Technology: 1 Engineering: 2 International Sales and Marketing: 1 Law: 1	No: 5
	5 respondents	01:13:06	Female: 2 Male: 3	24-26: 3 27-29: 2	Engineering: 3 Economics: 1 Software Engineering: 1	Yes: 4 No: 1
SCE	4 respondents	01:18:23	Female: 1 Male: 3	24-26: 3 27-29: 1	Social Science: 3 Marketing: 1	Yes: 2 No: 2
	5 respondents	01:16:17	Female: 3 Male: 2	27-29: 2 30-32: 3	Engineering: 1 Business Administration: 3 Communication: 1	Yes: 2 No: 2

Table 2: Overview of Students Interviewed

3.4.2 Faculty

Conducting individual interviews, rather than focus groups, with key faculty members allowed for more focus on their individual knowledge within the field of ABEE. The in-depth interviews enabled the respondents to present new information that the authors had not yet identified (Yin, 2003). By investigating the role of faculty, the authors got an understanding of their ability to manage the program, their involvement in the students' learning process, the expectations they have to their students, and how they operate as facilitators of the learning process. Since qualitative interviews aim to go into depth, the number of interviews must be adjusted accordingly (Dalland, 2012). Based on this the authors interviewed three key members among faculty in each educational program. When recruiting informants the authors' supervisor was used as reference when initiating contact. The first faculty member contacted by the authors further recommended which other members relevant for an interview. The authors followed up the recommendations, initiated dialog and arranged time for interviews. By selecting faculty members with a key role in the program, either as

administrators, lecturers and/or researchers, the authors were able to obtain and compare expert knowledge on the subject of developing and delivering ABEE program.

3.5 Executing Data Collection

Cohen and Crabtree (2006) emphasize that semi-structured interviews require the authors to develop and use an interview guide that gives the interviewers a clear set of instructions, which further provides reliable, comparable qualitative data. The authors developed the interview guide (Appendix 4) in light of the research questions, together with the literature review to develop sharper and more insightful questions about the topic (Yin, 2003). The interview guide was structured according to the following themes; the role of faculty, the role of students and the learning environment. This was done with the aim of performing a systematic review and analysis of the empirical findings. The authors ensured the quality of the interview guide by testing it on different actors at NSE that was not to be interviewed. Their feedback was used to delete, revise and add questions. Qualitative methods allow greater spontaneity and adaptation of interaction between researchers and study participants, where the question format is often open-ended (Mack et al., 2011). The authors chose to follow a flexible design, where the authors responded immediately to what the respondents said and tailored the subsequent questions based on it. A fundamental methodological requirement is that the data must be relevant to the research questions (Dalland, 2012). Even though the question to a certain point was dynamically formed, the authors still followed the three themes mentioned above to ensure the acquirement of relevant data. The focus groups allowed the students to contribute and comment each other's opinions, which gave spontaneous answers and interesting views on the field of research. Further, the method could seem less threatening for the students when discussing perceptions and opinions in relation to the culture within the study program. Additionally, the use of focus groups enabled the authors to generate data from several informants simultaneously.

Both of the authors were present at all interviews and possessed the roles of a monitor and a note taker. The authors used audio recording, which enabled the retainment of everything that was communicated during the interviews. The focus group interviews were conducted in an environment familiar to the respondents, either in meeting rooms located in close proximity to or at the specific location of the study programs. Seven of the individual interviews were conducted in the workspace of the respondent, one was conducted online through Skype and one was carried out at an airport in relation to traveling back home from a meeting that both

the authors and the key faculty member attended. In each interview the monitor, note taker and respondents were placed around the same table. The monitor started with a warm welcome, and the respondents in the focus groups were informed that the interview would be of maximum one and a half hour without any breaks. As shown in Table 2, the focus group interviews lasted for approximately one hour and fifteen minutes. The faculty members were informed that the individual interview would be of maximum one hour, a timeframe the authors managed to remain within. Further, the monitor explained the purpose of the case study, some ground rules for the interview and the ethical considerations of the empirical study. Lastly, the respondents were given an opportunity to ask question and comment the information they were given. All respondents in the focus groups were given sheets to fill out, where demographical data was collected (Appendix 5). The monitor facilitated a free conversation, where the respondents in the focus groups were encouraged to talk to each other and comment on each others points of view. Additionally, prior to the interviews, the authors provided the respondents with information about the case study in general, and the time and place for the interview.

3.6 Data Analysis

To transform an interview to usable data could be seen as equally challenging as carrying out the interview itself (Dalland, 2012), which requires a strategy for how the transcription process should unfold (Tjora, 2011). The empirical data from the individual interviews and focus groups was divided into different sections based on the three research questions, and structured in accordance with the following themes; the role of faculty, the role of students and learning environment. This to facilitate the interpretation of the various aspects within each case, as well as enabling a cross-case analysis to examine similarities and differences between the programs studied (Baxter & Jack, 2008). The interviews have been transcribed word-for-word, before being read through with critical eyes. By having the interviews written down, the authors identified certain themes more easily and have been able to see the overall picture. The authors first reviewed each case separately before relating it to the other cases. This based on the idea of Eisenhardt (1989), who suggests that the researcher has to become intimately familiar with each case as a stand-alone entity, which allows unique patterns of each case to emerge before comparing these patterns with others cases. This was performed as an iterative process where the authors went back and forth between the empirical data material and literature review. It was done in accordance with the three themes mentioned above, which enabled the authors to look at what the empirical data said about the faculty,

students and the learning environment, before identifying contradicting or coinciding literature within these themes. The empirical findings are presented as a summary of the respondents' descriptions, where individual quotes are used to highlight certain points. The respondents are not referred to by name, nor position, this to ensure their anonymity. The empirical findings and the case presentations were sent out to all the faculty members interviewed for comments, and some case information and empirical statements were revised based on their feedback. This was done based on the request of the faculty members to read through before the finalization of the master thesis. This was not asked for by the students.

Based on new insights generated from the empirical study, the authors saw it as necessary to conduct a further literature search. By obtaining new theoretical insights on themes discovered through the case study, the authors were able to get a broader understanding of the empirical findings. The literature review was extended with theory within the research fields of recruitment and collective learning to be able to analyze all the data. According to the analytical objectives of qualitative research, the authors have analysed the empirical data with the aim of describing and explaining relationships, individual experiences and group norms (Mack et al., 2011). The use of qualitative method has provided rich and explanatory data, where the data analysis has been used to generalize patterns across the cases. This has enabled the authors to supplement the conceptual model of ABEL with new elements that to the knowledge of the authors has not been discussed by current literature. Developing a conceptual frame offers the opportunity for exploration of relationships and meaning (Gibb, 2002), and is used as a frame for understanding how learning transpires through interaction within a community of practice. Further, being two researchers is argued as possibly increasing the quality of a qualitative study since this type of study often requires knowledge, overview and creativity (Tjora, 2011), where having a discussion partner has enabled the authors to fulfill this requirement to a certain level.

3.7 Reflection of Methodological Challenges

The authors have been constrained by a timeframe when conducting the empirical study and analysing the data, starting from January 2016 until June 2016. This has to some extent limited the number of educational programs chosen for the case study and the number of interviews completed. It could also have resulted in the authors overlooking relevant venture creation programs. Yet, the authors assured the quality of their search for venture creation programs by comparing it to an overview developed through a research project at Chalmers

(Lackéus, 2012). Bruyat and Julien (2001) argue that in order to understand entrepreneurship, both individuals and their context have to be studied over time, which underlines the challenge of assessing a learning environment during the timeframe of a master thesis. However, interviewing faculty members that have been part of the program for a long period of time has provided the authors with information and experiences that is not limited to the timeframe of this thesis, and by this the authors have been able to take a “snapshot” of cultural tendencies.

3.7.1 Reliability

When conducting interviews it is a potential source of error in the communication process (Dalland, 2012). In qualitative research, academics have agreed upon the challenge of complete neutrality. This thesis is written by two master students at NSE, which implies that the authors have personal experience with ABEL within an academic context. The authors' involvement can be regarded as noise, but also as a resource (Tjora, 2011). Qualitative research often implies that the researchers analyse empirical data from a certain point of view, and it is therefore important to be aware of the pre-understanding of the authors. The authors hold valuable knowledge about learning within ABEE, which is seen as an advantage in formulating precise and relevant questions in the interview guide (ibid.). In addition, the pre-understanding could be seen as valuable since the authors are conducting research within a field that lacks extensive theoretical discussion and empirical research. In addition to NSE, the case study includes two other programs, which may have reduced the authors' bias to some extent (Yin, 2003). The authors have distinguished between the data generated directly from the case study and data arrived from the author's interpretations by objectively presenting the empirical findings in chapter four, and the analysis and discussion in chapter five. This has been done to increase the transparency of the process.

The authors have to keep in mind the limitations connected to the honesty of interview objects. The faculty and students may present themselves in a better light, especially the faculty who could have an interest in presenting the program in the best way possible. An issue when using focus groups is how both the interviewers can affect the group, and how informants within the group can affect each other. Some of the respondents became dominant during the interview, which resulted in others becoming more passive. This was encountered by paying attention to the respondents who didn't voice their opinions, and asked specifically for their thoughts. Additionally, the group interviews were conducted in natural settings, which contributed to a relaxed atmosphere, which in turn could reduce the risk of people

becoming passive or reluctant to voice their opinions (Khan et al., 1991). Some of the interviews were held in English, while some were conducted in Norwegian and Swedish. The choice of language was based on the wish of the respondents, where some felt it more natural to answer in their native language. The monitor asked all the questions in English to reduce the possibility of different interpretations of the question due to language variations.

An important aspect is how the authors manage and store data, especially when using audio recording (Tjora, 2011). The authors informed all the respondents that audio recording was used, and asked them for permission. The data has been kept throughout the study, and will be deleted or moved to another storage unit outside of NTNU at the end of this study period. The identity of the students and faculty members interviewed have been anonymized with the aim of building trust between the authors and the interview objects, and to facilitate honesty by reducing concern of recognition.

3.7.2 Transferability

The results of this thesis are not necessarily applicable to all venture creation programs outside a Scandinavian context. However, based on the aim of generating theory, the authors have been interested in developing insights that go beyond the very specific cases (Eisenhardt, 1989; Tjora, 2011). Qualitative research generating theory can provide conceptual generalization (Tjora, 2011), where the revised conceptual model of this thesis can have relevance for other higher educational institutions than the specific cases studied. Further, some of the perspectives in the model can be relevant for communities, organizations and interdisciplinary projects who work within the entrepreneurship domain, as well as practitioners interested in understanding how learning transpires through social relationships. To ensure relevance beyond the data analyzed, the authors have used previous research and theories, which supports greater transferability. Further, the three programs studied are well recognized for their educational programs, which can be argued as increasing the transferability of the findings of this thesis since higher educational institutions are most likely interested in understanding the “magic” within programs that have shown to deliver good results.

CHAPTER 4: FINDINGS

This chapter includes the empirical findings from each case presented through the statements from both faculty and students within the educational programs. Quotes will be used to illustrate both common thoughts and individual perspectives. Each case presentation is structured according to the following themes; the role of students, the role of faculty and the learning environment. This to identify differences and similarities between the cases, summarized in a table presented at the end of this chapter.

4.1 Chalmers School of Entrepreneurship

4.1.1 The Role of Students

Initiative

The faculty at CSE discussed how *“the students are the voice, and they should affect what we do”*. Further they underpinned how traditional education monopolizes the students’ time by forcing them to attend different things, while at CSE the students get the opportunity to figure out what’s important for their own learning. Several of the students emphasized how the program made them realize their responsibility for learning, where it is up to them to decide which steps to take. Several students emphasized how it is themselves who are playing a major role for their learning, which was well described by one of them; *“You determine how much you are going to learn, you can come into the best school in the world, but if you don't do anything it is worthless”*.

Motivation

Several students emphasized how their previous study programs did not satisfy their future career goals, nor their preferable way of acquiring knowledge. One of the students underlined their need for creating something real; *“Actually doing real stuff in a real setting, and that is probably the biggest driver for me (...)”*. The action-based learning method was highlighted by the majority of the students as one of their main motivational factors for applying to the program. Several of the students explained how they were sick of only reading theory and not being able to test it in practice, and thus underlined a strive for a more hands-on approach. The faculty at CSE pointed to how their students have to be willing to invest a lot of time combined with a certain level of motivation to attend the program. The faculty emphasized that the students’ motivation for being part of an ABEE program already starts to develop when they are selected through a recruitment process. This is further underlined by some of

the students who argued that the application process affects the culture within the study program, where the students wish to perform to earn their seat in the program.

Learning

The faculty at CSE pointed to how the program aims to let the students figure out if they want to become entrepreneurs, together with gaining entrepreneurial competences they can apply on different arenas. The faculty emphasized the importance of training the students to become more entrepreneurial, giving them an entrepreneurial mindset, letting them see opportunities and act upon them; *"By having them experience as part of their education, actually see how they learn from that, and hopefully whatever they do after education, bring that mindset with them"*. The faculty emphasized that not all of their students continue with their venture after graduation, but the faculty still argued that the entrepreneurial capability acquired by the students is valuable in their future career choices. Further, the faculty emphasized that the aim of the education is not to purely create new ventures, but training the students to become entrepreneurs and preparing them for a future career and worklife. The students described the learning process as a personal journey, affected by a certain mindset among them, which in turn make them less risk averse. One of the students further explained how the class could be divided in two categories; the ones who are very academic in their approach and those who make decision based on their gut feeling. It was further argued by the students that this affects how they acquire knowledge, where the academic group uses the models and the strategies they have learned, while the others throw themselves out there and try different alternatives. However, disregarded this division, the students emphasized their trial-and-error learning approach.

The students explained how the action-based method suits them well, and discussed how the method makes them remember what they have learned; *"If you are studying something for an exam, you will forget it after few weeks. If you learn something here it will stick with you for the rest of your life"*. Another student continued by explaining how knowledge from a book is not the same as learning through experience; *"It is different, it is not knowledge, it is experience, that is very different, like you can learn a whole management theory book, but it has nothing to do with how it is to run a company because it is living something compared to a theory which is supposed to be general"*. It was further pointed to how the action-based

approach in the program forces them to get out of their comfort zone, and in this way accelerate their learning process.

The faculty emphasized that everyone can learn from their experiences, but if the students want quality, and actually being able to extract something from their actions, they need the combination of theory and practice. This is underlined by one of the faculty members, which pointed to how; *“It’s the teacher’s responsibility to provide structure and tools and theories that can support the learning”*. The faculty further underlined that; *“The idea behind the action-based learning is sort of get the theory, go out and try it and verify it, and then get back to see, what can we learn from it and what can we do better next time”*. According to the faculty the first year should prepare the students for what they are going to do in their final year. Before the students create their own ventures, the faculty should provide them with a real-life context, stimulating the students to work and evaluate real life cases. The faculty argued that this type of context-based learning prepares the students for what is awaiting them and before they are *“actually asked to sit in the driver’s seat”*. One of students explained how they in the beginning of the program had entrepreneurship explained to them, and thereafter tries to act upon what they have learned. However, the students emphasized how the theory is much more applicable to their activities during the second year; *“the transferability from theory to practice becomes easier during the second year compared to the first”*.

Interaction with Co-Students and Alumni

The students highlighted the interaction between team members in the startup teams, where one of them emphasized; *“We motivate each other to learn more (...) a bit peer-to-peer learning (...)”*. Further, the students underlined how the various educational backgrounds of the students in the class contributes to them challenging each other based on their different perspectives, together with enhancing their learning through knowledge transfer. The faculty described the students’ learning as peer-to-peer learning, understood as co-created between students, and assessed it as valuable for the learning progress. It was further highlighted by the students that *“ (...) being part of the team, kind of intensifies the learning-by-doing because you want to contribute to the team because if you do nothing then you’re not going to feel good around your teammates”*. This statement builds on the notion of taking initiative, and how being in a team intensifies it, which was a common perception among the students. The faculty further argued that the peer-to-peer learning helps students to collectively make sense of the large amount of information they have available, and find a sort of common

understanding. The faculty discussed how the co-learning was not initiated by the faculty, so the fact that the students validate assumptions with one another is argued by the faculty as evidence for the students' willingness to take responsibility for their learning.

The students described the interaction between the fourth and fifth graders as low, and the faculty emphasized their wish for more interaction between the different grades. One of the students described the interaction across grades as based on personal contacts; *"Like one of my previous classmates goes in the class below us now, so we talk a lot, and we talk a lot about the subjects up here, and like, I give him an input on their work (...)"*. Many of the students asked for more structured interaction, and argued that this should be initiated by the faculty. The students further discussed how increasing the level of interaction could enhance their learning, especially in the case of the fourth graders; *"right now the first years are going to have their selection face, and, I could have needed so much help there (...) because the second years already went through that path you know (...)"*. Another student emphasized the importance of experiencing things for themselves without necessarily having someone telling them what to do, but rather give them advices on their process; *"We have realized how much we did wrong in the first project and how we could do better and be more efficient, so I think that, there we realized how much we learned from just, of course they have to do it themselves as well, and they have to try and fail as well, but we can give them some advices (...)"*. The faculty emphasized that the students at CSE have an open learning space, where they are able to discuss what they are experiencing with each other on a daily basis. The workspace was discussed by the students as facilitating the interaction between them, and further described by the faculty as an "incubator group" that can give continuous feedback and reflection on learning. The students are sitting close to each other and the knowledge was described as easily transferable. Some of the students argued that the workspace has helped them share knowledge at a faster rate than if they were not sitting at the same place.

The faculty underlined how the alumni network could be viewed as an important asset, and had the impression that there was some interaction among alumni and current students at CSE. The students explained that this interaction was mainly through courses where some from alumni operated in the role as guest lecturers. The faculty emphasized how this interaction could be seen as valuable since alumni members could easily understand the learning process the current students go through; *"Sometimes the students actually don't know what they need, so it's good to have some of more senior with the same experience"*.

However, the faculty emphasized that the interaction depends on if the former students are still located in close proximity to the University, where many of alumni are found outside of Gothenburg. The students asked for more interaction with the alumni network, and underlined how a closer connection to the alumni network could enhance their learning through the share of knowledge.

4.1.2 The Role of Faculty

Human Resources

The students emphasized their interaction with many different actors within the context of the study program. Some of them highlighted their communication with potential customers, and pointed to how they learn a lot from them. Several of them also discussed how they get in contact with industry experts to acquire knowledge, and argued that being a student increases people's willingness to give answers. The students further underlined that the program cannot be responsible for making sure that all the students are interacting with someone, this responsibility lies with the students themselves. The faculty emphasized the pay-it-forward principle, which the faculty follows in relation to connecting the students with contacts that could be useful for them. This was especially highlighted by one of the faculty members; *“There is no limit to what we can make available”*. The faculty stated that CSE has access to many different networks, which are made available for the students.

Several of the students emphasized that even though they should take responsibility for their own learning, they need confirmation from others during their learning process to know that they are on the right track. CSE provides every team with a business coach from Chalmers Ventures, which specifically helps the teams to move forward with their ventures. The students highlighted their appreciation of this mentorship program, and several explained how their teams have weekly meetings with their business coaches. The students further emphasized how the initiative for interaction was mutual between the business coaches and the students. One of the students argued that the business coach is an important actor for their learning; *“For us I think our business coach has been really crucial at some point to help us progress and find motivation and to keep going”*. The students also mentioned how they take advantage of the community connected to Chalmers, as for example researchers, but this is done based on the initiative of the students. One student argued that it is difficult for the faculty to connect the students with their network if the faculty is not updated on the students’

startups; *“One thing that might be the reason is that most of the people in the faculty don't really know what we are doing right now specifically. They are doing other things, they are kind of busy”*. Nevertheless, the students underlined that if the faculty knows someone or something, they will help out.

Interaction with Students

The students described how the interaction with faculty has changed over time, characterized by one of the students as; *“It went sky high in the first year, so you met a teacher every day, you had something to do everyday, but now it's mainly Tuesdays or if you are talking about the thesis”*. Further, the students pointed to how the responsibility lies with the students, and it is up to them to contact the faculty when needed. Most of the students discussed the role of the faculty in academic terms, which was underlined by one of the students through the following argument; *“Their main interaction or like maybe, head topic they are attached to is maybe the academic process, so if you are ever in contact with a teacher then that is what is going to be the focus, your thesis and stuff, and your business coach is going to take care of the business side of things”*. One of the students stated that many of the students at CSE were surprised of the low level of interaction with faculty, nevertheless it was noted that; *“In a way it is good because we are forced to figure it out ourselves and learn those things, but on the other hand maybe it is, it should be, like, you are expecting more interaction”*. Other students described the confidence they are given by the faculty as useful, and that they learn a lot from it; *“We learn how to fight on our own”*. The faculty pointed to how the interaction mainly depends on the students, which was well described by one of them; *“Sometimes there is more regular interaction, sometimes it's about their freedom to go and work independently, and then come back and speak to you as a supervisor”*. The faculty at CSE has established what they referred to as Office Tuesdays. Every week the students have to attend a class session where they update both co-students and faculty about what they are working on. The intention is to create a space for reflection, where the students should reflect upon their actions and relate this to theoretical perspectives. The faculty explained how they encourage students to articulate things they have in their minds; *“So stopping you and helping you to stop and reflect upon your process hopefully is a key leverage”*. Further, they emphasized the importance of allowing students to get to know themselves in the role as entrepreneurs, and highlighted how faculty members should help them to reflect upon what kind of entrepreneurs they want to become. The faculty mentioned that they make the students write learning journals to reflect upon their actions. This was well described by one of the faculty members;

“That is done if you can compare what you do with theory, and with other people that is also entrepreneurial”. Many students discussed the potential for improvement concerning their level of reflection, where one of them emphasized how *“sitting down after meetings talking about, both what we could have improved under the meeting, but also what did we actually say at the meeting, what does this mean (...). Maybe asking why to do something, ahhh, let's do this, okay, why?”* could increase their reflection of learning. However, several of the students underlined their dissatisfaction with writing these journals mainly because they consider it as quite time consuming.

When the students compared their current study program with their previous, they expressed that they have a much closer relationship to the faculty now than in their previous study programs. However, they still emphasized their appreciation of the low faculty involvement, well described through the statement; *“In some way you don't want them to be too involved, I mean, that is a part of the learning process, if you can say that, because we are on our own, and we suppose to make our own decisions as well (...)”*. Nevertheless, the students underlined that they would like the faculty to be more updated on what's happening with the students' ventures. The faculty at CSE underlined that both the faculty and the students take initiative to interact, but it depends on what kind of questions and advices the students are looking for; *“It's sort of like give and take, it depends on when and where”*. Further, the faculty expressed that the students need to decide and figure out what kind of help they want from the faculty, illustrated through the argument of one of the faculty members; *“The students are the ones in the driver's seat”*. The faculty pointed to how they in the beginning of the program informed the students about the faculty's expectations, at the same time as the students were given the possibility to voice their opinions.

Providing Support and Challenge

The faculty at CSE emphasized that there are different roles to be filled by faculty members, and the interaction with the students depends on the objectives of these roles. Further, the faculty pointed to how their support and interaction with the students gives them an intuitive understanding of the challenges the students are facing. The faculty described themselves as *“Go-to guides”*, and they argued that it's important to let students know that the faculty is available for them. Further, the faculty explained how they guide students in different directions, rather than being directly involved in their actual learning. Most of the students emphasized how the program is a result of cooperation between faculty and students, which is

well voiced by one of them; *“We couldn't run the program on our own, the faculty couldn't run this kind of program on their own either, so it is everyone working together to run it”*.

Another student complemented this by arguing that the relationship between the students and the faculty is built on mutual trust. The students discussed how the faculty trusts the students to follow the guidelines they are given and meet the requirements set for them, while the students trust the faculty to facilitate their learning process.

The faculty explained how they are aware of the *“pressure cooker”* within the program, and their understanding of how intense it could be for the students; *“It's a demanding education and demanding business development, and most students get out fine, but it's periods of stress and challenges, sometimes it actually becomes too much”*. The faculty pointed to how entrepreneurial attitudes is actually about embracing uncertainty, and they are aware of the challenges the students face when they go from a more *“conscious or predictable logic to also having an effectual logic”*. This is further underlined by one of the faculty members; *“If you go through a school system and you are ambitious, you are used to reducing uncertainty, you are used to being able to plan and control and predict how your studies and others things will be in life”*. The faculty stated that they try to observe what's going on with the students, and involve themselves in the students' activities. The faculty discussed how they aim to obtain an understanding of the teamwork through group development talks, and together with the students, find the most efficient way of working. The faculty argued that these talks help the students to understand things that are beyond their pure learning; *“It's there to help the students in terms of developing their mindset”*. It was further underlined how the group development talks are a tool for the students to reflect upon their own learning. When there is no clear direction of what the students are supposed to do, and *“when the students ask someone of what they should do, they get many different answers”*, the faculty argued that these talks could help the students to manage their learning process.

The faculty at CSE explained how one part of the faculty could be described as *“content faculty”*, understood as those who deliver theoretical perspectives, help the students understand these perspectives, and encourage reflection upon these perspectives within a certain context. The faculty stated that they try to create as many arenas for reflection as possible, because otherwise they feel it's just going to be *“jump in the car, and drive as fast as possible, and don't stop and look at the view while you're driving”*. The students further discussed how the faculty provides directions, described by one of the student as; *“the school*

is still directing us to do this, such as business plans. It's not the major role of learning, I mean, the team is the major role (...)". The faculty underlined the importance of teaching students the advantage of applying theories to their own ventures; *"It's not just about gut feeling, there is actually science behind what that gut feeling really is"*. The faculty further highlighted their responsibility of giving students certain tools to be used in their entrepreneurial learning process. The faculty provides students with an understanding of what that science is, and the faculty argued that this is one of the reasons for why many of the students are very successful in going forward afterwards, *"they know to substantiate claims"*.

The faculty stated that they should remind the students of their responsibility, and when the students make decisions and take actions they should be held accountable for those. They exemplified this by the balance between work related to their new venture and academic assignments. The faculty argued that the students sometimes focus more on their ventures than on school work, and in that way forget that they are attending an educational program. Consequently, the faculty have to remind the students what they signed up for and what is required of them to gain an educational degree. The students underlined how some faculty members challenge the students by imposing requirements and certain expectations to the students' learning process and progress, which the students discussed as a positive pressure. One of the students discussed how they might forget that this is an educational program, which makes them complain over the assignments they have to deliver. This was underlined by one of them; *"It is still an education, if you don't want your education, just wanna run a startup, you shouldn't be here (...) we can't just run our company"*. The students underlined that some activities and assignments are mandatory, and described as forced upon them. Still they added that they learn a lot from these activities, well described through the argument of one of them; *"(...) the tasks you are forced to do is relevant to the venture, because if we would have a startup outside here, we would probably not have a business plan, but here we are kind of forced to have that, you are forced to read, talk to customers, crunch some codes, figure out a way"*. The faculty pointed to their impression of the balance between working with the venture and the academic learning as interdependent; *"You can be a very good student to some extent, but if you really excel in your learning, you have to work hard on your venture as well, and the other way around "*.

4.1.3 Learning Environment

The faculty at CSE agreed upon the existence of an energetic environment, characterized by student's willingness to learn from each other. This was well described by one of the faculty members; *"To a large extent I do see a good collaborative environment between the students"*. The students described the class as a group of people who are prone to give feedback, who are not afraid of constructive criticism. How they use the feedback to improve themselves was also emphasized. Several of the students distinguished between the first and the second year in relation to how they would characterize the culture. The students explained how the class functioned as a big family the first year; *"Everyone is so supersocial, everyone want to network and get to know each other (...), pretty quickly it felt, like, sort of a big family and it was new to me"*. During the second year the students are more involved with their teammates, rather than the class as a whole. The faculty have the impression that every cohort of students at CSE has their own culture and their own collective norm, and the faculty stated that in whatever way they develop that culture, they change the education according to this culture for that particular year. The students talked about the passion and drive among the students, and described themselves as a group of people who are pushing their limits to accomplish their goals. This notion is well described by one of the students; *"You strive to do things and you really want to accomplish things and because of everyone is having high tempo you go into that as well, it is almost like you see okay the team, they work really hard, we feel bad for not working hard, we should work harder (...)"*. Several of the students also emphasized how seeing co-students work hard provides a certain level of motivation, and makes the students want to work just as hard. Further, the workspace was discussed as important for the culture, where the open workspace was argued as a motivation for interaction. The faculty emphasized how the environment encourage the students to interact with each other in a different way compared to a traditional master's program, and they believe students see the workspace as a natural part of their learning environment; *"You always have the possibility to have an exchange with your students or colleagues (...)"*.

The faculty described the atmosphere as a *"competition-based environment"*, and characterized it in a positive manner. Several students underlined the existence of an internal pressure within the study program, which pervades the culture. This notion was voiced by one of the students as; *"a quite special setting, the internal pressure of succeeding with your startup, we are all competitive, we all want to succeed, we all want to make this, have this"*

unicorn or some exit of many millions (...)". Further, one of the students discussed how they are in some way competing against each other, but at the same time helping each other through the share of knowledge. The culture was also characterized in terms of cooperation, where *"all are very helpful to each other, and I think that builds a strong connection in the whole incubator"*. Even though the atmosphere seems to be dominated by driven students, one of the students pointed to how this to some extent could be describes as a facade, an image that the school has built up; *"People are just like, it is ordinary people, people are a bit lazy here as well, as everywhere else, but they want everyone to to get the feeling of that everyone in here is like super driven and, like, working 24 hours a day"*. The faculty argued that the students have to realize that if they give, people will give something back, such as valuable knowledge and network. This is well illustrated through the argument of one of the faculty members; *"It's a pay-forward atmosphere (...) pay-forward, meaning you give without expecting payback, and if everyone gives to each other, that you get this Silicon-Valley ecosystem"*.

Several students pointed to how the atmosphere affects their learning. However, as one of them emphasized, students don't necessarily learn in the same way or acquire the same knowledge; *"It is very hard to say what you learn, but you learn a lot, that is for sure, it depends on, like, what stage are your startup in, and, basically what industry are you in so it's very different from startup to startup what you learn, but you learn a lot"*. One of the students further discussed how the culture of sharing enhances their learning. They arrange morning coffees where the startup teams can present their progress and the other students may have contacts relevant for the teams, in that way the students not only share knowledge but also network. Another student underlined how the share of knowledge depends on what the students learn; *"Some information might be super valuable to other teams, and then I don't think anyone would hesitate to share that knowledge with them, because again, we are like this big family"*.

4.2 NTNU School of Entrepreneurship

4.2.1 The Role of Students

Initiative

The faculty underlined how they try to keep rules to a minimum through a flexible program structure, this to let the students make their own decisions, acquire knowledge they see as relevant and attract the necessary resources. The faculty argued that this is critical to succeed

in the long run, which was well described by one of them; *“If students ask me how to solve a problem, I ask how they would have done it”*. The faculty emphasized how important it is to get the students to think by themselves, which is further underlined by the students expression of how they strive to find answers themselves; *“I work as far as I get with the knowledge I have, this is in relation to my startup, and then you always find yourself in a situation where you don't have the knowledge, and then I take the initiative to learn more, I consult someone who may have the answers”*. The faculty further emphasized how the structure of the program encourages the students to manage tasks themselves, and they expressed an impression of the students taking responsibility for own learning.

Motivation

The faculty emphasized how the students selected into the program are not average students, but often *“one of the best in what they are doing”*. Several of the students pointed to their need for making things happen, and felt that their previous study programs did not give them the opportunity to be creative, and was drawn towards NSE to be part of an environment where they could take action. One of the students emphasized the need for creating something valuable, and be exposed to more practical learning. Several of the students underlined the need for not just creating something as an academic exercise, but also creating something real. One of the students discussed how the motivation for applying to the program was affected by *“dedicated people, learning-by-doing, and the focus on what you should achieve with it, that you should use what you learn, not only that you should learn because it has been in that way over a longer time period, it becomes so old fashioned these old methods”*. The students characterized the culture in the program as a group of students who are motivated and dedicated, and this type of class environment seemed appealing to many of them. Further, the students highlighted that the perception of the culture at NSE was an important motivational factor for applying for the study program. Some of the students also emphasized the wish for getting access to an entrepreneurial environment where you could meet like-minded people, and at the same time get a taste of the life as an entrepreneur. Some of the student described how they saw NSE as a study program that would open several doors and provide a range of possibilities in the future, which seemed tempting.

Learning

The faculty emphasized how writing a master thesis forces the students to become more analytic, well expressed by one of the faculty members; *“We are at an university, we educate people, we are not a incubator, then we would just kept on with the practical course hundred percent”*. One of the faculty members highlighted how the students *“(…) get a lot of opportunities to develop themselves, and develop the project they have chosen to work with”*. Further, the faculty emphasized that it is up to the students themselves, *“if they are willing and able to take advantage of the opportunities, and take those opportunities”*. The faculty further expressed how these opportunities could be seen as the use of the internal and external network of NSE. Another point being made was that the students in some way get braver, or the threshold for throwing themselves out there decreases; *“I feel that it is zero tolerance for being risk avert (…). Here you just have to push yourself out there and present what you have, and I think this have enhanced my learning, and yes, you become much braver”*. Further, one student argued that you to some extent find yourself during NSE, through a personal journey. It was further emphasized by one of the students how NSE *“facilitates personal learning on an entire different level than any other place, so it becomes almost as if you learn whether you would like to learn depending on what you see as valuable based on the situation you find yourself in”*.

The faculty emphasized how they develop people within the program, and how it makes this education different from running an incubator; *“If we would run an incubator with these students we would structure the program very differently, we would recruit companies, not humans”*. The faculty discussed what kind of students the program attracts, which was voiced by one of the faculty members; *“ambitions, capable and committed students”* that want to change their direction in the career, and create something by themselves. Further, the faculty underlined how they don't focus on if the students succeed with their ventures or not, but rather how the students personally develop throughout the study program; *“So the goal is that those who get out from this study program should be highly skilled business developers (…)”*. The students agreed upon their focus and motivation for starting a new venture, which seemed to be the common denominator for what they expect to learn and gain during the study program. One of the students further underlined that the type of skillset or theoretical perspectives they would learn was not of importance, as long as they were given the possibility to start something on their own, surrounded by people wanting to accomplish the same goals.

The students emphasized how they learn through trial-and-error; *“You try, you throw yourself out in a situation, you try and then you get correction for how you really should do it”*. Another student expressed the process as; *“You do something you've never done before and you get very little instructions as well, so you are in one way encourage to ask, try and pivot all the way”*. Several of the students expressed how the learning differs between the first semester, and the next three semesters, where *“(…) the first semester at School of Entrepreneurship is very academic and practical, exactly what I expected and hoped for(…)”*. Another student described the difference between the semesters as *“the first year things will be forced upon you, you learn fast, and the second year they cut your umbilical cord and throw you in the air. And we have to do it ourselves, and we manage to crawl up by ourselves because of what we have learned the first year (…)*. The students further emphasized how it is up to them to motivate themselves and set goals for what they want to accomplish. Additionally it was mentioned by several of the students that the learning depends on which project they work with and which situation they find themselves in. Further, several of the students discussed how they in fifth grade have the possibility to try out what they have learned the first year, based on the argument that they are now on a different level with their startups and much of the theory from the first year is now applicable.

Interaction with Co-Students and Alumni

The students emphasized how they interact with several different actors in the context of the study program, and most of the interaction is with co-students and team members. Further, the faculty emphasized the role of the team members and how the entrepreneurial learning process *“should be done in cooperation with others, not alone”*. The students agreed upon how co-students play a major role for their learning, where the learning was discussed as something conducted together. One of the faculty members argued that *“80 percent of the interaction within the program is student driven”*, and further pointed to how the learning takes place *“in their teams, between classes, between students and alumni, and the entrepreneurial ecosystem in Trondheim”*. The students underlined how knowledge not necessarily is found in books or amongst faculty, but rather through those who have experience on the topic. The faculty argued that it's important that the fifth graders are aware of their impact on the fourth graders; *“The fifth graders play a major role for the students learning, since the students trust those people that have gone through the same things before”*. This was well described through the statement of one of the students; *“If this should*

be a good one and a half years for you, you have to do the best out of it, and the ones in the faculty are no longer the best teachers, the best teachers are the students in the grade above you and those who have graduated (...). However, even though the students take initiative to share knowledge, the students emphasized that they want the faculty to take a greater role in this process and facilitate some of the interaction between the students. The students underlined their belief that if the faculty facilitates and structures some of the knowledge transfer, the exchange of experiences among the students can be even greater.

The students further emphasized how the startup team is important for enhancing their learning, by the share of knowledge and experiences. One of the students described how the interaction with the other students *“accelerates the learning process”* by having resources accessible. The faculty discussed how the balance between academic assignments and venture-related work is affected by students attending the program, and pointed to how the fifth graders are seen as *“role-models”*, and influence the fourth graders in relation to finding this balance. When the students are influenced by their co-students, a need for correcting some perceptions may arise, as pointed out by several of the faculty members, well described by one of them; *“When it’s so many good activities and interaction between the students, it creates some stories and rumors which affect the students more than they understand themselves”*. The faculty also emphasized how the students cope with the social environment, which they also believe is a learning process for the students. The faculty underlined how the students need to establish a position in relation to like-minded students and working in teams, which was underlined by one of the students; *“Suddenly I meet people who are much, much better than myself”*. Another student discussed the impact of the various backgrounds of the students; *“One of the things that NSE does right is the people they accept into the program. The students have done so many different things, the fourth grade have so much competence from their background, especially socially with all the things they have done beside school. They are already a resource when they are accepted”*.

4.2.2 The Role of Faculty

Human resources

As mentioned above, both students and faculty at NSE emphasized the importance of interaction with different actors, and it is further underlined by the faculty that the interaction varies throughout the program. The faculty expressed that they are an important resource

during the first semester, but later on the mentors, external inventors, student teams, and the entrepreneurial ecosystem in Trondheim becomes more important. The faculty underlined how students use other resources than the faculty when they are starting up their own ventures, and feedback is stimulated by customers and other people in their network. It was emphasized by the students that they primarily seek advices and acquires knowledge from close connections in their network, such as the students in the grade above them at NSE or the alumni network, which was pointed out as the most important human resource. They also use the network they have acquired through their work with their ventures. The faculty pointed to how the interaction with other actors is valuable and has an impact on *“how fast they go”*. Further, when the students described the alumni network as an important resource, several students pointed to how NSE has a network with people who have experienced the program and venture creation, and these experiences are often shared to the current students of the program. The students mentioned how every student at NSE receive a “buddy” from the alumni network based on the intention to give them a go-to-person who knows how it is to be a student at NSE and can share their experiences. One of the students highlighted how it is the students at NSE and the alumni network who contribute to the startups survival.

The students discussed how some human resources are provided by the faculty, while others are acquired by the students themselves. External resources were also mentioned by the students, such as juridical advisors and mentors. The faculty argued that the network of contacts they provide their students with is important because they expose students for people outside the academic circle; *“We have a brand and a position that makes us able to come in contact with many interesting environments with a lot of resources, which could have a great value for the students’ work”*. Several of the students emphasized their need for mentors with industry expertise, and asked for this to be a more integrated part of the program.

The faculty expressed that the interaction between students and mentors vary based on the need of the students and their ventures, at the same time as they underlined the room for improvement in relation to their mentorship-program, especially concerning how the students use these resources. It was underlined by one of the students that they should feel ownership to their mentors, and that they should be included in the process of finding relevant mentors. Some of the students described their relationship to their mentors that was provided by the faculty, as an imperfect match, based on the lack of relevant industry expertise. However, some also described their relationship to their mentors as very valuable. The faculty

emphasized how they connect the students with relevant resources within their network, as well as external resources, e.g the investor community in Trondheim, described by one of the faculty members; *“We try to introduce a lot of environments to the students, and give them opportunities”*. Further, the faculty described how the university (NTNU) itself have valuable resources available for the students.

Interaction with students

The faculty emphasized the importance of their role in the beginning of the program, which was also underlined by the students. The faculty expressed how they prioritize the fourth graders, but wished they had more capacity to follow up the fifth graders. The faculty explained how the educational model within the program is built upon students taking responsibility for their own learning; *“because we teach them entrepreneurship, how to create and develop something new, and then there is nothing that comes free”*. The faculty argued that they operate as facilitators of learning, while the students have the main responsibility of the learning. One of the students underlined that *“you don't want the faculty hanging over one's head”*, and the confidence and responsibility they are given is highly appreciated. Further, the faculty emphasized how they try to find the right balance of interaction, as described by one of the faculty members; *“It's about a framework, about expectations, and be involved at the right level, not too much and not too little”*. The students stated that the relationship between the students and the faculty is not based on hierarchy, the faculty is rather characterized as welcoming and helpful. The faculty emphasized how the structure of the program has been developed as a result of the students' feedback, which was described by one of them as; *“Students naturally influence everything we do, since it's them who run the program daily, it's them who make things happen every day”*.

It was further argued by the students that the interaction is mainly initiated by them, and not the faculty. However, they did note that the perception of the level of interaction with faculty is rather individual, and it's hard to generalize on behalf of the class. The students agreed upon the argument of faculty serving as a valuable resource, but further emphasized how it is up to the students to take advantage of this resource. However, even though the faculty is seen as available, few of the students actively take advantage of this opportunity. The faculty is first and foremost described as coordinators and facilitators of learning. The faculty expressed how interaction with the students varies in relation to their role within the faculty. The faculty expressed an impression of some students needing more consultation than others. Some of the

students asked for the faculty to update themselves more actively on the students' progress in the startups. They relate this to the need of being encouraged and supported by a faculty who cares about the student's personal development. Many of them have less contact with the faculty than others. However, one of the students did reflect upon how the faculty facilitates their learning without them necessarily noticing it; *"I've just realized how much they really do for us behind the curtains, things that we don't know of"*.

Providing Support and Challenge

Several of the students described the involvement of the faculty as important by them transferring a certain set of competences to the students to enable them to run their projects. The faculty emphasized the importance of them providing the students with necessary tools, and it was stated by one of them that they *"constantly try to improve the quality of which tools that goes into the toolbox, but it's the students job to find out how to use that toolbox"*. The faculty discussed the toolbox they provide as making the students able to select and prioritize what's important for their current learning process; *"They have the ability to define a problem or a challenge and obtain information that is necessary to solve the problem"*. The students pointed to how a "crash course" in entrepreneurial competences is conducted the first semester, but after that the students have to figure out which direction to take themselves. One of the students reflected upon the involvement of the faculty and described it as; *"the faculty points us in different directions, and with intention to not try to direct us more than we want them to do, it is this hands-on approach where they have confidence in us finding and walking the road ourselves, and if we not, we will come and ask"*.

The students emphasized their appreciation of being seen, and that there exists room for improvement among the faculty in relation to showing interest in the students' progress, both with the startup and in relation to individual development. The students underlined how being recognized increases their level of motivation. One student underpinned how recognition creates a certain pressure to work hard because one feels that someone is expecting results. On the other hand, another student argued that the faculty might be more updated on the students' progress than the students are aware of. It was further emphasized by the faculty how they try their best to keep themselves updated on the students' ventures. The faculty discussed how the students need to *"be pushed into doing things you haven't done before, and get feedback on that work"*. Further, one of the faculty members emphasized that *"the only way to learn is of course to try yourself, get feedback and adjust to that feedback"*. The

majority of the students said that they rarely reflect upon their learning, it is rather something they do if they have time off and are able to sit down and look back on what they have done during the previous semester. Some of them also discussed how meeting people outside NSE makes them reflect by realizing how much they have learned. Many of the students explained how the semesters are so intensive that it is challenging for them to reflect upon the learning when you are in the middle of it.

Further, the faculty pointed to how the students often find themselves in a dilemma, choosing between academic lectures or working with their ventures. It was further argued by the students that they take initiative to their own learning by prioritizing between these activities. When the students discussed their learning process they divided between the academic and practical learning. Some of the students stated that the academic learning is not their main focus, but rather the practical part, such as starting a new venture. Several of them talked about the role of the faculty in terms of academic learning, and it was stated by one of them that the faculty *“gives us the theoretical groundwork and talks about theory, and then it is the rest of the support apparatus which is the practical part”*. The faculty argued that the challenges the students face during the program, both academically and in their venture creates a lot of pain, but on the other hand; *“that’s what leads to learning”*. The students underlined how the challenges at NSE are appreciated; *“I had never done what I’ve done if it weren’t for NSE, it’s personal qualities I’ve learned, which I really appreciate”*. The students emphasized how the faculty in the beginning of the program told them what they expected from them, that they have to find the answers themselves and that it is up to the students to contact the faculty if they need something. This was further underlined by one of the faculty members, which argued that; *“We try to be clear on our expectations to the students”*. Further, the faculty pointed out how they try to remind the students to balance the academic and venture-creation part of the study program, so that the program does not become just an incubator, but also provides the students with academic value.

4.2.3 Learning Environment

The students pointed to how the culture could be described as a sharing environment where they exchange a lot of knowledge with each other. Some of the students emphasized how they like to contribute to others learning. The students emphasized how networking is all about give and take, and how they help each other based on them maybe needing help in the future. The argument was that they invest time in others based on their future need of people

investing time in them. One student discussed how the culture, both among the co-students and the alumni network, is extremely including especially in relation to knowledge transfer; *“The culture of inclusiveness is shown through how everybody is welcome to ask any questions, and people are willing to help”*. The faculty characterized the environment based on the students’ *“(…) desire to share knowledge, which see the benefits of giving when they at the same time see the best opportunity to get knowledge”*. It was further emphasized by the faculty how the culture represents a *“bunch of people who help each other out, gives from their network and take a collective responsibility for everyone to do well and get through the program”*. They underlined how the study course gives the students a tough time, and the reason why they all get through the program is that *“they stand together”*. One of the students underlined how the students celebrate each other; *“The students cheer for each other (…), and for my part, I find it as a very wonderful place to be, everyone is in someway or another dedicated and quite engaged”*. Another student commented on this by the argument of how students *“are not concerned over how to take advantage of information to get ahead of others, but rather how they can help each other to get ahead”*.

The faculty described the atmosphere within the program as cooperative, consisting of several ambitious students that both compete and support each other. Some of the students also described the environment as competitive, but not in a negative manner, rather something that makes the students strive to reach their own goals. One of the students highlighted the culture of performance; *“When you see others succeed, it motivates you to work hard yourself (…)* which creates an good and efficient culture”. The students discussed the hard-working culture in light of motivation, where the learning environment makes them push themselves. However, the hard-working culture was also discussed in relation to the potential of overworking. Nevertheless, several of the students highlighted how they wouldn’t work as much as they do if it weren’t for the culture. This culture of performance is primarily discussed by the students in relation to starting a venture, where several of them underlined the lack of academic pressure among them.

The faculty pointed to how valuable it is for the students to work in an open workspace, and that it would be difficult to create the same environment without letting students interact with each other on a daily basis. This was well described by one of the faculty members; *“I can’t imagine a social environment in an educational perspective that has a closer relationship between students than we have here”*. Several of the students underpinned how the majority

of the knowledge transfer between the students happens through informal and casual interaction in the workspace. They further commented on how the structure of the workspace affects the level of interaction, by being able to see other work hard provides motivation to do the same.

The students described the culture through words such as electric, energetic, chaotic, intense and competitive. Some of the students highlighted the engagement among the students, and characterized the environment as very engaging. The students further emphasized how they have a very good social environment, which results in them wanting to be there after working hours. One of the faculty members argued that the environment could be marked by its *“high level of energy, with people actually doing things”*. This was further underlined by another faculty member; *“Here there are people who dare to try, there are those who challenge established truths, there are people who are not afraid to think big and people that are not afraid to fail”*. The faculty emphasized that the students within the program feel a pressure, both from faculty, the co-students, the alumni-network and the atmosphere itself. They believe this pressure could be both positive and negative, and students are given a role to manage and solve the challenges they meet; *“They are kind of left alone, and that probably cause a lot of pain, but hopefully a lot of learning”*.

Several of the students underlined that there is some kind of “magic” within this study program, and it could be traced back to the level of confidence the students obtain throughout the program. One of the students stated that there is, to some extent a framework that has to be followed. However the students are able to customize and improve it. Another student highlighted the recruitment process as key to the “magic”. The students described the program as an environment consisting of very skilled people who get room to experiment, and it was argued that it is themselves who are the “magic sauce”. It was underlined that *“it is us who creates the culture”*, where the culture is also seen as part of the “magic sauce”.

4.3 Sten K. Johnson Centre for Entrepreneurship

4.3.1 The Role of Students

Initiative

All the students agreed upon their responsibility to take initiative and be proactive, which was well described by one of them as; *“Nobody is going to like help you be proactive, so we have to like, it is the whole point of being an entrepreneur, doing things for yourself, and deal with*

stuff yourself". They further argued that the level of confidence they are given is beneficial for their learning process; *"That is what entrepreneurship is all about I guess, when you start companies you don't have teachers above you telling you what to do, you have to take actions yourself"*. This was also emphasized by the faculty, well illustrated through the argument of one of them; *"A part of the core message is to make the students more proactive and responsible for their own behavior and achievement"*. Several of the students further discussed how they were proactive prior to the program, well explained by one of them; *"I think I was very proactive as well as before I came, the program gave me this mindset to actually focus my activities efficiently, I think"*. The faculty mentioned how the students are exposed to a lot of events, and that it could be difficult for them to know what's valuable or not to attend. The faculty emphasized that this relates to the challenge of prioritizing which activities to conduct, where one of the faculty members underpinned this challenge; *"for some of the students that's absolutely not a problem, because they are self-directed, but for other students it's a problem, not because they lack self-direction, but because they don't know where to go"*. The faculty argues that they are available for the students, however; *"if we help them out too much, we don't create independent entrepreneurs"*. The faculty further highlighted that the program is based on students taking responsibility to learn as much as possible during the program, and one of the faculty members argued that; *"we give them the environment, we give them different situations that can generate learning, but it is up to them to take care of situations and opportunities"*.

Motivation

The faculty expressed how they select students with a certain level of entrepreneurial mentality, and underlined how they use more time on increasing their mentality rather than creating it. The students underpinned this by emphasizing their desire of finding an educational environment that allows them to be themselves. Further, the faculty emphasized how the study program aims to let students find out if they want to become entrepreneurs or not. This was underlined by several of the students who saw this programs as a year of great opportunity to test out a life as an entrepreneur, without taking as much risk compared to quitting a job to start a venture. The faculty further discussed how the combination of students with analytical competences and a personal drive suits the study program well. Further, several of the students highlighted their desire for starting something on their own, and emphasized their need to acquire entrepreneurial competences; *"I wanted to start something for my own and I thought that a academic process like this entrepreneurship program can*

help with that, to get the tools to like start from scratch, and build it and scale it, that was my motivation coming here". At the same time as the students were motivated to start a new venture, and acquire relevant startup experience, some of them also expressed their motivation for acquiring certain competences, voiced by one of them; *"I think it was also a bit of a safety net, like, even if we fail measurably as entrepreneurs, the fact that we have acquired a certain set of skills, some of that are really important to business in general you know, anything to opportunity recognition to how to run a business, we could fall back to a degree"*.

Learning

The first semester was characterized by the students as quite theoretical; *"(...) The first semester (...) I was just studying the stuff these programs were providing me with, the articles we needed to read and so on"*. While the second semester was characterized with more freedom; *"After (...) the first semester we are kind of on our own to do the project and of course we have hand-ins and we have to achieve some kind of goals and milestones (...) we are relying on ourselves to learn and to try stuff, so we are not guided (...) we are mostly like trying our best on our own"*. The faculty discussed how the pedagogical structure in the students' first semester is valuable for their entrepreneurial learning, where they get experience by working with real cases before starting their own ventures. This is done by encouraging them to use theories to understand and explain their actions. Several of the students described their learning as trial-and-error. One of the students underlined how the faculty *"makes us like, trying things and, at least the first semester, present a lot of stuff in front of our classmates but also in front of the mentors and stuff, and you get feedback (...)"*. Several of the students expressed how the academic part of the education was not part of their motivation for applying, well described by one of them; *"When we arrived here, we kind of realized really quickly that the theoretical aspect of it was more important than we imagined"*. It was further explained how some students are dissatisfied with the amount of academic work, while others were satisfied with the amount. Additionally, some of the students stated how they feel that they produce a lot of reports, which steals time from creating value through their ventures.

One of the students underlined that even though the projects fails or is terminated, they have still obtained knowledge within different subjects; *"You are learning about these processes and how you react on these type of situations. What I mean is you can always take that if you*

want at some point and develop it, it's like work in progress, so it is for everyone, I mean, you can bring it to Spain, Bulgaria or wherever, so I think that is useful". Further, another student pointed to how the program has developed his/her entrepreneurial competences; *"The program, what it gave me more like, doing the right, helping me doing the right things, before I was doing a lot of things and they weren't very efficient and they were just five percent of that was really helpful for my future development. Now, when I have this framework and mindset, it's, I think it has improved, I'm more, like planning and thinking about what I am doing and things like that (...)"*. The faculty pointed to how the program aims to create an entrepreneurial mentality among the students, where new venture creation was explained as a mean to achieve it. The faculty discussed how they don't evaluate the students based on if they succeed with their ventures or not. This was further complemented by the argument of one of the faculty members; *"The goal is to train students into becoming entrepreneurs"*. Further, one of the students emphasized the advantage of an action-based learning approach, where the students could test things out in practice; *"Learning about entrepreneurship is one thing, and being one is something completely different. I think that's what people thought that coming here would make you a better entrepreneur, I think, obviously, it did make me a better entrepreneur"*. Several of the students underpinned how the learning within the study program is seen as a personal journey, which was well described by one of them; *"The journey in total, for me it was more personal than academic or business wise"*. The faculty further emphasized how the learning process is interactive and iterative, and the key competence they are teaching the students is; *"Iterative, as they are supposed to work with theories and apply them in practice and then reflect upon what they have done in practice, creating a structural learning loop, where this practice and reflection becomes an integrated part of how they learn entrepreneurship"*.

Interaction with Co-Students and Alumni

The faculty emphasized how the interaction between the students depend on the class-composition, further underlined by one of the faculty members; *"Last year it was many talented students, but they competed more than cooperating"*. The faculty pointed to how the students within the program rely on each other, since the majority of the students are international and have not been studying in Lund previously. Due to this, their classmates often become their closest friends. Another point being made by the students was the variety in educational background among the students, and one student argued that; *"We are all from various backgrounds and cultures, so that is a very interesting mix, you can learn like the best"*

practices from everyone". The students emphasized the importance of the knowledge exchange between the co-students, which was well described by one them; *"I have learned so much, not from the text or the articles and the books, but literally from the people I'm in class with"*. Further, all of the students underlined how teamwork enhances their learning. However, the students stated that the knowledge transfer between them could be better. Some of the students asked for the faculty to structure the share of knowledge among the students, where they exemplified with some monthly events where the students have to present their progress for the class and ask for input if needed. The students further discussed their need for more knowledge about which competences that exist in the class, which was well described by one of them; *"This is a key characteristic of our program, that we are so diverse, we come from different backgrounds and nationalities, and I think they made sure, in the screening for application, that this was the case. So it a pity that they are not taking it a step further"*. The same goes for the use of the alumni network. One of the students explained how some of the mentors are from the alumni network, otherwise there exists a lack of structure and continuous interaction between the alumni network and the students. Some of the students related this to the number of international students who move home or somewhere else after finishing the program. The faculty pointed to the importance of the alumni network, both in relation to the promotion of the program, but most importantly to help current students with challenges they recognize from their previous participation. The faculty further mentioned that they arrange an alumni-event once a year, which they believe is valuable for both current and former students. However, some of the students expressed their dissatisfaction of this event since it is held in the end of the school year when people are finalizing their education. The faculty emphasized how the students use the alumni network, but also highlighted the challenge of alumni been located in other countries as the majority of the students are international.

4.3.2 The Role of Faculty

Human Resources

The faculty emphasized how the interaction with stakeholders within the program *"always is student-driven"*. They underlined how it could be difficult for stakeholders who are engaged in the students' learning process to know *"exactly what and when a student wants to have some knowledge, support or help"*. The faculty explained how the students have access to different stakeholders in relation to the program, both internal, such as their team members, mentors, professors, and external actors, which one of them referred to as *"the ecosystem"*

around an entrepreneurial startup". The faculty argued that they are a crucial asset in relation to the students' academic learning, while the students themselves and their interaction with mentors and team members is seen as the most valuable for the venture creation process. Further, the faculty pointed to how the learning journals the students hand in every second week could be seen as an interaction, since they give students feedback, as well as getting insights in the students' learning processes. Many of the students discussed the support of the faculty in relation to their master thesis. When it comes to their startups, they explained how they rather go to industry experts or other human resources such as legal advisors.

The faculty mentioned how every student at SCE has their own individual mentor. The students and mentors are given the opportunity to meet at several occasions before they are matched, this to facilitate a good relationship. Several of the students underlined how the mentors are seen as one of the most important human resources in the context of the program, and they play a major role for their learning process; *"They have had a very strong influence, at least for me. It's both on a business and individual level. You can call them up and cry like a baby, "I don't know how to go on", and they are like "ok, you will survive this". You can also call them for business advices and ask them for network opportunities (...), and that has been insanely valuable". I think that is one of the most beneficial part of the program*". The faculty highlighted how the mentorship program works quite well for some, and less for others. This was also mentioned by the students, who underlined that not all students have the same relationship with their mentors. The value of the mentorship program depends on the match between the student and the mentor, as well as how often they communicate together. Aside from the mentors, the students emphasized how they need to acquire external resources themselves; *"I think they really leave it up to you to take the initiative to contact however you want to contact"*. It was further highlighted by the students the value in having guest lectures, how this kind of knowledge transfer between the students and experienced entrepreneurs or industry experts is the most valuable part of the program.

Early in the program, the actors within the ecosystem of innovation in Lund are invited to present themselves for the students, so the students receive an overview of the resources available for them. The faculty further emphasized the students' interaction with new ventures at the Ideon Incubator, which the students often use as workspace. The faculty also mentioned their cooperation with a tech transfer office in Lund, connecting the students with researchers from other universities. The students discussed how faculty connects them with people in

their personal network, and also how they are connected with other resources through different networking events or project presentations. The students emphasized how they spend a lot of time outside the University, reaching out to industry experts or other human resources, which they described as both useful for their ventures and enhancing their learning process.

Interaction with Students

The students explained how they often have contact with the faculty the first semester, but the amount decreases the second semester; *“I think we had a lot of contact with them the first semester because we had lectures (...), then the second semester is very, we sort of break free from university. I see my thesis supervisor like once per month or so, and that's it”*. One of the students complemented this description by underlining how the faculty provides support, but that it has to be requested by the students; *“They are there if you need them and I'm pretty sure people go there and talk to them often, I don't, maybe I should, but, yeah, I have this feeling that, like right now we are pretty much on our own”*. This notion was shared by many of the students, where it was explained how the faculty does not initiate contact to update themselves on the ventures, however, they feel the faculty to a certain degree tracks the students through the academic assignments. The students further argued that the level of interaction meets their demand; *“I think that the program is aware of it, if you enroll in this program you are proactive, they can activate himself or herself, very well, so I actually do appreciate very much the fact that they are not all over us all the time (...)”*. The faculty further emphasized that they involve the students in the structure of the program, for example by allowing them to make suggestions to theoretical themes and guest-speakers. Further, the faculty encourages the students to express their views, opinions and give feedback on the academic program.

Support and Challenge

The faculty expressed how they guide the students in their acquirement of necessary resources to solve their particular problems. They do not see themselves as experts in specific areas, but they rather emphasize their role as academic tutors, teachers and examiners. The faculty argued that the action-based learning approach could be seen as a challenging learning method, often resulting in taking action without reflecting upon it. This was underlined by several of the students, where one of them explained how difficult it is to describe and reflect upon their own learning when they are in the midst of it, well described by one of them; *“Maybe, later we will realize that we learned how to do all those things, without actually*

noticing it". The faculty underlined how they try to facilitate "sustainable reflection" among the students, understood as continuous reflection of learning. This was further underlined by one of the faculty members, which argued that; *"Whatever atmosphere that exists within the program it is important how we get our students to reflect what they do within these action-based programs, it's just as important as the atmosphere"*. The faculty further highlighted how they see themselves responsible for creating a space for reflection, and ask the students to write learning journals every second week, which should contain a reflection of what the students have done and what they have learned. Several of the students discussed the learning journals in negative terms based on them being time consuming and requiring a lot of effort. However, they still underlined the value of taking time to reflect upon what they have learned; *"It's good that they force us somewhat to do that, because you are too busy to take a pause and reflect"*. The faculty emphasized how they organize study groups with different consultations of students each time, which take place ten times during the year. The faculty gathers the students in groups, and let them reflect upon their learning process with other students, and the peer-to-peer learning they create within this group-reflection is valuable for enhancing the learning among them, according to the faculty. However, some of the students explained how these group sessions could feel a bit forced upon them, and how more casual interaction could enhance their learning as much, if not more, than these group sessions.

The faculty discussed the challenge of balancing the academic part of the education and the venture related work. The faculty expressed how the students are exposed to time pressure, which was further underlined by some of the students as quite stressful; *"I don't know anyone that has to write a thesis, plus a business plan, plus the learning diary plus the mediatory reflection report in three and a half month, and is expected to pass it all and pass it well"*. It was further underlined by some of the students that this time pressure combined with the faculty's high expectations sometimes feel a bit overwhelming; *"So it sort of a feeling like; you are baking brownies, but you are given a wedding cake recipe. The expectations are enormous, and the University want's us to be at the highest standard of this academic expectations"*. This was further complemented by another student who argued that the faculty puts a high level of pressure on the students through an extensive amount of academic assignments. However, one of the students also emphasized the pressure they put on themselves; *"If I'm not doing anything I feel quite like, useless, like, I always have to push myself, do something because otherwise nothing gets done"*.

4.3.3 Learning Environment

The faculty emphasized that the atmosphere within the study program is both “*active and supportive*” as well as “*positive, optimistic, open-minded, sort of an energizing environment*”. The students underpinned their willingness to take action, and how the atmosphere becomes affected by the students’ drive and ambitions, which increases the general level of motivation to work hard among the students; “*I can really see a motivational aspect to it, when you see people progressing very fast, you feel like, okay, wow, I want to do that, so it kind of pushes you to work a bit harder*”. The students explained how this atmosphere is not created when they have classes, but rather when they are all sitting together and studying their projects.

The faculty discussed how the atmosphere varies based on which students are attending the program. It was argued that some years the culture could be described as more competitive than others, however, this was further discussed as leading to high performance and high engagement among the students. The faculty further expressed how the students’ learning journals provides them with an indicator of how the students experience the culture within the class, and get updated on factors that make the student unsatisfied. One of the faculty members underlined that “*crucial to the success of the program is group student competition*”. However, it was expressed by several of the students that their class is characterized as homogenous, cooperative and the most non-competitive group the study program has seen in a long time. One of the students characterized the culture as supportive; “*When I started I felt that it was going to be more competitive, people with their business will try to be the best, but I realized that it was not the case really, people try to actually help each other (...)*”. Another student complemented this by the argument; “*Everyone is really giving input and feedback, and their time and encouragement. In the beginning, everyone had to find their own place, but I think now, we have grown together as a group. It feels like a group that is here to support one another and see each other through the end, rather than to compete*”.

Key Findings	CSE	NSE	SCE
Students have an entrepreneurial mentality prior to the program	Yes	Yes	Yes
The action-based learning approach is seen as an important motivational factor for the students applying at the program	Yes	Yes	Yes
The main objective of the program lies on personal development, not ventures (let students find out if they want to become entrepreneurs)	Yes	Yes	Yes
The faculty provides their students with theoretical perspectives prior to the students' new venture creation	Yes	Yes	Yes
Students take initiative and responsibility for their own learning	Yes	Yes	Yes
Students interact with co-students (in the same class)	Yes	Yes	Yes
A high level of interaction exists between students across grades	Low	Yes	Not relevant
High level of knowledge transfer between students exists (co-students and team members)	Yes	Yes	Yes
Students are offered a workspace where they sit together	Yes (fifth grade)	Yes (fourth and fifth grade)	Yes
A high level of interaction among current students and the alumni-network exists	Low	Yes	Low
There is a combination of academic assignments and new venture creation	Yes	Yes	Yes
The faculty provides individual development talks with the students	Yes	To a certain level	Through mentors
The faculty provides team development talks to the students	Yes	Through an academic course	Through group work
The faculty stimulates their students to reflect upon their learning (through eg: learning journals)	Yes	Through academic courses	Yes
The faculty offers a mentorship program to the students	Yes	Yes	Yes
A high level of interaction between students and mentors is present	Yes	Low	Yes
There exists a collaborative environment among the students	Yes	Yes	Yes
A high-performance culture is created by ambitious students	Yes	Yes	Yes

Table 3: Comparison of Selected Cases

CHAPTER 5: ANALYSIS AND DISCUSSION

The purpose of this thesis is to open the «black box» of learning in ABEE programs. In this chapter the research questions are discussed in combination with the purpose of the thesis. Investigating the faculty and the students' role, as well as the interaction between them, has enabled the authors to revise the conceptual model.

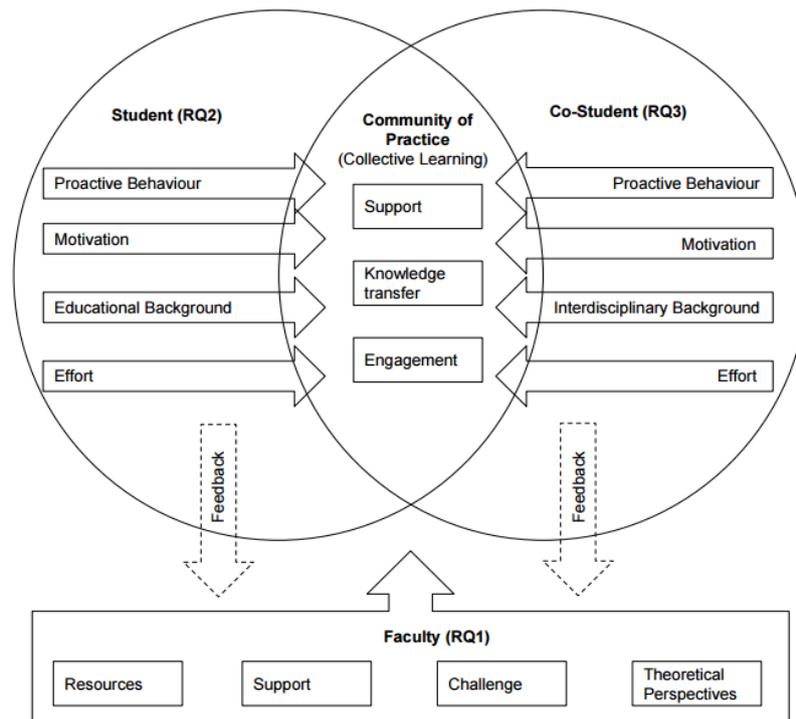


Figure 3: The Revised Conceptual Model of Action-Based Entrepreneurial Learning

The previous conceptual model assumed that learning is created through the interaction between faculty and students. However, the empirical findings underline that the majority of the learning takes place between students within a community of practice. This is visualized through the two circles “student” and “co-student” in Figure 3. This highlights how current literature lacks a thorough discussion of the students' role, especially concerning what they bring to the table. Proactive behavior, motivation, educational background and effort are identified as important characteristics and competences of the students. The revised model illustrates how entrepreneurial learning is more student-driven than what current literature has given the impression of, and that learning is a construct of the student's experiences within a social environment. Based on this, the authors argue that entrepreneurial learning obtained through the interaction with other individuals complements individual learning. This is the

reason why one should give collective learning more attention than learning obtained individually as shown in the revised model. The faculty still has a relevant role outside the circle of community of practice, as facilitators of learning. As shown in Figure 3, the faculty is expected to deliver an educational framework, which the students can operate within. They should deliver a program content in accordance with the educational objectives, together with supporting and challenging the students in their learning process. Additionally the faculty should make resources available for the students. All these factors combined could enhance the students' learning process. The revised conceptual model is further discussed in the following subchapters.

5.1 Faculty as Supportive, but not Controlling

The first research question aims to provide an understanding of how faculty delivers ABEE. Through the literature review of this master thesis it became evident that the faculty plays an important role as facilitators within ABEE. Even though several scholars characterize the faculty as facilitators of learning, existing literature rarely discuss how the faculty should manage this role and what level of involvement they should have. This section discusses the theoretical perspectives and educational objectives of ABEE programs since faculty is seen as the ones providing it. Further, the involvement of the faculty based on theoretical assumptions and empirical findings is analyzed with the aim of obtaining a deeper understanding of what ABEE programs require from the faculty in relation to delivering this type of education.

5.1.1 Learning-By-Doing-What?

The teaching methods of ABEE are many, and are dependent on the objectives, content and the audience the program aims to target, as well as restrictions set by the institutional context (Arasti et al., 2012). As shown in Table 1, the three study programs are quite similar seen from the outside, however, they still differ in relation to how they deliver and facilitate knowledge creation, as illustrated in Table 3. Even though learning through entrepreneurship, also understood as learning-by-doing, is by many scholars seen as the most effective method to learn entrepreneurship, there is still a question of learning-by-doing-what. According to Lackeus (2016) learning by creating value could have a strong impact on developing entrepreneurial competences, and also on the level of motivation of the students. This leads to the discussion of creating value as a stepping stone when infusing entrepreneurship into education.

All three programs from the case study align with the perspective of Moberg (et al. 2012), emphasizing that entrepreneurship education should offer content, methods and activities that support the creation of knowledge, competencies and experience. This should be done by giving the students the opportunity to initiate and participate in entrepreneurial value creating processes. The students within the three study programs underlined how the education helps them to focus their actions in an efficient manner through meaningful activities. This complements the theory of Heinonen and Poikkijoki (2006), who argue that if the faculty is able to have confidence in the students taking responsibility of their own learning, the students will more easily take action. The empirical findings show that all three programs have the same educational objectives, where they provide their students with the opportunity to start their own ventures as part of the educational curriculum, and aim to engage students in activities that support their entrepreneurial learning. These findings are supported by the theory of Mwasalwiba (2010), who states that the program content should be developed and delivered based on what type of graduates the faculty aims to produce. The study programs were aligned in relation to their aim of graduating master students who meet academic standards, at the same time as providing the students with an opportunity to gain entrepreneurial competences. Lockyer and Adams (2014) argue that entrepreneurship education should let students develop entrepreneurial competences by setting up a new venture. The empirical findings empower this argument, where all three programs have venture creation as part of their educational curriculum.

5.1.2 Theoretical Perspectives and Practical Learning

According to Pittaway and Cope (2007), action-based learning relies on a process that links both action-based learning and theoretical knowledge, which underlines how it could be delivered within an academic context. Based on the definition of ABEE it could be argued that the students should create new venture through the practical application of theoretical knowledge. The faculty in all three programs discussed that if the students want to be able to extract something from the learning, they need to combine theory and hands-on experience. This aligns with the theory of Raelin (1997), which states that *“theory makes sense only through practice, but practice make sense only through reflection as enhanced by theory”*. The empirical findings show that the students need to have a set of theoretical perspectives at hand to gain knowledge through action-based activities, and the findings further emphasize how it is up to the students to apply them to their venture creation process. The faculty within all three programs argued that theoretical perspectives could be seen as entrepreneurial tools,

which the students can apply in their learning process. The entrepreneurial toolbox that is provided by the faculty seems to be common for all three study programs. The empirical findings underline that when students are exposed to multiple activities, it can sometimes be difficult for them to know exactly which activities they should prioritize to enhance their learning. By having the faculty deliver a toolbox with entrepreneurial perspectives, students can use these as guidelines in their learning process. Both the faculty and students within all three programs emphasized how faculty should deliver theoretical perspectives, which supports the students' activities. It was argued by several of the students in all programs that the entrepreneurial toolbox that is offered makes them focus their activities in a more efficient way than before, which enhances their learning process. This aligns with the argument of Mwasalwiba (2010), who points to how faculty should apply learning methods that enable self-discovery among the students, such as setting up real ventures, conduct presentations, and participating in competitions and workshops. Theoretical perspectives can be discussed in relation to how the educational program is structured, where the faculty provides the students with an understanding of what is expected from them and what they should accomplish during the course of study.

The students in all three programs emphasized their expectations of acquiring entrepreneurial competences through hands-on experience. This could be discussed in light of the argument of Heinonen and Poikkijoki (2006), who underline how students understand and apply theories of entrepreneurship through their own experience and insights. This is further emphasized by Lehman (2013), who argues that an entrepreneurial student thrive on learning that is followed by immediate application to either their own ventures or a live case study. However, the empirical findings underline the challenge of balancing the academical and practical part of the program. According to Kolb and Kolb (2005) entrepreneurial learning should be seen as a process, where the focus is on engaging the students in activities that best enhances their learning. Several of the faculty members in all three programs discussed the challenge of finding a balance between what they want the students to do, and what the students feel is valuable for them. The students reflected upon how their learning is situational, which underlines the challenge of designing a program content that suits both students and faculty. Further, several of the students emphasized how it does not exist a perfect ABEE program, pleasing all parties. Many of the students emphasized the difficulties of balancing academic work and practical learning, understood as academic assignments and venture related work. It was further underlined by the students that they acquire knowledge in

different ways, where some students tend to have a more academic and analytical approach towards their work, while others rather make decisions based on their gut feeling. This stands in contrast to the perception of the faculty in all three programs, who argued that practical and academic learning are interdependent. Several faculty members emphasized how they feel responsible for reminding the students of their educational obligations and academic requirements.

5.1.3 Reflection

According to Kolb and Kolb (2005), too much flexibility in education, understood as only operating in accordance with business objectives without any academic reflection, can reduce the credibility of an educational program. Further, Raelin (1997) points to how reflection “*constitutes the ability to uncover and make explicit to oneself what one has planned, observed or achieved in practice*”. The faculty at SCE and CSE discussed the importance of reflection within action-based learning. The empirical findings emphasize that students tend to take action without reflecting upon their practices. According to Kolb and Kolb (1984), an imbalance between action and reflection results in ineffective learning, which underlines the importance of faculty facilitating student reflection. The empirical findings underline how the students at NSE rarely reflect upon their learning, and both students and faculty expressed the need for more reflection. Throughout the second year they do not have any mandatory activities that facilitate reflection, and the students emphasized that reflection happens when they have time off and could think back on what they have done during the previous semester. SCE and CSE contrast NSE, where the faculty in these two programs makes their students reflect upon their learning through learning diaries. As shown in Table 3, the faculty members at CSE provides both team development talks and individual development talks to their students, which was emphasized as valuable to make students reflect upon their learning. This differs from what is done at SCE, where individual development talks are provided through communication with business mentors, and team development talks are arranged as group work among students. At NSE development talks are rare, and generally provided through academic courses such as “Experts in team”. Despite the differences between the programs, they all emphasize how reflection can make the students learn from the consequences of their actions, both their accomplishments and failures. This is well aligned with theory of Kyrø (2015), who discusses how students acquire entrepreneurial competencies by reflecting upon their learning, and then improve it when gaining experience. Several scholars argue that the students need continuous feedback from teachers to be able to reflect upon their experiences,

and further connect it to theoretical perspectives (Lackéus, 2016; Gibb, 2002). Based on this, it could be argued that the faculty at NSE should arrange time for student reflection, where the students are given the chance to sit down with either some from the faculty or other relevant resources to reflect upon their learning process. However, one of the faculty members at NSE emphasized how the initiative of “share and care” sessions, where the students are invited to tell about their projects and their progress in front of the class is valuable for their reflection. Still, it should be mentioned that these sessions is initiated by the students and was not mentioned by the students as a way for them to reflect upon their practices.

5.1.4 Balancing Support and Challenge

Action-based learning should be delivered within an environment where students are exposed to both challenge and support (Lockyer & Adams, 2014; Kolb & Kolb, 2005). Previous research has shown that higher educational institutions are more successful in challenging the students, rather than providing support, which is underlined by the empirical findings. The students in all three programs emphasized that the faculty is very helpful, and available when they need them, but it is up to the students to initiate the contact. The students further underlined their appreciation of a faculty having confidence in them, letting them gain experience and knowledge by themselves. This complements the discussion of Kjernland (2014, p. 23), who argues that *“increased control in which activities the students shall perform might reduce some important ingredients, such as freedom and perceived ownership that appeal to the value creation and contribute to raising the stakes in the activities”*. The students emphasized the importance of experiencing things for themselves without necessarily having someone telling them what to do. The empirical findings show that to succeed with ABEE the students need to feel responsible for their own learning, and equally important is how the faculty has confidence in the students taking this responsibility. According to Lackéus (2016), adults often underestimate young people’s capabilities, and further argue that if the students are given the appropriate tools and sufficient level of meaningfulness and ownership of the learning process, they will take responsibility of own learning. This is empowered by the empirical findings.

The empirical findings further show that the faculty has to provide support through theoretical perspectives as well as being engaged in the students’ personal development. This can be discussed in light of how the educational program is both a personal learning journey and a

process of gaining entrepreneurial competences. Especially at CSE, the students highlighted their appreciation of the faculty taking time to listen to them, while the students at NSE emphasized that they would like more engagement from the faculty based on their need for being encouraged, supported and recognized. This can be seen in relation to the theory of Pittaway and Cope (2007), which argue that action-based learning requires a community of practice that is both challenging and supportive, which is created through the interaction between students and faculty. The empirical findings suggest that the students within all three programs want to be recognized, this by their ask of having faculty members updating themselves on what's happening with the students' ventures. This aligns with theory of Kolb and Kolb (2005), who underline the importance of respecting learners and their experiences. However, this has shown to be quite problematic for higher educational institutions. The students should feel that they are taken seriously by both faculty and their co-students, understood as a place where everybody knows your name (ibid.).

The students at CSE underlined how the faculty challenge them through expectations and setting certain requirements to their learning process and progress. They further emphasized how this provides a positive pressure, while the students at NSE and SCE discussed the expectations and requirements as sometimes overwhelming. The faculty within all programs emphasized their high expectations towards their students, and how these expectations motivate the students to work hard. This complements the theory of Pittaway and Cope (2007), who argue that challenging the students is essential, where faculty should constantly set requirements, create time pressure and challenge the students' way of thinking. It was emphasized by the faculty in all three programs that the education require a lot of effort from the students, both on an academic and personal level, which was further underpinned by the students when discussing the amount of time they use on their studies and ventures.

5.1.5 Available Resources

Vesper and Gartner (1997) emphasize the importance of students having available support through an external network provided by the faculty or the education institution in general. The empirical findings underline how the students appreciate that the faculty introduces the students for relevant contacts from their personal networks. This aligns with theory of Gibb (2002), who argues that a supportive environment of a university makes students able to explore their entrepreneurial capabilities.

Common for all three study programs is how the students need confirmation from others that they are on the right track, and their appreciation of getting feedback regularly. This could be seen in relation to the argument of Harkema and Schout (2008), who discuss that mentors is an important element within the pedagogical concept of entrepreneurial learning. The empirical findings show that the students across the three programs differ concerning their mentorship programs and how the students choose to take advantage of their mentors. Both SCE and CSE have a well-established mentorship program, while the students and faculty at NSE expressed the room for improvement concerning their mentorship program, and how these mentors are used by the students. The empirical findings empower the argument of Raelin (1997), who states that it can be difficult for students to reflect upon their experiences without any assistance from a mentor. This underlines the importance of having mentors available for the students. The students at CSE and SCE emphasized how they exchange knowledge with their mentors, and further discussed how this exchange helps the students to reflect upon what they have learned. This contrasts NSE, where several of the students explained how they rarely use their designated mentors. Some of them underlined how they have recruited external mentors by themselves. Further, the faculty in all three programs underlined the importance of getting the students to feel ownership to their mentors, which could increase both the students' use of mentors and the perceived value of the relationship. Still, both students and faculty in all programs highlighted the students' responsibility of gathering other resources that are relevant for their academic and venture related work. Additionally, the students, especially at NSE argued that it's their responsibility to take advantage of the support apparatus given by the faculty.

The students at NSE highlighted the alumni-network as a valuable resource, and could be analyzed as filling the role of a mentor. This stands in contrast to the two other programs, where the alumni network is not seen as a central intangible asset. The students in both programs asked for more interaction with the alumni's based on their need of sharing their thoughts with people who has walked the road as an entrepreneur before. The faculty at NSE described the students' interaction with the alumni-network as valuable based on how the alumni's are closer to understanding the learning process of the students since they have been through it themselves. This notion was empowered by the students at NSE. Even though the empirical findings emphasize the value of an alumni network, this has rarely been discussed in current literature. It should be noted that the use of alumni could be seen in relation to the availability of resources. At CSE some of the students are international, while at SCE many of

them are, and they often leave the town where the school is located, or even the country after the program, which makes it challenging to keep in touch.

5.1.6 Summary

As shown in Figure 3, the faculty delivers *support, challenge, theoretical perspectives* and *resources*, which is also to be found in the previous conceptual model. This underlines how the empirical findings complement the current literature in relation to the faculty's contribution within the study program. The previous model included feedback, but this has shown to be well included in support and challenge, and is therefore not separated from support in the revised model. The empirical findings suggest that the faculty should play an active role in the students' reconstruction of experience into knowledge, which aligns with Kolb and Kolb (2005), who argue that faculty should give feedback on the effectiveness of the student's learning efforts. It is therefore argued that the faculty should operate as a support apparatus that encourages the students' learning through personal engagement, constantly feedback and academic challenge. The analysis and discussion emphasize that the faculty plays an important role as facilitators of the students' learning, however, their level of involvement has shown to stand in contrast to what the literature review prescribes. As shown in Figure 3, it was found that the faculty possesses an important role as facilitators, but are not directly involved in the creation of a community of practice that stimulated the students' learning. The revised model emphasizes the students' role and responsibility far greater than the literature review. The empirical study suggests that the faculty has to have a certain level of confidence in their students in relation to the students being self-directed. At the same time as the students are responsible for their own learning, the faculty has to provide an entrepreneurial toolbox, understood as theoretical perspectives, which the students could apply in real-life context. Further, the empirical findings show that the faculty should challenge the students by setting requirements, as well as providing personal support through recognition and the facilitation of reflection. As shown in Figure 3, the empirical findings also underline the importance of faculty connecting students with relevant resources that enhances their learning, as well as establishing a mentorship program customized to the students' need. Further, the alumni network has received more attention empirically than theoretically, and is analyzed to be an important intangible asset in relation to the share of knowledge, which in turn enhances the students' learning.

5.2 Action-Based Learning requires Action-Based Students

It is noted by the literature review that students have to relish independence and take responsibility for their own learning (Lehman, 2013), thus have an active role in their learning process. However, it lacks theoretical discussion and empirical research on what this role requires. This underlines the relevance of studying how students practice entrepreneurial learning in ABEE programs, which serves as the second research question presented in chapter 1. As shown in Figure 3, entrepreneurial learning is driven by the students' *proactive behavior, motivation, educational background* and *effort*. The revised model provides new insights in relation to the students' contribution within their education, and complements the argument of Lackéus (2016), who discusses a students-as-givers culture, rather than only student-as-takers. This subchapter discusses the role of students, with the aim of giving a better understanding of what is required of them as students, and how entrepreneurial learning could be understood as student-driven.

5.2.1 Actions Speak Louder than Words

It was found that the majority of students in all three programs seem to hold a proactive behavior, and emphasized their quest for action-based learning and how this was one of the main motivational factors for applying at an ABEE program. The empirical findings empower the existing proposition that action-based learning is best conceived as a process driven by the students' proactive behavior (Kolb & Kolb, 2008). The students and the faculty in all three programs are aligned concerning the importance of making the students responsible for their own learning, which underlines the relevance of discussing how ABEE requires action-based students. This aligns with theory of Pittaway and Cope (2007), who define entrepreneurial learning as a learning-as-you-go process, which encompasses the argument that entrepreneurs are action-oriented. It is stressed that action-based learning relies on students taking initiative to both acquire necessary knowledge, and apply this knowledge to real-life projects.

It is argued by Gibb (2002) that students could see it as challenging to move away from more traditional learning methods towards more experiential learning, since it requires a high level of student involvement. The empirical findings contrast this perspective based on how the students described themselves as self-regulated learners. This is grounded in the way they approach their educational tasks with diligence and resourcefulness. In other words, the entrepreneurial learning process in all three programs could be seen as initiated by the students. However, this requires a firm belief that the students are capable of taking

responsibility for the value creation process, the interaction with external stakeholders, and with identifying real-life issues as well as develop solutions to them (Lackéus, 2016). The faculty in all three programs was aligned in relation to this perspective, and used it as an explanation for why they keep their distance to enable the students to become independent entrepreneurs. Summarized, the programs do not necessarily create proactive students, but rather amplifies their proactiveness.

5.2.2 Aim for the Sky

The willingness to take initiative together with a certain level of motivation to become entrepreneurial was identified as important characteristics among the students in all three programs. In accordance with the argument of Arasti (et al., 2012), ABEE allows different level of involvement and ambitions for entrepreneurial learning among the students. This stands in contrast with the empirical findings, where the students within all the study programs were aligned concerning their high level of ambitions and drive for starting something on their own. This empowers the argument of Kyrø (2015) and Heinonen & Poikkijoki (2006), who emphasize the importance of the student's own motivation to gain entrepreneurial competences. Based on this it could be argued that participation in such programs requires a certain level of motivation and innovative drive among the students to become entrepreneurial. Further, motivation could be linked to the student's eagerness to work hard to achieve their goals. According to Baum and Locke (2004), challenging goals lead to higher performance than other types of goals, which are seen as an important factor in venture growth. Based on this it could be argued that ambitious students with hairy goals perform better within entrepreneurship education. As mentioned, the faculty imposes a time pressure upon the students, especially in relation to academic assignments, which in turn requires a high level of effort among the students. According to the empirical findings, the students refer to the culture as one of the main drivers behind their effort within the study program. Students at NSE argue that it would be difficult to create the same environment without letting the students interact with each on a daily basis, and they highlighted how the performance of others affects their learning. This was also underlined by students at SCE, who explained how the culture is to some extent competitive through students delivering results in accordance with co-students accomplishing their goals. The students in all programs emphasized their readiness to work longer hours compared to what they did in their previous study programs, which points to how the students put a lot of effort into the program. This could be analyzed in light of the argument of Markman and Baron (2003), who state that

people tend to be attracted to work settings that align with their values and fulfill their needs. However, it should be noted that several of the students mentioned how this high level of effort could result in people becoming overworked, which links to the importance of work balance and the reflection upon how to manage the high level of pressure without getting burned out.

5.2.3 Students as Valuable Resources

Kyrø (2015) argues that the learning process is deeply rooted in the personality and intelligence of the students, which is empowered by the empirical findings. As already discussed, ABEE emphasizes self-regulated learning, which requires an individual capability of acquiring knowledge and competences (Zimmerman, 1990). The three study programs seem to attract students who are already action-oriented. According to Mwasalwiba (2010) entrepreneurship education does not require inborn entrepreneurial traits. However, the empirical findings should not be seen as a critique of this argument, but rather complementing it with insights of how ABEE requires students who are receptive to action-based learning. Based on this it could be discussed that students applying at an ABEE program do not necessarily start out with clean slates, but rather have certain personal traits that make them prone to self-regulated learning. It was emphasized by several of the faculty members in all three programs that they aim to attract ambitious, capable and committed students, and they all underlined how they recruit humans, not ventures. As presented in the literature review, entrepreneurship education is generally aimed to create or increase entrepreneurial attitudes, spirit, and culture among individuals (Kuratko, 2005), where the empirical findings show how these ABEE programs increase entrepreneurial attitudes among the students. The majority of the students in the three programs underlined how they feel the study program allows them to be themselves, and justified it by referring to personal traits. However, even though the majority of the students referred to themselves as proactive prior to the program, it should be noted that there was some students who struggled with sorting out if they had certain personal traits prior to the program, or if the program released their proactive behavior. Based on this, it could be argued that being part of a program that encourages action-based learning together with being part of a group of initiators, can amplify the students' proactive behavior.

The empirical findings highlight how students are inspired by each other, where the students in all three programs underlined their appreciation of the students having various educational backgrounds. These findings support the argument of Souitaris (et al., 2007), underlining how inspiration is one of the most important factors affecting entrepreneurial attitudes and

intentions. The majority of the students discussed how the diversity in educational background and experiences is important for the knowledge transfer, where the students use each other to enhance their own learning. This could be seen in relation to the argument of Markman and Baron (2003), who argue that one should hire people with the most adequate profile and potential to contribute to success of organisation. This underpins how the recruitment process of students in an ABEE program should consider the students' individual characteristics. The students further emphasized how they see each other as already a resource when they are accepted into the program, which highlights how the educational background and different experiences of each student are competences that benefit all the students through the share of knowledge. This underlines the importance of the composition of students in an ABEE, and that a discussion of the entrepreneurial learning that takes place in these programs can't be isolated from the previous experiences of the students. This could also be discussed in relation to the selection process. Based on the empirical findings it could be argued that recruiting students with different backgrounds, but like-minded concerning their proactive behavior, level of ambitions and motivation for starting a new venture, is crucial for creating an engaging learning environment. This aligns with the literature review, which emphasizes how students should differ in their background to complement each other, but at the same time have similar personal characteristics (Arasti et al., 2012). This is shown in the revised model where the students bring with them individual competences, which is combined with the co-students interdisciplinary competences.

According to Lackéus (2016) today's teachers view themselves as suppliers of knowledge and their students as customers, which creates a student-as-takers culture. However, this was not supported by the empirical findings. The faculty members in all three programs were aligned concerning how the students contribute to the development and improvement of the educational program. The majority of the students highlighted their impression of being given a certain educational framework to follow, but at the same time given the possibility to customize it to a certain level. Based on this it is reasonable to assume that faculty develops knowledge through interaction with students, in the same manner as students develop knowledge through interaction with faculty. Feedback has therefore been added to the conceptual model. Feedback goes both ways, where the faculty should support the students through a certain level of feedback on the effectiveness of the students' learning (Kolb & Kolb, 2005), while it was found that the students give feedback on the program content and structure. This could be discussed in light of how the students at NSE and CSE emphasized

how they are equally important for the study program as the faculty, understood as they working together to create, develop and run the program. This aligns with the argument of one of the faculty members at NSE, who stated that “*the faculty is not what makes the NSE successful, that’s the students*”. Thus, it could be argued that the students not only affect their own and their co-students’ learning, but also give back to the program itself. Based on this, they could be seen as givers, not only in relation to creating value outside the classroom through new ventures, but also by giving back to the educational program. These findings both complement and extend the argument of students-as-givers, rather than only takers (Lackéus, 2016).

5.2.4 Summary

In accordance with the empirical findings, entrepreneurial learning can hardly be understood without taking into account what the students bring into the study program. This underlines the need for giving students more attention within entrepreneurship education as a field of research. As shown in Figure 3, learning is driven by the students’ proactive behavior, understood as taking initiative for own learning. Further, it was found that a certain level of motivation and effort enable the students to cope with the expectations and requirements set by the faculty. The different competences the students possess are seen as essential for the share of knowledge, which is an important element of the learning environment. Based on these findings, the conceptual model has been revised to include several specification of what the students bring into the program, both concerning personal characteristic and competences, together with providing feedback. This underlines the existence of a student-as-givers culture, where it is not only the faculty who contributes within the program, but also the students.

5.3 Student-to-Student Learning in a Community of Practice

The third research question aims to provide an understanding of how a community of practice stimulates entrepreneurial learning. Learning has principally been viewed as an individual phenomenon. Linking learning to individual entrepreneurs without taking into account the context in which learning takes place has its limitations (Cope, 2003), which has been widely ignored within general learning theories (Kolb, 1984) and entrepreneurial learning (Hamilton, 2011). The empirical findings clearly underline the importance of the learning environment within entrepreneurship education, where the culture is seen as essential in relation to how students learn. Further, through the empirical findings it has become evident that the interaction between student and co-students plays a major role for the students’ learning

process. Nevertheless, it is quite challenging to pinpoint exactly which factors the culture constitutes of, and how they enhance entrepreneurial learning. According to Lackéus (2015) few articles have empirically accounted for when, how and why such learning environments contribute to the development of entrepreneurial competences. This underlines the relevance of this thesis, where the purpose is to open the “black box” of learning in ABEE programs to gain insights in how a learning environment stimulates entrepreneurial learning.

5.3.1 Individual and Collective Learning

As presented in the literature review, self-directed learning is equally important as learning from others (MacPherson, 2009), where entrepreneurial learning occurs as the personal and social emergence of the entrepreneur (Rae, 2006). It is further underlined by Fletcher (2007) that even though the personal components of the role as an entrepreneur are developed through relationships, dialogues and interactions, the learning individuals still go through a personal process where they develop a sense of who they are and where they are going. The entrepreneurial learning was by several of the students across the three study programs described as a personal journey. Middleton (2013) underlines how the emergence of an entrepreneur identity is a social and contextual process, rather than mainly individual. This perspective is challenged by the difficulty of observing such a process, which makes it relevant to include an analysis of learning as a personal journey on an individual level. However, the entrepreneurial identity of the students could be understood as socially constructed through interaction with others (Benwell and Stokoe, 2006; Giddens, 1991). These arguments are empowered by the empirical findings, where the majority of the students in all three programs emphasized how the learning environment enhances their learning. This can be seen in relation to theory of Raelin (1997), who argues that knowledge is a collective activity, where the learning becomes everyone’s responsibility. The empirical findings show that we cannot isolate individual learning from the learning environment, but rather consider it as collective learning. This aligns with the literature on intersubjectivity, which avoids the division between individual and social learning (Biesta & Burbules, 2003). Based on these arguments, the individual learning cycle is not included in the revised model. However, even though the empirical findings empower current literature concerning collective learning, existing theory lacks a conceptual discussion of the cultural factors within a learning environment that enhance the students learning.

5.3.2 Share and Care

According to Raelin (1997), students learn best by sharing their theories and experiences with each other, which is empowered by the empirical findings. The students in all three programs were aligned when characterizing the culture as supportive based on the willingness of sharing knowledge. Based on this, knowledge transfer, understood as the application of knowledge acquired by one person in one situation to another person in another situation (Unger, 2009), is identified as an important element of the learning environment within these programs. This aligns with the theory of Kolb and Kolb (2008), who argue that action-based learning is seen as a process of creating knowledge, where social knowledge is created through the interaction between students and the social environment, and recreated in the personal knowledge of the learner.

The workspace within the study programs has been discussed as increasing the knowledge transfer between students. This aligns with the theory of Pittaway and Thorpe (2012), who argue that ABEE programs require an educational design and infrastructure that stimulate learning elements that relate to the social dimension. Based on this it could be argued that the faculty has the ability to facilitate that students' share of knowledge through providing a workspace that stimulates interaction. Empirical findings show that both CSE and NSE provide their students with a workspace that allows them to meet each other on a daily basis. This could be seen in relation to the argument of Wenger and Snyder (2000), who discuss how entrepreneurial learning is created in a community that shares experiences through free-flowing knowledge, where the community contributes to solving problems, promoting the spread of best practices and develop the student's professional competences. The students at CSE emphasized how the workspace facilitates the interaction between them, and how knowledge is discussed as easily transferable when they sit together. This aligns with the perspective of Kolb and Kolb (2008), who underline the necessity of conversational spaces where the students are stimulated to share and discuss their experiences. Even though knowledge transfer is highlighted as important, it differs across the programs in terms of who the students share information with. The students at CSE wish there was more interaction between the students in fourth and fifth grade, which they argued would enhance their learning. By giving the students an arena for interaction, especially when the different grades does not share workspaces, could establish a framework for more interaction, which could be further maintained by the students themselves. It should be noted that the students at SCE did not characterize the workspace as part of their learning environment in the same manner as

the students within the two other programs studied. Students at CSE and NSE underlined how they highly appreciate their opportunity to interact with co-students on a daily basis, which they argued as being possible due to their workspace. These findings were not emphasized by students at SCE, however, they still underlined how other arenas stimulate interaction and the share of knowledge between them.

At NSE, both team members, co-students, the class below and alumni are seen as members of the sharing environment. The empirical findings show that the students at NSE use the alumni network and the other grade far greater than CSE and SCE in their learning process. The students from CSE asked for more interaction with both fourth graders and the alumni's, and SCE the alumni since they only have a one-year program. However, it should be noted that they appreciate the interaction they have with co-students, and emphasized how this interaction enhances their learning. This indicates that the students interact with the resources that are available, where the students at NSE interact across the grades because the workplace allows it, while the students at CSE do not since they are separated. The knowledge transfer among the students was further discussed by the faculty, mainly at CSE and NSE, in relation to teamwork. This aligns with the argument of Salovey (et al., 1990), stating that learning occurs through cooperation in groups. Based on this, the learning within these programs could be described as collective learning, not only understood as transferring knowledge between students, but also how new understanding occurs between them (Rogoff, 1990).

5.3.3 Competitive but still Cooperative

Both students and faculty in all three programs described the environment as supportive. The empirical findings further emphasize how the students support each other, which could be seen in relation to theory of Raelin (1997, p. 563), who argue that *“as practitioners come together by being involved with one another in action, they become a community of practice, wherein they learn to construct shared understanding amidst confusing and conflicting data”*. The culture is not only described as supportive and sharing, but also characterized by the drivenness and engagement of the students. The faculty in all three programs pointed to how the program gives the students a tough time, and the students emphasized that they all get through the program based on how they support one another and see each other through the end. This can be discussed in relation to theory of Lackéus (et al., 2015), who states that a viable way to increase engagement and enhance learning is to let students learn by helping others. Based on the literature review, it was anticipated that learning is linked to the

conditions in which it is learned, where it is an inseparable aspect of social practice (Pittaway & Cope, 2007; Hamilton, 2011). This is supported by the empirical findings, where many of the students describe themselves as a group of people who are pushing their own limits, which affects the group in total.

The faculty in all three programs described the atmosphere as dominated by ambitious students who both compete and support each other. They highlighted the existence of a collaborative environment and the existence of a pay-it-forward culture. This was well described by one of the faculty members at CSE, who argued that “(...) *you give without expecting payback, and if everyone gives to each other, then you get this Silicon-Valley ecosystem*”. The students in the programs pointed to how they invest time in others based on their future need of people investing time in them, a notion that was further emphasized by the faculty at NSE; “*the culture could be characterized by their desire to share knowledge, they see the benefits of giving when they at the same time see the best opportunity to get knowledge*”. The students emphasized that people are always willing to share experience, and further highlighted how the knowledge exchange between the students is important for enhancing their learning.

The students within the programs also underlined how the atmosphere becomes affected by the students’ drive and ambitions, which in turn affects the general motivation to work hard. Based on this, engagement is identified as a characterizing element of the learning environment in all three programs, and is therefore added to the revised model. The culture is seen as engaging based on the students’ drive, and how they together inspire each other and create a culture that amplifies their engagement. The students in all three programs further characterized the culture as hard working, which stimulates them to put more effort and time in their activities than what they usually did in their previous studies. It was further described as competitive, discussed in term of providing motivation, rather than being inhibitory. However, based on the empirical findings it should be noted that the culture is not a static element, but rather dynamic in how it changes in line with the people constituting the culture. Nevertheless, several of the faculty members in all three programs underlined the existence of certain persistent dimensions within the learning environment, where the willingness to support each other through peer-to-peer learning was highlighted as the most distinct cultural element. Peer-to-peer learning is understood as student-to-student learning.

5.3.4 Birds of a Feather Flock Together

The empirical findings suggest that the selection of like-minded students who aim high is important for creating an environment that both engages, supports and enhances the students' learning through the willingness to share knowledge. Both the students and the faculty draw attention to how the recruitment process affects the culture in the program. The environment is described by the students in all three programs as consisting of very skilled people who get room to experiment, which is further underlined by the faculty. When like-minded students, understood as people sharing a high level of ambitions in relation to new venture creation and a proactive behavior, are gathered under the same roof, they are inspired by each other to create value for themselves and others. This could be seen as the main pillar behind creating and maintaining a community of practice that enhances entrepreneurial learning. Further the students in all programs highlighted the positive effect of gathering a group of likeminded people and argued that the "magic" within the program lies in the people attending, rather than the program itself. The level of responsibility given to the students together with the students' willingness and ability to take action is highlighted through the empirical findings as an important element of the creation of a learning environment. This underlines how the social context of learning is not just learned behaviors, shared values and norms as a result of the work of the faculty, but rather a product of the interaction between the students within the study program.

5.3.5 Summary

This subchapter underlines how student-to-student learning stimulates entrepreneurial learning through a community of practice. Pittaway and Cope (2007) argue that entrepreneurial learning requires a community of practice created through interaction between students and faculty. This stands in contrast to the empirical findings, which suggests that a learning environment within ABEE mainly originates from interaction between the students. This complements the perspective of Kolb and Kolb (2008) who state that learning is a construct of the students' experiences within the social environment. Based on this it could be argued that entrepreneurial learning with other individual's complements individual learning. The empirical findings underline how knowledge is created through collective learning, based on extensive *knowledge sharing*, the creation of a *supportive* culture who makes the students celebrate each other's victories instead of envying them, and last, but not least an *engaging* environment driven by the students' proactive behavior. These empirical findings empower the theory of Hamilton (2011), who argues that learning should be understood within its

social context as an inseparable aspect of social practice. The empirical findings have enabled the authors to open the “black box” of entrepreneurial learning, which has resulted in a better understanding of how a community of practice stimulates entrepreneurial learning.

CHAPTER 6: CONCLUSION AND IMPLICATIONS

In this thesis, the authors have investigated what literature says about entrepreneurship education and action-based learning, which was further used as the basis for developing a conceptual model of ABEL. A multiple case study of three ABEE programs have been conducted, with the purpose of obtaining empirical data of how entrepreneurial learning materializes through interaction. Based on the empirical findings, the authors have been able to revise the initial conceptual model by an in-depth case study focusing on of how a community of practice enhances learning. It was found that entrepreneurial learning is stimulated by support, knowledge transfer and engagement among students, where learning should be seen as a collective phenomenon rather than only individual. The empirical study has enabled the authors to open the “black box” of entrepreneurial learning within ABEE, and filled a knowledge gap within existing literature concerning the existence and impact of student-to-student learning within a learning environment. The authors will conclude by answering the following research questions, followed by practical implications for educational programs, faculty and students.

6.1 Research Questions

RQ1: How does Faculty Deliver Action-Based Entrepreneurial Learning?

The authors found that the faculty plays an important role in delivering ABEE, where they provide an educational framework that the students can operate within. The students expect them to deliver a toolbox of entrepreneurial perspectives. Equally important is how the faculty provides the students with a freedom to act upon these theories and use them as guidelines. However, even though the empirical study implies that a certain level of confidence has to be given to the students, it also underlines how faculty is essential for the students’ reflection. The students tend to involve themselves in many activities, and the need for guidance concerning focusing their actions, as well as reflection upon them became evident. In accordance with the empirical findings, it could be argued that the faculty should express interest in the students’ work and make the students feel recognized. This is because these study programs require a lot of effort from the students. The faculty should further provide the

students with a mentorship program within a business network, connect the students with the alumni network, as well as other human resources that can stimulate knowledge transfer and reflection. The most important finding in relation to this research question is how the faculty should operate as facilitators, rather than controllers, through both the action of supporting and challenging the students.

RQ2: How do Students Practice Action-Based Entrepreneurial Learning?

The literature provides faculty with much attention through their role as facilitators of learning, and less focus on what the students bring to the table. However, the empirical findings show that the students should be given more attention based on their contribution within the study program. ABEE requires action-based students who take responsibility for their own learning through proactive behavior. This underlines how the educational program rather amplifies their proactiveness, than creating it. Through the students' initiative to take action and their contribution of feedback, students can be discussed as important for the creation of an unique learning environment. Since the education requires hard effort, the students need a certain level of motivation to acquire entrepreneurial competences. Students that are selected into the program should hold a proactive behavior prior to the program, which gives like-minded people who engage and motivate each other to put a lot of effort into the program. Further, the students should take advantage of each other's educational backgrounds and competencies by continuously transferring knowledge. In relation to this research question, entrepreneurial learning could be argued as student-driven. Further, the students could be looked upon as givers, not only takers, through their creation of value outside the classroom, as well as contributing with feedback on the program content.

RQ3: How does a Community of Practice Stimulate Action-Based Entrepreneurial Learning?

The "magic" within ABEE lies in the community of practice, which current literature describes as created through the interaction between students and faculty. The empirical findings suggest that the "magic" within ABEE could hardly be understood without studying the interaction between students within a learning environment. It has become evident that entrepreneurial competences are socially constructed between students, driven by engagement, support and the share of knowledge within a community of practice. Students with proactive behavior, different educational backgrounds, their motivation for becoming entrepreneurial and the effort they put into their work, is seen as essential to create an

engaging, supportive and sharing culture. The culture created within ABEE programs is seen as essential to how students learn, since knowledge is seen as a collective activity where the learning becomes everyone's responsibility. In accordance with the empirical findings, it could be argued that it is the students who are the "magic sauce", not the program structure and content itself. Since students themselves are seen as important for gaining entrepreneurial competences, the faculty should be aware of selecting students with both proactive behavior and an intention to become entrepreneurial, based on their high level of ambitions and motivation to start their own venture. Through investigating the learning environment within ABEE programs, the authors have been able to open the "black box" of entrepreneurial learning. The most important finding in relation to the last research question is how learning materializes through collective learning, understood as student-to-student learning, driven by engagement, support and the share of knowledge. Even though culture is dynamically created, the authors suggest these three factors as constant dimensions of the culture.

6.2 Implications for Educational Institutions

The results of this thesis have practical implications for higher educational institutions that deliver ABEE. This study implies the challenge of finding a single recipe for how the content in such a study program should be delivered and practiced. You cannot judge a book by its cover, and the same goes for ABEE, where the "black box" of learning has to be opened to grasp the meaning of entrepreneurial learning as student-to-student learning. The empirical findings show that when students are given a context where they can test out their knowledge and competences without any risk for one or two years, it leads to a culture that is challenging to describe without experiencing it yourself. Due to this, higher educational institutions cannot expect to obtain the same results by only copying the program structure and content. In line with the argument that the creation of a community of practice is not a spontaneous and emerging process, but rather established over time (Wenger et al., 2002), the authors recommend higher educational institutions who want to establish ABEE to observe the learning environment from within, and over time.

Delivering ABEE requires extensive financial and human resources, which underlines the contextual requirements of establishing such education. In other words, access to, or the lack of access to resources could have implications for both the possibility of delivering this kind of education and how learning is practiced within such a program. This thesis underlines the importance of providing business mentors to the students, who are seen as essential for

enhancing their entrepreneurial learning. Based on this, higher educational institutions offering ABEE should include business mentors as internal resources and develop a mentorship program adjusted to the students need. Further, it has become evident that the faculty plays an important role by facilitating the student's reflection. This underline the need for faculty having resources available to follow up the students, both on personal and academic level, to be able to offer this facilitation.

6.3 Implications for Students

This thesis provides students with a deeper understanding of their responsibility to gain entrepreneurial competences. When the students realize their role within ABEE, they are able to adjust their expectations to the educational program and act accordingly. One of the main contributions of this thesis is providing students with valuable insights into their learning process. It is challenging to understanding how learning occurs when you are in the midst of it, which points to the need for continuous reflection of learning. Further, since ABEL has shown to be affected by a student-driven learning environment, the authors argue that the students have to be aware of their role within a community of practice. This could satisfy the students' search for value and relevance of their actions, which relates to personal objectives for attending the program. Additionally, this thesis emphasizes how students should hold a proactive behavior prior to the program, which indicates that they easily take initiative and are self-driven. As mentioned, these programs should further amplify this proactiveness. Since ABEE programs require students to be fully engaged and take responsibility for their own learning through a proactive behavior, this thesis underlines how the students need to take initiative to acquire resources that are essential for their learning process. These findings could be relevant for students practicing ABEL, both through an educational program, but also in relation to interdisciplinary courses. Additionally, the findings provide valuable insights for students operating within communities or organizations that emphasize the method of learning-by-doing, but not necessarily operate within an academic context.

CHAPTER 7: LIMITATIONS AND FURTHER RESEARCH

This thesis contributes with insights on innovative learning methods on a higher educational level, and will not necessarily be applicable for traditional entrepreneurial learning methods, or transferable to entrepreneurship education outside an academic context. The empirical findings should be seen as guidelines, rather than complete and exhaustive. The empirical study has enabled the authors to revise the conceptual model, which emphasizes learning as a social phenomenon. Since the research design of this thesis was not suitable for studying individual learning, the revised model does not take into account the individual learning cycle, however, the authors still see it as interesting to conduct further research on the relation between individual and collective learning. Even though it could be argued that the emergence of an entrepreneurial identity is a social and contextual process, rather than a specific set of entrepreneurial traits, this perspective is challenged by the difficulty of observing this process (Middleton, 2013).

The authors have conducted an exploratory theory building study, which contributes with new insights in the research field of entrepreneurship education. According to Lackéus (2016, p. 66) *“Managing and structuring an organization that attempts to infuse entrepreneurship into education is arguably easier if it is possible to articulate clear goals of what to do and if members of the organization know how and why to do it”*. The revised conceptual model emphasizes the importance of creating a learning environment that stimulates interaction between students, which further enhances their learning. However, this notion has not been fully investigated, and the authors see it as relevant to test the revised model on other venture creation programs that can complement and empower the empirical findings of this thesis. Further, the authors recommend to test the revised conceptual model on higher educational institutions who focus on a more traditional learning approach, where starting a new venture is not necessary a part of the educational curriculum. This to identify similarities and differences between the learning environments created in ABEE, and those created in more traditional entrepreneurship education programs.

The current literature gives faculty extensive attention when discussing how students gain entrepreneurial competences. However, the empirical findings underpin the importance of the students' role, and how co-students have a significant impact on the individual student's development of entrepreneurial competences. The authors have identified a need for more

extensive research on how the students' entrepreneurial competences develop throughout the program, together with insights on how faculty amplifies these competences. The facilitation and offer of business mentors has shown to enhance the student's entrepreneurial learning. The authors see it as relevant to conduct further research on how these educational programs should design their mentorship programs to best enhance the students' learning. Additionally, the empirical findings pointed to how the duration of the educational program could affect the students' reflection and the applicability of theoretical perspectives. Students at NSE and CSE emphasized that theory is looked upon as much more applicable to their activities the second year of study, and how their ability to reflect upon their learning increased the second year. Based on this the authors see it interesting to conduct further research on the possible implications of the duration of an ABEE program.

The share of knowledge between co-students has shown to be an important activity for enhancing the students' entrepreneurial learning. The authors have identified a need for more extensive research on how the share of knowledge affects the entrepreneurial learning. Further, the authors found that individual entrepreneurial learning cannot be isolated from its social context. The concept of collective learning encompasses student-to-student learning, which underlines that studying learning through an individual learning perspective alone may fail to provide a holistic picture. Based on this the authors recommend to refine research question three in this thesis, and suggest further research to investigate how student-to-student learning enhances action-based entrepreneurial learning within a community of practice.

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APPENDIX

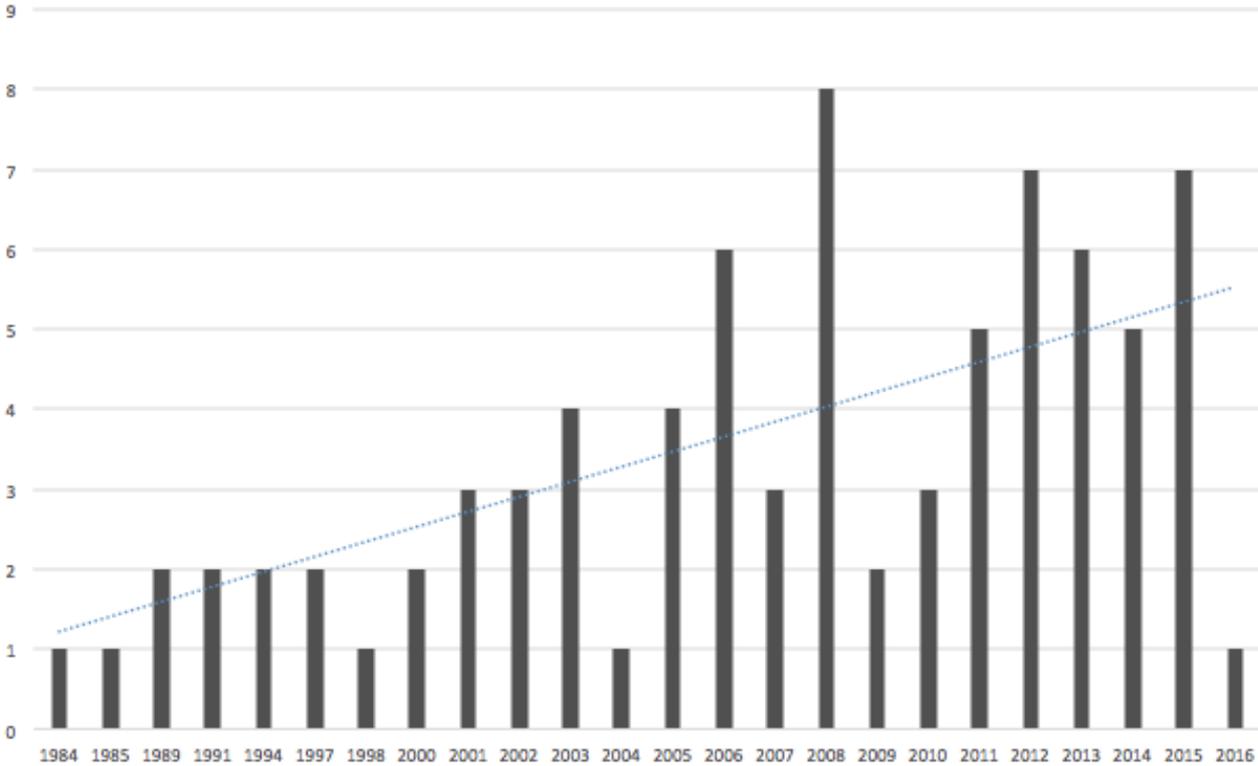
Appendix 1: Overview of Articles Found through Structural Searches

Keywords (String)	Result	Abstract read	Articles read	Articles used	Authors and publication of used articles
Action-Based Entrepreneurial Learning	4	2	2	2	Gielnik et al. (2015), Rasmussen and Sørheim (2006)
Entrepreneurship education	175	60	16	8	Henry et al. (2005), Gielnik et al. (2015), Duval-Couetil (2013), Harkema and Schout (2008), Gartner and Vesper (1994), Rasmussen and Sørheim (2006), Fayolle (2013), Vesper and Gartner (1997)
Experiential learning AND entrepreneurship education	17	17	14	7	Pittaway and Cope (2007), Pittaway and Thorpe (2012), Pittaway et al. (2015), Kolb and Kolb (2005), Zappe et al (2013), Kolb and Kolb (2008), Minniti and Bygrave (2001),
Learning by doing AND Entrepreneurship education	8	8	4	2	Pittaway et al. (2015), Rasmussen and Sørheim (2006)
Entrepreneurship education AND programs	269	80	15	8	Vesper and Gartner (1997), Carayannis et al. (2003), Rasmussen and Sørheim (2006), Harkema and Schout (2008), Zappe et al. (2013), Duval-Couetil (2013), Lehman (2013), Kristensen (1999)

Appendix 2: Literature Found by Forward and Backward Snowballing

	Found in	New articles
Reference list	Rasmussen and Sørheim (2006)	Bruyat and Julien (2001), Fiet (2001), Gibb (2002), Laukannen (2000)
	Gielnik et al (2015)	Kuratko (2005)
	Duval-Couetil (2013)	Fayolle (2013), Matlay (2005)
	Harkema and Schout (2008)	Kolb (1984)
	Pittaway and Cope (2007)	Cope (2003)
	Pittway and Thorpe (2012)	Lave (1991), Pittaway et al (2010)
	Kolb and Kolb (2005)	Politis (2005)
	Lackéus et al (2011)	Mwasalwiba (2010), Taatila (2010)
	Ollila and Middleton (2011)	Heinonen and Poikkijoki (2006)
	Cited in	Lackéus (2014)
Arasti et al (2012)		Venesaar (2008)
Klofsten and Serio (2008)		Klofsten (2008)
Strings in Google Scholar	String: Community of Practice AND students AND faculty	Wenger and Snyder (2000), Drath and Palus (1994)
	String: Entrepreneurship Education AND Learning Methods	Taatila (2010), Arasti et al (2012), Frazão et al (2008), Hamilton (2011),
	String: Entrepreneurial Learning AND Practice AND Education	Klofsten and Serio (2008), Koch (2003), Hägg and Peltonen (2014), Neck et al. (2011)
	String: Program Content AND Entrepreneurial Learning	Kyrø (2015), Lockyer and Adams (2014), Zimmermann (1990), Burgoyne (1989), Sanchez (2011)
	String: Collective Learning	Markman and Baron (2003), Rae (2005), Fletcher (2001), Fletcher (2007), Lundqvist et al. (2010), Granovetter (2000), Kjernland (2014), Raelin (1997), Rogoff (1990), Biesta and Barbules (2003), Giddens (1991), MacPherson (2009), Salovey and Mayer (1990)
	String: Recruitment to education	Markman and Baron (2003), Unger et al. (2009), Baum et al. (2001), Bird (1989), Souitaris et al. (2007) Baum and Locke (2004)

Appendix 3: Number of Articles per Year



Appendix 4: Interview Guide for Students and Faculty

STUDENTS

Introduction: (10 min)

- Tell them about ourselves (theme and purpose of the interview)
- What was your motivation for applying for this study program?

Learning Environment (25 min)

- Could you describe the atmosphere within this study program?
 - And does this atmosphere affect your learning? If so, could you exemplify?
- Tell us about the social environment within the study program
- Which group of actors do you interact with in the context of the program?
 - Who takes initiative to this interaction?
 - How does this interaction contribute in your learning process?
- Who plays a major role for your learning? And why?

Students' role (20 min)

- How do you learn in the context of this study program?
- Do you take initiative for your own learning? If so, how?
- How do you acquire knowledge during your learning process?
 - Could you exemplify? (Human resources)
- Do you exchange this knowledge with others? If so, whom?
- Could you tell us about the relationship with your co-students? (*Note: both fourth and fifth grade*)

Faculty's role (20 min)

- Which human resources do you use in your learning process?
- How often do you use these resources?
- Do you obtain these human resources by yourself, or have someone else made them available for you?
- Tell us about the involvement of the faculty in your learning process on a weekly basis
 - Could you exemplify with some situations?
 - How does this involvement affect your learning process?
- What do you think the faculty should contribute with in your learning process?
 - Do they meet your expectations?
 - (*If more/less engagement - how will this affect your learning*)

What will happen now? (5 min)

- Read and comment the transcript?
- Possible to email follow up questions?

FACULTY

Introduction: (13 min)

- Tell them about ourselves (theme and purpose of the interview)
- What is your role in the program?
- What is your motivation for being a part of this program?
- What are the goals and the strategy of the study program?

Learning environment (15 min)

- Could you describe the atmosphere within this study program?
 - And do you believe this atmosphere affects the student's learning? If so, how?
- Which group of actors (stakeholders) do the students interact with in the context of the program?
 - Who takes initiative to this interaction?
 - How does this interaction contribute in the student's learning process?
- Who plays a major role (key stakeholders) for the students learning?
 - Could you exemplify in what way they play a major role?

Faculty's role (15 min)

- How will you describe the learning process within the study program?
- Tell us about your involvement in students learning process on a weekly basis?
 - Could you exemplify with concrete situations?
- Do you make human resources available for the students? If so, which ones?
 - How does the students use these resources in their learning process?
- What is your primary function in the student's' learning process? (*note: support, challenge, content and feedback (our model)*)

Students' role (15 min)

- How do students acquire knowledge during their learning process?
 - Could you exemplify?
 - (Do students take initiative for their own learning? If so, how?)
- Could you tell us about your interaction with the students? (*note: both fourth and fifth grade*)
- Does the students have an impact on the development of the program? If so, in what way?

What will happen now? (2 min)

- Read and comment the transcript?
- Possible to email follow up questions?

Appendix 5: Demographic Data

Focus Group Participant Demographics			
Your gender: Male <input type="radio"/> Female <input type="radio"/>	Your Age: 21-23 <input type="radio"/> 24-26 <input type="radio"/> 27-29 <input type="radio"/> 30-32 <input type="radio"/>	Educational Background: Technology <input type="radio"/> Engineering <input type="radio"/> Scientific subjects <input type="radio"/> Social Science <input type="radio"/> Other	Did you have any start-up experience before attending the study program?: Yes <input type="radio"/> No <input type="radio"/>