

DISSERTATIONS IN
**EDUCATION,
HUMANITIES,
AND THEOLOGY**

MARJA-LIISA KAKKONEN

*Learning Entrepreneurial
Competences in an
International Undergraduate
Degree Programme*

A Follow-Up Study

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ABSTRACT

This follow-up study addresses learning entrepreneurial competences in one international programme at bachelor's level in Finland. The study was longitudinal and interpretative in nature. The research task of the study was to ascertain to what extent students' entrepreneurial competences developed on the degree programme. The research task was accomplished by conducting six subsidiary-studies and by answering the respective research questions one by one. The objectives of the study were achieved through increasing the understanding of learning entrepreneurial competences in higher education. The study examined the perceptions of the students by mixing different research methods.

The findings of this study indicated that competence profiles and entrepreneurial intention are interrelated already in the beginning of the studies. Further, the learning objectives of the degree programme are realistic for the first-year students to be achieved. There lies also a paradox: self-regulation in learning is expected, yet the students may lack the abilities for self-directed learning and meta-cognitive learning strategies. In addition, use of creativity is not so much involved in studies as in study methods. Even then, the students take the personal risks of success or failure; i.e. the students are not sufficiently encouraged and supported by teachers. The entrepreneurial attitudes of the students were quite positive, yet the attitudes towards entrepreneurship remained stable or declined during studies regardless of the desire to promote them. The degree programme had a positive influence on the development of business competences, but not on entrepreneurial intention, even though the aim is that some of the students would actually set up their own businesses. The findings of this study moreover indicated that entrepreneurial intention was apparently connected with the nature of the goals (performance vs. mastery) and the nature of motivation (intrinsic vs. extrinsic).

It can be concluded that there is a need for changes in pedagogy and learning environment, if the aim is to promote the entrepreneurial competences of students more and increase their new business creation. Since the pedagogy relates to the objectives of the entrepreneurship education, it is important to clarify the objectives first. Further, teachers' conceptions of teaching and learning should be discussed (cf.

a positivist vs. constructivist approach). At the end of the report practical implications for further developing teaching entrepreneurial competences are presented, likewise how entrepreneurial learning can be enhanced.

Keywords: business students, competences, entrepreneurship, intention, learning, perceptions, UAS

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ABSTRAKTI

Tämä tutkimus seurasi liiketalouden opiskelijoiden yrittäjyyskompetenssien kehittymistä yhden ammattikorkeakoulun kansainvälisessä ohjelmassa Suomessa. Kyseessä oli tulkinnallinen seurantatutkimus. Tutkimustehtävänä oli selvittää, missä määrin opiskelijoiden yrittäjyyskompetenssit kehittyvät tämän ohjelman aikana. Seurantatutkimus toteutettiin kuudella erillisellä osatutkimuksella, joilla kullakin oli omat tavoitteensa ja tutkimuskysymyksensä. Tutkimuksen kohteena oli opiskelijoiden käsitykset kompetensseistaan, ja tutkimusaineisto kerättiin useilla eri metodeilla.

Tutkimustulosten mukaan opiskelijoiden erilaiset kompetenssiprofiilit ja yrittäjyysintentio liittyvät toisiinsa jo opintojen alkuvaiheessa. Koulutusohjelman ensimmäisen lukuvuoden oppimistavoitteet näyttävät olevan realistisia ja pääsääntöisesti ne saavutetaan. Oppimisen suhteen ilmenee kuitenkin myös ristiriita: opiskelijoilta odotetaan itseohjautuvuutta oppimisessa, mutta heillä ei välttämättä ole siihen valmiuksia eikä riittävästi metakognitiivisia oppimisstrategioita. Myös luovuuden käyttöä opinnoissa odotetaan jossain määrin, mutta opettajat eivät kuitenkaan tue ja rohkaise heitä siihen riittävästi. Kansainvälisten opiskelijoiden asenteet yrittäjyyttä kohtaan ovat melko positiiviset. Ne pysyvät kuitenkin samalla tasolla tai jopa muuttuvat negatiivisemmiksi opintojen aikana. Vaikka liiketalouteen liittyvät kompetenssit kehittyvät pääsääntöisesti koulutusohjelman tavoitteiden mukaisesti, opiskelijoiden yrittäjyysintentio pysyy melko samana tai laskee hieman opintojen aikana. Yrittäjyysintentio näyttää liittyvän siihen, millaiset oppimistavoitteet ja motivaatio opiskelijalla on.

Tutkimustulosten perusteella voidaan esittää johtopäätös, että jos koulutusohjelman tavoitteena on edistää yrittäjyyskompetenssien oppimista edelleen ja lisätä opiskelijoiden perustamien yritysten määrää opintojen aikana tai valmistumisen jälkeen, koulutusohjelman pedagogiikkaa ja oppimisympäristöjä tulee kehittää ja muuttaa paremmin sitä tukevaksi. Koska pedagogiikka tulisi valita koulutuksen tavoitteiden mukaan, on tärkeää määrittää ensin yrittäjyyskoulutuksen tavoitteet. Lisäksi opettajien opetus- ja oppimiskäsityksistä tulisi keskustella enemmän (vrt. positivistinen vs. konstruktivistinen käsitys). Tämän raportin lopussa esitetään suosituksia ja mahdollisia toimenpide-ehdotuksia muutosten käynnistämiseksi.

Avainsanat: AMK, intentio, kompetenssit, käsitykset, liiketoiminnan opiskelijat, oppiminen, yrittäjyys

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Doing this dissertation has been an interesting and fascinating challenge for me. During the process I have had various new experiences in learning and in doing research as well as in interacting with other academics in Finland and abroad. However, the best learning experiences I have had are those with the students who participated in this study and whose learning process and learning outcomes I have followed during these years. They have known my interest in doing this study and showed great patience in participating in the subsidiary-studies. Therefore I am grateful to them for their contribution and I want to thank them first.

Secondly I want to thank my supervisors, Professor Jyri Manninen and Professor Paula Kyrö. They are demanding and helpful experts in their field, and they have given me valuable comments on my papers in order to develop them further. I also want to thank Mikkeli University of Applied Sciences (MUAS) as my employer, for smoothing the way for this dissertation. My post as Head of the Business Management programme in 2007- 2011 enabled trustful and open relationships with the students. MUAS also facilitated my conference participations and supported most of the conference trips financially.

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Mikkeli, November 2012

Marja-Liisa Kakkonen

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ORIGINAL ARTICLES

- I Kakkonen, M-L. 2012. The relationship between self-perceived generic competences and entrepreneurial intention. *Journal of Industry & Higher Education. Special Issue on Entrepreneurship Education* 26 (3), 1 – 11. The first version of the paper was presented at Internationalizing Entrepreneurship Education (IntEnt2010) conference in Arnhem, Netherlands July 5 - 8, 2010.
- II Kakkonen, M-L. 2010. Entrepreneurial Learning and Learning Strategies of the First Year Business Students in Higher Education. *International Journal of Euro Mediterranean Studies* 3 (1), 85 – 102. The first version of the paper was presented at EMUNI, the Higher Education & Research/ Entrepreneurial Learning and the Role of Universities conference in Portoroz, Slovenia September 23 - 25, 2010.
- III Kakkonen, M-L. 2010. Business Students' Perceptions of the Use of Creativity in Their Studies. *Journal Advances in Higher Education* 3 (1), 23 – 40. The first version of the paper was presented at Network of European Institutions of Higher Education (SPACE) – conference, Kavala, Greece October 8 - 10, 2010.
- IV Kakkonen, M-L. 2010. International Business Students' Attitudes of Entrepreneurship. *Advances in Business-Related Scientific Research Journal* 1 (1), 67 – 78. The first version of the paper was presented at the Advances in Business-Related Scientific Research (ABSCR 2010) Conference in Olbia, Italy September 8 - 9, 2010.
- V Kakkonen, M-L. 2011. Students' perceptions of their business competences and entrepreneurial intention. *Management Journal* 6 (3): 225 – 243. The first version of the paper was presented at the Management International Conference (MIC2010) in Ankara, Turkey, in November 23 – 25, 2010.
- VI Kakkonen, M-L. 2011. Business students' self-perceived entrepreneurial characteristics and competences at the beginning and at the end of their studies. *Advances in Business-Related Scientific Research Journal* 2 (1), 111-128. The first version of the paper was presented at the Advanced in Business-Related Research (ABSCR2011) Conference in Venice, Italy, June 1 - 3, 2011 and won the Best Paper Award.

Copies of the articles are appended to the report.

1 Introduction

1.1 IMPORTANCE OF THE TOPIC

Education prepares students to their future. In that world there will be greater uncertainty and complexity, which will demand more entrepreneurial behaviour at different levels. At the global level there are constant changes (e.g. lowering of trade barriers, growth of IT, greater product differentiation), which will put more pressure on individuals as well as collective entrepreneurial behaviour. At the societal level the pressure comes, e.g. from the privatisation of public services, out-sourcing of services, and the growing impact of minority groups in society. At the organizational level, there are ongoing trends, such as downsizing, decentralization, subcontracting and a growing demand for flexibility in the workforce. Finally, at the individual level there will be more and more occupational mobility and job uncertainty in the future work environment, and therefore individuals are more likely to face part-time or fixed term employment, pressure for geographical mobility and also for self-employment. (Henry, Hill & Leitch 2005, 100-101; Gibb 2005, 51-52). Therefore education should generate entrepreneurship at all levels of society. Entrepreneurship education should not therefore be regarded as merely as creating and running businesses; its components include an active and initiative individual, an entrepreneurial learning environment, education and training and active enterprise-promoting policy in society. (COM(2005)548), Frank 2007).

At the same time there is also a need to increase new business creation in Europe (e.g. Henry, Hill & Leitch 2003, 3; Blenker, Dreisler & Kjeldsen 2006, 7). There is demand especially for young people in new business creation. They often have the kind of knowledge, ideas and capacity for identifying with other young people that should be put to better use in the development of new services and products. (COM(2005)548, 12). Therefore most countries are willing to encourage entrepreneurship among students and graduates of higher education institutions. Universities aim at strengthening students' willingness to undertake different kinds of enterprising projects, facilitating the acquisition of entrepreneurial competences as well as enhancing the entrepreneurial intention of students and graduates (Dermol 2010, 27).

It can be concluded that entrepreneurship as a phenomenon covers all levels of society and all its dimensions must be understood, not only those which apply to the creation of new business. Further, since students will become experts during their studies and after graduation, it is also important to support and promote their en-

trepreneurial growth at the various levels. Higher education has its roles, objectives and opportunities for entrepreneurship education. This should be recognized and promoted better in different contexts.

1.2 CONTEXT OF THE STUDY

All the Finnish universities of applied sciences (FUAS) have either adopted an entrepreneurship strategy to promote entrepreneurship or included entrepreneurship in their own development strategies (OPM 2009: 10). In addition, the FUAS have written and adopted a joint entrepreneurial strategy in 2006. According to the strategy and the recommendations (ARENE 2011) for all FUAS there are common entrepreneurship promotion activities. The recommendations have two main goals: 1) that the graduates should learn an entrepreneurial mind-set and behaviour, and 2) that about 15% of the graduates should set up their own businesses within 10 years of graduation. In other words, on the strength of their education, these students should achieve the additional competences and experiences needed within ten years and become entrepreneurs. Nevertheless, the foundation is constructed during the degree education already.

Finnish higher education institutions are internationally networked and actively support internationalization, competitiveness and well-being in society. Talented non-Finnish students are attracted by the high quality education as well as by the opportunities of Finnish working life. (Ministry of Education 2009:23, 33). In terms of FUAS, there are 25 institutions in Finland. Most of them offering international business programmes at bachelor's level for foreign students. There is a joint application period and process among the FUAS in the Internet enabling foreign applicants to apply. The scores of the applicants are ranked and the best applicants are selected in order of merit to study in the FUAS. Mikkeli University of Applied Sciences (MUAS) is one of these and has offered the programme since 1995 under the title Degree Programme in Business Management. MUAS also has a pedagogical strategy in which the role of entrepreneurship education has been included and described. In addition, there was curriculum development work (OPSU2007) by each department and programme in MUAS during the spring semester 2007. The new curriculum had been planned so that entrepreneurship has a strong emphasis in the programme and its courses. Furthermore, once a new group of students started their studies in the autumn 2007, it provided a good opportunity to monitor their learning process and learning outcomes for the first time according to the new curriculum during their studies 2007-2010.

1.3 OBJECTIVES, RESEARCH QUESTIONS AND LIMITATIONS OF THE STUDY

Even though entrepreneurship education in formal education has been stimulated and supported in many ways by a number of European countries and the European Union (EU) since the 1990's (e.g. Gravenitz, Harhoff & Weber 2010; Johansen 2010) there are scholars who claim that the present higher education system cannot develop

students' motivation, competences and skills related to innovations and entrepreneurship. Earlier studies also report some contradictory findings. They show that students' knowledge, skills and awareness of entrepreneurship as an option have generally been increased during their studies, yet the intention to set up one's own business seems to be stable or even decline during the study years (Leskinen 1999, Graevenitz, Harhoff & Weber 2010; Oosterbeek, van Praag & Ijsselstein 2010; Pihkala 2008). In other words, education has not the expected influences in terms of acquiring entrepreneurial competences. Hence there is call for changes in didactics, pedagogy and contexts (Blenker, Dreisler, Färgemann & Kjeldsen 2008; 50; Kirby 2004, 510). Such changes in pedagogical approach to reach genuine entrepreneurial learning can be questioned, but realizing this can be considered the first stage in developing new practices for learning entrepreneurial competences. (Kyrö & Ripatti 2006). All in all, since the topic is actual and relevant, it is relevant to understand and learn more about the topic from different perspectives.

Further, numerous studies have been conducted on learning entrepreneurship competences in higher education, also through students' self-assessment, but often they have been cross-sectional studies (e.g. Oosterbeek, van Praag & Ijsselstein 2010; Graevenitz, Harhoff & Weber 2010), and more longitudinal studies are needed in order to improve the understanding of the development of the learning outcomes (e.g. Pihkala 2008). Since longitudinal studies are more difficult and demanding to arrange in practice, little is known about the development of entrepreneurial competences during the whole degree programme. The present study was longitudinal and followed the learning process and outcomes of one student group in 2007-2010. The study addresses the learning entrepreneurial competences of students on the programme, and it is longitudinal and interpretative in nature. The research task was to ascertain *to what extent entrepreneurial competences of students developed during the degree programme*. To accomplish the research task of the multi-year study, six subsidiary-studies were conducted. The research objectives and research questions of the subsidiary-studies are presented in Table 1.

Finally, some limitations were imposed on the study, which should be taken into account. First of all, this follow-up study focused on only one student group to understand the learning entrepreneurial competences of these students. The study examined the students' perceptions of the competences, but these competences were not verified or tested. It is worth emphasising that one limitation was related to the concept of entrepreneurial intention, which refers to the likelihood of starting up a new venture. In practice, intentions are determined by attitudes which, in turn, are affected by personal traits and situational variables. (Souitaris, Zerbinatti & Al-Lahamp 2007, 568). Nevertheless, the entrepreneurial intention was not the focus of the study as such, although it was included into the entrepreneurial competences of the students.

Table 1. Research objectives and questions of the subsidiary-studies

Study 1	<p>■ to examine and understand the self-perceived competences of international students when they started their degree studies and how these competences are related to their self-perceived entrepreneurial intention (e.g. van Assen 2000; Berman & Ritchie 2006; Gonzi 2003)</p> <p>➔ How do the competence profiles of the students differ from each other based on their entrepreneurial intention in the beginning of their studies? (e.g. Vaastra & de Vries 2007)</p>
Study 2	<p>■ to find out what the business students learn in terms of entrepreneurship and what strategies they use in their learning during the first year studies. (e.g. Erikson 2003)</p> <p>➔ What are the main outcomes of entrepreneurial learning of business students during their first year? (e.g. Frank 2007; Gibb 2005; Ristimäki 2004a+b)</p> <p>➔ What strategies do the business students demonstrate to use in their most significant learning experiences of the first year? (e.g. Clayton et al. 2010; Huang 2008; Lan 1996)</p>
Study 3	<p>■ to explore and understand students' perceptions related to the use of creativity in their studies and the discouraging and promoting factors in using creativity in higher education studies (e.g. Amabile 1998 & 2001; Bowkett 2006; Epstein 2000)</p> <p>➔ How has creativity been used in the studies? (e.g. Gundry & Kickul 1996; Kirby 2004)</p> <p>➔ What kinds of risks have been taken in applying creativity in the studies? (e.g. Dewett 2004; Jalan & Kleiner 1995; Kyrö & Carrier 2005; Kyrö & Ripatti 2006)</p> <p>➔ How the use of creativity could be increased in the studies? (e.g. Amabile 1998 & 2001; Robinson & Stern 1997; Sternberg & Lubart 2003)</p>
Study 4	<p>■ to find out the attitudes of business students towards entrepreneurship in a business management programme in Finland.(e.g. Ajzen 2001; Chen & Lai 2010)</p> <p>➔ How does gender influence attitudes towards entrepreneurship? (e.g. Ljunggren & Kolvereid 1996; Verheul, van Stel & Thurik 2006)</p> <p>➔ How are entrepreneurial characteristics and interest for one's own enterprise as well as entrepreneurial motives and barriers of entrepreneurship related to each other? (e.g. Chen & Lai 2010; Gibb 2005; Henry et al. 2003; Ristimäki 2004)</p> <p>➔ How is the perceived entrepreneurial intention related to there being an entrepreneur in the core family or among acquaintances? (e.g. Autio et al. 2001; Urbano 2006)</p> <p>➔ How does the academic year influence attitudes towards entrepreneurship? And further: How do the attitudes of the student groups change between the different academic years? (e.g. Ajzen 2001; Degeorge & Fayolle 2008; Leskinen 1999)</p>
Study 5	<p>■ to find out how the business students perceived their professional competences related to business and entrepreneurship, and to examine the students' self-perceived intention to set up their own businesses after the graduation.(e.g. Degeorge & Fayolle 2008; Gibb 2005; Kickul et al. 2010)</p> <p>➔ How do the students perceive their business competences and entrepreneurial intention after completing the professional studies in the programme? (e.g. Leskinen 1999, Paajanen 2001; Ristimäki 2004a)</p> <p>➔ What kinds of differences of the perceptions exist between different student groups by academic years? (e.g. Arnold et al. 1999; Pihkala 2008)</p> <p>➔ What kinds of differences of the perceptions related to the business competences and entrepreneurial intentions exist between female and male students? (e.g. Ljunggren & Kolvereid 1996; Rodrigues et al. 2010; Urbano 2006)</p>
Study 6	<p>■ to examine and understand the development of entrepreneurial characteristics and competences of business students during a bachelor programme as well as the relationship between the nature of goals and motivation of the students at the beginning of the studies and the outcomes at the end of the studies. (Gibb 2005; Clayton et al. 2010; Ruohotie 2002b)</p> <p>➔ How are the entrepreneurial competences of business students developed during the degree programme? (e.g. Eraut 1999; Nab et al. 2010)</p> <p>➔ What kind of relationship is there between the nature of the goals and level of motivation at the beginning and the learning outcomes at the end of the studies? (e.g. Barkouksis et al. 2008; Kuyber et al. 2000; Lei 2010; Pintrich & Schunk 2002)</p>

The study was conducted only from the students' perspectives relying on self-assessment, not by fellow students or teachers. Further, only the perceptions expressed have been included in the data. In other words, only the perceptions which the students were willing and able to express in numbers or words have been included. However, the findings were not returned to the subjects being studied and therefore no respondent validation (Silverman 2001, 233; Wilson 2010; 123) was used as a validation method of the study. Further, although quantitative subsidiary-studies were also conducted to enrich both the findings and the theoretical discussion of entrepreneurial competences, the interest was only in what can be achieved in this context within this curriculum and during this follow-up study 2007-2010, and therefore the study aimed only at the theoretical generalization of the findings.

1.4 RESEARCH PROCESS

The research process started in 2007 and was completed in 2012 including the publishing all the articles and this report. During the research process six subsidiary-studies were carried out and reported individually (see Table 2). In practice, the first subsidiary-study was carried out in autumn 2007 and was based on the expectations of the students regarding their studies as well as the descriptions of their personal strengths and weaknesses in terms of entrepreneurship. The paper was presented at the Network of European Institutions of Higher Education (SPACE) Conference in Valencia, Spain in 2008 and afterwards it was published as an article (Kakkonen 2008). However, the paper was rewritten and the revised conference paper was presented at Internationalizing Entrepreneurship Education (IntEnt) in Arnhem, Netherlands in July 2010. It was submitted for publication as an article and was published in June 2012.

The second subsidiary-study was carried out in spring 2008 and concerned entrepreneurial learning of the students during their first academic year. The conference paper was presented at the EMUNI Higher Education & Research Conference, which focused on entrepreneurial learning, in Portoroz, Slovenia in September 2010. Next, the third subsidiary-study was related to the use of creativity in the studies and was conducted at the end of the spring term 2008. The conference paper was presented at the Network of European Institutions of Higher Education (SPACE) conference in Kavala, Greece in October 2010. Then the fourth subsidiary-study was carried out in two phases: in 2008 and in 2009 in order to compare the development of the students' attitudes towards entrepreneurship. The conference paper was presented at the Advances in Business-Related Scientific Research Conference in Olbia, Italy in September 2010. The fifth subsidiary-study was implemented in 2010. The findings were presented at the Management International (MIC) Conference in Ankara, Turkey in November 2010. Finally, the data of sixth subsidiary-study were collected at the beginning of the students' studies, during the second term and again at the time of the graduation. The conference paper of the last subsidiary-study was presented in Venice, Italy in June 2011. The final phase of the dissertation was to merge the results and write the synthesis of the subsidiary-studies as an introduction part of the report.

Table 2. Main phases of the research process

		2007	2008	2009	2010	2011	2012
Study 1	Data collection and analysis	X					
	Presentation of the conference paper (two different versions of the paper written up and published)		(X)		X		
	Revision of the paper for the article		(X)			X	
Study 2	Data collection and analysis		X				
	Presentation of the conference paper				X		
	Revision of the paper for the article				X		
Study 3	Data collection and analysis		X				
	Presentation of the conference paper				X		
	Revision of the paper for the article				X		
Study 4	Data collection and analysis		X	X			
	Presentation of the conference paper				X		
	Revision of the paper for the article				X		
Study 5	Data collection and analysis				X		
	Presentation of the conference paper				X		
	Revision of the paper for the article					X	
Study 6	Data collection and analysis	X	X		X		
	Presentation of the conference paper					X	
	Revision of the paper for the article					X	
Synthesis	Merging the results				X	X	X
	Interpretation of the findings				X	X	X
	Writing an introduction to the report				X	X	X

1.5 STRUCTURE OF THE REPORT

This chapter presents the structure of the study report. The report consists of two main parts: The first is an introductory section with the following five main chapters: Introduction, Entrepreneurial Competences, Methodology, Discussion of the Results and Conclusions of the Study. This Introduction chapter presents the importance of the topic and introduces the context of the study. The introductory chapter also presents the objectives and research questions as well as the limitations of the study. Finally, the whole research process and the structure of the report are presented.

Next, the Entrepreneurial Competences chapter introduces the theoretical foundation of the study and positions each article in the framework. The Methodology chapter introduces the methodological bases, participants, data collection and analysis, and also discusses the reliability and validity of the data. The chapter entitled Discussion of the Results introduces the main results and discusses the results of each

subsidiary-study in the light of earlier studies. Finally, the Conclusions of the Study chapter discusses, evaluates the study and its results, discusses the practical implications of the study and makes suggestions for further studies. All in all, the introductory part draws and reflects on the facts and main findings from different phases of the research process. Part two of the report includes the original articles reproduced by permission of the publishers. Table 3 illustrates the structure of the report.

Table 3. Structure of the report

PART I	1 INTRODUCTION 2 ENTREPRENEURIAL COMPETENCES 3 METHODOLOGY 4 DISCUSSION OF THE RESULTS 5 CONCLUSIONS OF THE STUDY REFERENCES APPENDICES
PART II	Article 1: The relationship between self-perceived generic competences and entrepreneurial intention Article 2: Entrepreneurial learning and learning strategies of the first year business students in higher education Article 3: Business students' perceptions of the use of creativity in their studies Article 4: International business students' attitudes of entrepreneurship Article 5: Students' perceptions of their business competences and entrepreneurial intention Article 6: Business students' self-perceived entrepreneurial characteristics and competences at the beginning and at the end of their studies

2 *Entrepreneurial competences*

In order to understand how entrepreneurial competences are considered in this study, competences and entrepreneurial competences are first discussed in light of earlier studies. Then, after having introduced a framework of the entrepreneurial competences for this study, the articles are positioned in it.

2.1 A FRAMEWORK OF ENTREPRENEURIAL COMPETENCES

2.1.1 Competences in higher education

There is a lot of professional literature on competence and qualification, yet the application of the concepts has been inconsistent and there is no consensus on their specific meanings (Ruohotie 2002a, 234). However, to start with the concepts it can be claimed that working life skills consist of qualifications, competences and proficiency. In general, qualifications evolve from the requirements of the work and are institutional and societal in nature. Hanhinen (2010, 59) analyses the concepts of competence (pl: competences) and competency (pl: competencies) in light of earlier studies and makes a distinction between them as follows: Competence refers to a holistic approach to an individual's "skills", whereas competency refers to a part of a competence which is needed to perform a specific task or job. Nevertheless, Väärälä (1995, 47) emphasises that qualifications are neither external requirements of a job nor internal characteristics of an individual, but rather a relation between the individual and the requirements of the job and determined by societal conditions and terms. He proposes five sub-groups of the qualifications (productive-technical, socio-cultural, motivational, adaptation to work, and innovative) and argues that they are also inter-related with each other. All in all, it seems that competences and qualifications are not only related to each other and overlap in place, but are also referred to almost as synonymously in earlier studies.

Nevertheless, competences can be categorized into three groups: vocational competences, which evolve from the formal requirements for performing a certain task, necessary and relevant to accomplish something at work and may vary in different positions within the occupation (e.g. teachers in different positions), and as an individual attribute or as an asset which the individual brings to the work community (for-

mal or actual competences). (Ruohotie 2002a, 109). Hanhinen (2010, 53) also divides competences into three main groups: vocational competences including different sub-dimensions, a general or holistic approach to the competences, and a traditional way to understand competences: this is needed in a certain job and/or is a characteristic of an individual (including knowledge, skills and attitudes).

Thus, the vocational competences can be regarded as a combination of knowledge, skills and behaviour utilised to properly perform a specific task. In terms of formal requirements, human competences can also be regarded as normative in nature. A combination of attributes enables a person to make individual judgments about how he or she should act. The individual judgments are necessarily guided by the set of competence standards developed for any given occupation. (Gonczi 2003, 183). Further, in terms of a more holistic approach competences integrate the personality and behavioural perspectives, and is the synthesis of knowledge, skills, attitudes and personal qualities for the performance of specific professional tasks. (Nab, Pilot, Brinkkemper & Ten Berge 2010, 22). Earlier studies have suggested that there are correlations between students' personal characteristics, their background characteristics and their work-related competences. Further, the results have indicated that competences are acquired partly as a result of personal characteristics and experiences outside the school environment. (Berman & Ritchie 2006, 208). All in all, the concept of competence should not be confined to the area of professional competence, since it also includes more generic competences. Therefore competences can be categorized into generic competences and subject-specific competences.

Although the concept of competence originates in vocational education, it is now also accepted in higher education. Many western countries have applied a competence-based approach to higher education. Courses are defined in terms of outcomes to be achieved by students, and the assessment of learners is based on the criteria stipulated in competence standards related to generic and subject-specific competences. However, there are differences in what "competence-based" means in different countries. The differences between the countries concern how the competence standards are conceptualized, how and by whom they are developed, and the extent to which the standards shape the curriculum and the assessment. (Gonczi 2003). Although there is no consensus on the exact definition of the concept or the content of competence among scholars, there seems to be an agreement on its importance as well as the development of competences in higher education.

In keeping with the European Qualifications Framework (EQF) the Finnish National Qualifications Framework (NQF) has eight levels covering all learning in secondary education, further education, vocational education, and higher education (the bachelor's degree is at level 6). According to the NQF there are recommendations for using generic competences and subject-specific competences in the curricula. In Finland, the competence-based curriculum is shaped by learning outcomes to which the education is geared. The competence based principles of the curriculum determine teaching arrangements, student counselling and accreditation of earlier studies. In the Finnish framework competences are regarded as follows: "Competences are wide-ranging combinations of know-how – composites of knowledge, skills, attitudes possessed by an individual. Competences illustrate the person's proficiency, capacity

and ability to perform in professional tasks. Education aims at enhancing the development of students' competences. Competences are categorised into subject-specific and generic-competences." Therefore higher education institutions must not only facilitate students' professional competence building within a certain academic field, but also the development of the generic competences that can be used outside the learning context (Nygaard et al. 2008, 34).

In fact, at the higher education level the primary purpose of entrepreneurship education should be to develop entrepreneurial capacities and mind-sets. Therefore the objectives of the education programmes should be to develop entrepreneurial drive among students, to train students in the skills they need to set up a business and manage its growth, and to develop the entrepreneurial ability to identify and exploit opportunities. Graduates' new business creation is only part of the possible outcome. (European Commission 2008, 7).

2.1.2 Entrepreneurial competences in earlier studies

In order to achieve a broad and holistic approach to entrepreneurial competences, they can be divided into three categories and listed as follows: entrepreneurial competences, entrepreneurial attributes, and entrepreneurial skills (Gibb 2005, 47 - 48): Entrepreneurial behaviour includes seeking and seizing opportunities, taking initiatives to make things happen, solving problems creatively, managing autonomously, being responsible and owning things, seeing things through, networking effectively to manage interdependence, putting things together creatively, and using own judgement to take calculated risks. The entrepreneurial attributes of an individual consist of achievement orientation and ambition, self-confidence and self-belief, perseverance, high internal locus of control (autonomy), action orientation, preference for learning by doing, diligence, determination and creativity. The entrepreneurial skills comprise creative problem solving, persuading, negotiating, selling, proposing, holistically managing business, projects or situations, strategic thinking, intuitive decision-making under uncertainty and networking.

The European Parliament and Commission also emphasise the importance of a broad approach to entrepreneurship and define the concept of entrepreneurship as follows: "Entrepreneurship refers to an individual's ability to turn ideas into action. It includes creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. This supports everyone in daily life at home and in society, employees in being aware of the context of their work and being able to seize opportunities, and is a foundation for more specific skills and knowledge needed by entrepreneurs establishing social or commercial activity." (COM(2005)548). Therefore the entrepreneurial competences can be taken to be the knowledge and skills needed in setting up and running a business, but also a lot of other individual competences which are a set of attributes, combined with personality traits, skills and knowledge. Further, since entrepreneurial competences can also be considered a combination of "inborn" personal characteristics and learned abilities, entrepreneurial competences relate to such features as initiative, work motivation, goal-orientation, independence and persistence (Leskinen 1999; Koironen & Ruohotie 2001; Paajanen 2001).

A need for achievement and motivation especially are very relevant factors in entrepreneurial competences (Collins, Hanges & Locke 2004; Shane, Locke & Collins 2003). First, according to the theory of achievement motivation (Atkinson 1957; 1964) motivation can be regarded as a product which has three components: motives (to approach success or avoid failure), expectancy (subjective probability of success) and incentive value (pride, affect and a sense of accomplishment achieved by accomplishing a task) (Bembenutty 2010, 4). Motivation can also be regarded as a process rather than a product, since motivation is not observable directly and is inferred from such behaviours as choice of task, effort, persistence and verbalization (Pintrich & Schunk 2002, 5). In addition, motivation involves goals, at least something in mind that an individual is trying to attain or avoid. Shane, Locke and Collins (2003, 263 – 264) sum up important motivational concepts in entrepreneurship in light of earlier quantitative studies: need for achievement, risk-taking, tolerance of ambiguity, locus of control, self-efficacy and goal-setting. In terms of qualitative entrepreneurship studies, the most important concepts have been independence, drive and egoistic passion.

Further, creativity can be considered to be an important part of an individual's entrepreneurial behaviour (Gibb 2005; Ko & Butler 2007; Ristimäki 2004a+b). As there is always some uncertainty in testing a new thing, there is also a chance of success or a risk of failure. Therefore students should have a fairly good tolerance of uncertainty, so as to be able to utilise their own creativity in practice: the better people tolerate uncertainty, the more likely they are also to tolerate risk (Kyrö & Ripatti 2006). Therefore, it seems that creativity and pro-activity are also important and relevant among the entrepreneurial competences (Zampetakis 2008, 154).

Earlier studies have also included attitudes and intention among the entrepreneurial competences. The attitude toward entrepreneurship is an individual's conception of entrepreneurship, assessment and inclination towards entrepreneurial behaviour as in self-employment. (Chen & Lai 2010, 3). Attitudes are relevant for understanding and predicting people's social behaviour (Ajzen 2001). According to the theory of planned behaviour, people act in accordance with their intentions and perceptions of control over the behaviour. For example, to start a business is intentional and can best be predicted by intentions. Starting a business cannot be predicted by attitudes, beliefs, personalities or demographics. However, intentions are best predicted by certain attitudes. In other words, attitudes predict intentions which, in turn, predict behaviour, and further, only intentions directly affect behaviour, while attitudes affect intentions. (Ajzen 2001; Krueger & Carsrud, 1993). Actually, entrepreneurial intentions can be defined as the conscious state of mind that directs personal attention, experience and behaviour toward planned entrepreneurial behaviour and can be seen as the strongest proximal predictor of entrepreneurial activity (Obschonka, Silbereisen & Schmitt-Rodermund 2010, 64; adopted from Bird 1988).

Thus, an entrepreneurial intention refers to the likelihood of starting up a new venture. This has been studied quite a lot among students in higher education. For example, the findings of Pihkala (2008) indicate that the entrepreneurial intentions of polytechnic (UAS) students seem to remain constant during studies. Further, although studies in higher education increase the awareness of entrepreneurship in general, they do not support or enhance the entrepreneurial intention. In fact, it

seems that the conceptions of entrepreneurship became more negative during studies, which does not support the entrepreneurial intention to set up one's own business.

In the psychology literature intention proved to be the best predictor of planned behaviour, especially when behaviour is rare, hard to observe, or involves unpredictable time lags. Entrepreneurial intention is a typical example of planned behaviour. (Souitaris, Zerbinatti & Al-Lahamp 2007, 568). The concept of entrepreneurial intention is based on two models: a theory of planned behaviour (Ajzen 2001) and a model on the entrepreneurial event (Shapiro & Sokol 1982). The first one explains how individual attitudes toward an act, the subjective norm, and perceived behavioural control are antecedents of intentions. The latter was developed to understand entrepreneurial behaviour. Entrepreneurial intentions are derived from perceptions of desirability, feasibility and a propensity to act upon opportunities. Further, the perceived desirability is defined as the attractiveness of starting a business, perceived feasibility as the degree to which an individual feels capable of doing so, and the propensity to act as the personal disposition to act on one's own decision (Lee, Wong, Foo & Leung 2011, 126). Krueger, Reilly and Carsrud (2000) compared and contrasted the two models and concluded that they are largely homologous to one another. However, they emphasise that Shapiro's Entrepreneurial Event includes a volitional element among intentions: the propensity to act which the theory of planned behaviour does not have.

According to the results of Gurel, Altinay and Daniele (2010, 663) there was a statistically significant relationship with the entrepreneurial intention and certain personal traits (particularly innovativeness and propensity to take risks), but education does not play a statistically significant role in increasing entrepreneurial intentions. On the other hand, Prodan and Drnovsek (2010) presented a model of academic-entrepreneurial intentions that draws on the entrepreneurial intentions model originally proposed by Bird (1988) and developed by Krueger (1993). According to the theory of planned behaviour in the context of entrepreneurship, a formation of entrepreneurial intention is dependent on an individual's perceived ability to execute the intended behaviour of entering entrepreneurship, attitudes towards the desirability of an entrepreneurial career and subjective norms. Further, the conceptual model of academic-entrepreneurial intentions consists of the following factors: entrepreneurial self-efficacy, personal networks, perceived role models, number of years spent at the academic institutions, patents, type of research and co-operation with industry. (Prodan & Drnovsek 2010, 333). In addition, entrepreneurial intention may be conditional or unconditional. The first refers to the condition under which individuals would develop such intentions (e.g. If then I would...). The latter are unconditional (e.g. I intend to). (Obschonka, Silbereisen & Schmitt-Rodermund 2010, 64).

In order to conclude this section of earlier studies of entrepreneurial competences, it can be argued that the diversity of entrepreneurial competences is wide, relating to personality, but also to learning and growth. The concept of entrepreneurial competences includes various skills, knowledge, values and attitudes, generic as well as subject-specific competences needed for setting up and running a business. Entrepreneurial intention is regarded as one part of entrepreneurial competences. Further, attitudes towards entrepreneurship as well as uncertainty-bearing attitudes are relevant to understand people's behaviour. The entrepreneurial intentions are

determined by attitudes which, in turn, are affected by personal traits and situational variables. Since personal traits and background together with education are factors affecting entrepreneurial intention, it moreover helps us to understand them better as a part of entrepreneurial competences of an individual.

2.1.3 Entrepreneurial competences in this study

This study adopts a broad definition of entrepreneurial competence combining several entrepreneurial elements: personal characteristic, intentions, attitudes, knowledge and skills. By following the definition introduced in Nab, Pilot, Brinkkemper & Ten Berge (2010, 25) it is accepted that knowledge and skills can be learnt and taught. Further, since it is difficult to make a clear distinction between some of the entrepreneurial competences learnt during the degree programme and those developed outside the programme or through upbringing and growth, in this study the concept of entrepreneurial competences is taken to include a student's overall capacity, behaviour, knowledge, skills and characteristics (Eraut 1999, 179; Gonczi 2003). Further, in this study entrepreneurial intention refers to students' self-perceived likelihood to start up a new venture after graduation.

This study regards entrepreneurial competences as both generic competences and subject-specific competences. The generic competences are a foundation for the student's participation and collaboration in working life and for his or her own professional development. Since the generic competences of the programme are called learning competence, ethical competence, communication and social competences, development competence, organisational and societal competences and international competence, they are also used in the study. Further, the subject-specific competences determine the expertise and legitimise the identity of the degree programme. The business competences of the degree programme are called business operations and entrepreneurship, business environment, marketing and customer relationships, organisations and management, financial administration, and research and development in business. In a holistic approach, they are all included in the entrepreneurial competences, since they are the learning objectives of the programme and are needed not only for setting up and running a business but also for working as an employee in a company. (ARENE 2006).

In addition, personal maturity skills are the skills needed to attain self-awareness, emotional maturity, ability and willingness to accept responsibility and creativity. It is argued that these skills for entrepreneurship have not received enough attention, but may include skills critical for an individual seeking to embark on entrepreneurship activities. (Schallenkamp & Smith 2008, 21; adopted from Lyons 2002). Therefore these skills have been included in this study.

Since the human competences can be regarded as appearing at different levels (e.g. Bergenhenegouwen, ten Horn and Mooijman 1996, 31; Voorhees 2001, 9), it is important to understand how learning is considered in this study. Following Marton and Booth (1997, 33) this study considers learning in terms of the experience of learning, i.e. including both learning process and learning outcomes. Actually learning the entrepreneurial competences is related to both learning from experience and experiential learning (Usher 1997, 169): the first occurs in everyday contexts as part of

day-to-day life and is rarely recognised as such, and the latter consists of more significant learning experiences, such as those provided and reflected in formal education. In addition, it can also be emphasised that the development of the entrepreneurial competences of an individual can be influenced by both internal actions and external factors.

Mulligan (1997, 46-47) argues that seven internal actions are required to learn effectively from experiences: reasoning, feeling, sensing, intuiting, remembering, imaging, and willing. They can be regarded as a dynamic model in which all are interrelated. The reasoning requires a rational, objective framework, whereas feeling requires a subjective, emotion-based response. Further, sensing gathers information by way of the overt and empirical, intuiting, in turn, by way of the undercurrent and the covert. Imaging and remembering are dependent on sensing, intuiting, reasoning and feeling in order to function effectively. Finally, willing is necessary to organize the functioning of the other six towards specific learning tasks. Bécharde and Grégoire (2005, 115 – 116), in turn, emphasize that teaching makes entrepreneurial learning possible - teachers are coaches who assist students in developing their conceptual understanding, but the learning occurs in the complex and incomplete in real-life situations in particular contexts.

In fact, a holistic approach, including personality traits, intentions, skills, knowledge and attitudes (see Hanhinen 2010, 53; COM2005, 548), has been adopted to cover the entrepreneurial competences in this study. By following Nab et al. (2010, 25) it is assumed that the entrepreneurial competences are mutable and learnable, and interventions in terms of education can contribute in the learning process. Thus, the entrepreneurial competences can be learned and are not only innate abilities. Therefore learning entrepreneurial competences is not achieved only through experiences (e.g. in an entrepreneurial context), but is also promoted by well-directed educational efforts (Klandt & Volkmann 2006, 197). Although it is difficult to make a clear distinction between the categories, Table 4 simplifies them and presents the entrepreneurial competences of the study. Further, the list of generic competences are recommendations of ARENE (2006) for Finnish UEAS and used in the programme. The subject specific competences are the learning objectives of the degree programme. The distinction between in-born personality features and learnt features, in turn, aims at dividing the development of the competences between the education and up-bringing and growth.

Table 4. A framework of the entrepreneurial competences in the study

	Entrepreneurial competences	
	Generic competences	Subject-specific competences
Learnt Knowledge and skills during the studies	<ul style="list-style-type: none"> • learning competence • ethical competence • communication and social competences • development competences • organizational and societal competences • international competence <ul style="list-style-type: none"> ⇒ generic personal competences which create a foundation of subject-specific competences (ARENE 2006) 	<ul style="list-style-type: none"> • competences of business operations, entrepreneurship and business environment • competences of marketing and customer relationships, organizations and management, financial administration • competences and development in business <ul style="list-style-type: none"> ⇒ knowledge and skills to set up and run a new venture as well as develop the business/company (Learning objectives of the programme)
In-born personality traits and learnt features through personal growth and up-bringing	<ul style="list-style-type: none"> • values and attitudes • self-esteem and self-image • self-confidence • need for achievement • approach to work • entrepreneurial attributes • uncertainty-bearing attitudes (e.g. Ko & Butler 2007; Kyrö & Ripatti 2006; Zempetakis 2008) • motivation <ul style="list-style-type: none"> ⇒ implicit and underlying personal characteristics which are related to the entrepreneurial behaviour of an individual <p>(e.g. Bembenuddy 2010; Chen & Lai 2010; Collins et al 2004; Gibb 2005; Hanhinen 2010; Henry et al. 2003; Shane et al. 2003)</p>	<ul style="list-style-type: none"> • personal maturity skills (self-awareness, accountability, emotional coping and creativity) (Schallenkamp & Smith 2000) • attitudes towards entrepreneurship and entrepreneurial behaviour (e.g. Ajzen 2001; Chen & Lai 2010; Henry et al 2003) • entrepreneurial intention (e.g. Ajzen 2001; Autio et al 2001; Degeorge & Fayolle 2008; Gurel, Altinay & Daniele 2010; Obschonka, Silbereisen & Schmitt-Rodermund 2010; Pihkala 2008; Souitaris, Zerbinatti & Al-Lahamp 2007;) <ul style="list-style-type: none"> ➔ personal characteristics which are related to the entrepreneurial behaviour and actions as well as the likelihood to set up one's own business or other venture

2.2 POSITIONING OF THE ARTICLES IN THE FRAMEWORK OF ENTREPRENEURIAL COMPETENCES

In light of the descriptions of the entrepreneurial competences in this study, this chapter positions each of the articles in the selected framework. In other words, the chapter introduces the theoretical aspects of each article and presents how they are related to the theoretical framework of entrepreneurial competences.

2.2.1 Generic competences

Article 1 discusses different kinds of competences and *competence structures*, and focuses on the *generic competences*. First, it is argued that societies, business and technologies have been changing rapidly, and undergraduates should acquire several generic competences offered on all degree programmes (Boni & Lozano 2007, 819) in order to be in a better position on a changing labour market (Nygaard, Hojlt & Hermansen 2008, 33; Vaastra & de Vries 2007, 335) or just to be a more responsible member of society (Boni & Luzano 2007, 819). Therefore higher education institutions not only need to facilitate students' professional competence building within a certain

academic field, but also to facilitate the development of the generic competences that can be used outside the learning context (Nygaard et al. 2008, 34).

The human competences can be regarded as appearing at different levels. For example, Voorhees (2001, 9) introduces a conceptual model as a pyramid consisting of four levels. In fact, this model relies heavily on measurable assessment: if a proposed competence cannot be measured, it probably is not a competence. However, since there can be significant correlations between student personal characteristics, student background characteristics, and work-related competences of the students (Berman & Ritchie 2006, 205), the approach to the competences can be broadened. For example, Vaastra & de Vries (2007, 335) include not only a combination of skills, abilities and knowledge in their concept of competences, but also attitudes with bearing on different working situations and professional contexts. Further, according to Bergenhenegouwen, ten Horn and Mooijman (1996) individual competence relates to the fundamental personality characteristics inherent in a person's actions in relation to all kinds of tasks and situations. In the article, the human competence structure has been utilised in order to illustrate both the generic competences of an individual as well as the connection between the generic competences and entrepreneurial competences.

The article argues that the *entrepreneurial competences* can be considered to be the knowledge and skills needed for setting up and running a business, and they consist of other individual competences, namely a set of attributes, such as representation, independent functioning, initiative, willingness to change and make improvements, problem solving, and tolerance of stress, combined with personality characteristics, skills and knowledge. Actually, entrepreneurial competences can also be regarded as "the ambition, attitude, and ability to think and act in a customer-specific way and to play an active role in initiating, implementing and realising change" (van Assen 2000). Since entrepreneurial competences can also be considered a combination of "inborn" personal characteristics and learned abilities, entrepreneurial competences relate to such features as initiative, work motivation, goal-orientation, independence and persistence (Leskinen 1999; Koironen & Ruohotie 2001; Paajanen 2001). According to Collins, Hanges and Locke (2004) need for achievement is a very relevant factor in entrepreneurial competences and can be regarded as a motivational characteristic of an entrepreneur.

It can be presented that there are also numerous entrepreneurial attributes, of which the most typical are as follows: achievement-orientation and ambition, self-confidence and self-belief, perseverance, high internal locus of control (autonomy), action-orientation, diligence, determination, and creativity (Gibb 2005). Kirby (2004), in turn, summarizes earlier studies and regards the following as the most relevant entrepreneurial attributes: risk-taking ability, need for achievement, locus of control, deviancy, creativity and opportunism, intuition, and desire for autonomy. Wickham (1999) also argues that there is no single "entrepreneurial type", but different characteristics which are often related to entrepreneurs and how they approach their tasks. All in all, the diversity of entrepreneurial competences is wide and they relate to personality, but also to learning and growth. Finally, to sum up the theoretical basis of Article 1, it includes the generic competences and the human competence structures. Further, it makes a distinction between the generic and the business related competences and also introduces the entrepreneurial competences.

2.2.2 Entrepreneurial learning and learning strategies

Article 2 starts with the multi-meaningful concept of *entrepreneurial learning*. According to earlier studies entrepreneurial learning concerns knowledge, skills, abilities and attitudes of actual or potential entrepreneurs (e.g. Erikson 2003), yet there are multiple meanings in what different scholars mean by entrepreneurial learning. Entrepreneurial learning can be related to the learning of current entrepreneurs (Cope & Watts 2000; Minniti & Bygrave 2001; Politis 2005; Ravasi & Turati 2005; Sullivan 2000; Taylor & Thorpe 2004) or even to portfolio entrepreneurs (Huovinen & Tihula 2008). Further, entrepreneurial learning can also be related to the people whose careers have included significant entrepreneurial attainment (Rae 2005). In these cases it was related to the following factors: confidence, self-belief and self-efficacy, personal values and motivation, setting and achieving ambitious goals, personal theories derived from experience, acknowledged capabilities, relationships through which social learning occurred, and active learning. All in all, entrepreneurial learning concerns the development of entrepreneurial capabilities through life and work. (Rae & Carswell 2001; Gibb 2005). Recent research has concentrated increasingly on entrepreneurial learning in higher education and then it refers to the learning of undergraduates, graduates or postgraduates (e.g. Leskinen 1999, Paajanen 2001, Ristimäki 2004a) and also refers to an individual's learning of entrepreneurial competences.

Further, Article 2 discusses various *outcomes of entrepreneurial learning* in higher education. The goals of entrepreneurship education may vary: 1) establishing a company or improving the management of SME's 2) increasing the knowledge related to entrepreneurship and business operations, and 3) increasing the use of entrepreneurial methods. (Paajanen 2001; Paasio & Nurmi 2006). It is also important to note that entrepreneurship can be channelled through other means than starting a business. Entrepreneurial behaviour and intrapreneurship without business ownership relations offers a definition of entrepreneurship, which suits well as the basis for entrepreneurship education in schools according to their curricula. Therefore entrepreneurship education in higher education does not imply a straightforward aim to contribute to the development of the amount of enterprises, but to the individuals' entrepreneurial behaviour or activity as well. (Gibb 2005; Ristimäki 2004b).

Article 2 also introduces various *learning strategies* and starts by arguing that students utilise different ways and means to assist in the acquisition, storage, retrieval and use of information to accomplish a study assignment. Specific patterns of learning activities can be called learning strategies (Vermetten, Lodewijks & Vermunt 1999, 1). These learning strategies are often connected to a certain learning situation and to the task involved. (Ruohotie & Nokelainen 2000, 155). The use of learning strategies is personal and habitual and they are also related to the context (Vermetten, Lodewijks & Vermunt 1999, 1).

Nevertheless, although various learning strategies have been proposed by different scholars, such as rehearsal, elaboration, and organizational strategies, critical thinking, meta-cognitive self-regulation, time and study management, effort regulation, peer learning and help-seeking (e.g. Huang 2008, 532), there is a disagreement among scholars on exactly what learning strategies are and how many of them exist,

how they should be defined and categorised. Nevertheless, a number of scholars have agreed on three main categories of learning strategies: cognitive strategies, meta-cognitive strategies, and resource management strategies. (e.g. Pintrich & McKeachie 2000, 40; Soric & Palekic 2009, 551; Clayton, Blumberg & Auld 2010, 351). In brief, cognitive strategies refers to the mental effort of monitoring one's own comprehension of new learning material (forming relations, critical thinking, selecting main ideas, memorizing, rehearsal, etc.), whereas meta-cognitive strategies consist of students' thoughts and knowledge of themselves as learners. In addition, resource management strategies refers to the use of techniques such as time management.

Article 2 ultimately emphasises that the use of certain kinds of strategies can become predominant and a more permanent way for the individual to approach any subject area to receive and process information. These approaches are then called learning styles. (Ruohotie & Nokelainen 2000, 155). A person's learning style expresses a tendency to use certain phases of the learning process more than others. Various learning-style models have been introduced by different scholars (e.g. Kolb 1984; Honey & Mumford 1993; Dunn, Honingsfeld & Doolan 2009, 136) which are widely used and studied. Nevertheless, the study has excluded learning styles but included only the learning strategies. In summary, the theoretical foundation of Article 2 consists of the multi-meaningful concept of entrepreneurial learning and its outcomes. It also includes various learning strategies and makes a distinction between learning strategies and learning styles.

2.2.3 Creativity and entrepreneurship education

Article 3 presents the concept and various dimensions of creativity. Basically creativity can be defined as the skill to create something new, different and practically usable (Sternberg & Lubart 2003). In the literature creativity is often considered from the point of view of the final result, a process or an individual. In addition, creativity is context-related: the operating environment is highly significant in the use of an individual's creativity.

Article 3 also discusses the *rationale of integrating creativity into entrepreneurship education*. There are numerous studies demonstrating the importance of creativity and creative climate in the workplace; however this has not yet been transferred to the classrooms (Petrowski 2000). Further, it is important to pay attention to the ways in which graduates are introduced into organizations in order to encourage and support their innovative and entrepreneurial behaviour (Kandola 2002). Nevertheless, for example, to increase students' abilities to diagnose and solve problems encountered in organizational creation, teachers can adopt creative thinking and behavioural techniques in the classroom. In fact, there are different methods and techniques for enhancing creative thinking and behaviour in the classroom. (Gundry & Kickul 1996; Epstein 2000; Bowkett 2006; Higgins 2006; Proctor 2006). In general, to promote creativity in classes a few general guidelines can be presented: provide opportunities for student choice and discovery, emphasise mastery and self-development rather than sticks and carrots, promote supportable beliefs about creativity, and teach techniques and strategies for creative performance. (Petrowski 2000). Further, if part of the creative process involves linking unassociated bits of information into new combinations,

this knowledge can serve to train students to be creative in ways that make entrepreneurial behaviour more likely (Ko & Butler 2007, 366).

Entrepreneurship education meets several *challenges* in creativity, in spite of the goals it has in each case. The curricula are often drawn up in a very explicit manner and contain concrete and practical learning targets and competences for business work tasks. If different levels are set for the goals of entrepreneurial education according to the model of Ristimäki (2004a), the role of and need for creativity can be considered from different perspectives. For instance, if the goal of entrepreneurship education is considered to be only the teaching of commercial subjects, the need for creativity in entrepreneurial education is likely to be rather small. The higher one advances in those levels, the greater is both the opportunity and the need to utilise creativity, because entrepreneurial education is then seen widely as a matter concerning the whole school community and promoting an individual's entrepreneurial behaviour. Further, the article emphasises that the competences that students need in education institutions and in the workplaces have changed dramatically. To prepare them for what is expected involves a commitment to teaching a new set of skills. For example, by building creativity skills into entrepreneurship instruction, students will gain a great advantage when they enter working life after graduation. (Gundry & Kickul 1996). However, there are *contradictions* related to this: if we try to force students to learn or try to make them to be more creative in supposedly disciplinary ways, it will have the opposite effect. In addition, in an educational and business tradition we place great emphasis on rewards and punishments; management by objectives, appraisals and exams are all geared towards the improvement of performance. However, in the area of creativity these policies are counterproductive (Gurteen 1998).

In fact, creativity can be considered to be an important part of an individual's entrepreneurial behaviour (Gibb 2005; Ko & Butler 2007; Ristimäki 2004a+b). Since the entrepreneurial learning of students aims at a new kind of behaviour for the present and for the future, entrepreneurial behaviour of students could be an aim if there are circumstances, methods, learning activities and processes which support and facilitate it. Therefore, as an outcome of entrepreneurial learning there could be changes in behaviour, not only in setting up a business. (Ristimäki 2004a+b). Further, because there is always some uncertainty in testing something new, there is also the chance of success or risk of failure. Therefore students should have a fairly good tolerance of uncertainty, so as to be able to utilise their own creativity in their studies: the better the students tolerate uncertainty, the more likely are they to tolerate risk, too (Kyrö & Ripatti 2006).

Finally, the article introduces *different types of creativity*. Creativity can be regarded as the ability to produce work that is both novel (i.e. original, unexpected) and appropriate (i.e. useful, adaptive concerning constraints) (Sternberg & Lubart, 2003). Creativity can be categorised, for example, into the four following types: responsive, expected, contributory, and proactive. These creativity types can be considered in terms of two different dimensions: Driver for engagement (a creative behaviour initiated through a person's self-determined choice or due to external demands), and problem-type (a problem presented to the individual or discovered by the individual). (Unsworth, 2001).

Article 3 concludes that it is commonly agreed that creativity is an essential asset in entrepreneurship and business. In general, creativity turns ideas into useful knowledge, and then the useful knowledge into added value. (Gurteen 1997). In addition, creativity is an important antecedent of entrepreneurial intentions (Hamidi, Wennberg & Berglund, 2008). Further, since creativity (e.g. creative problem solving, perceiving new opportunities) and risk are the most essential phenomena related to entrepreneurship and entrepreneurial behaviour (Robinson & Stern, 1997), their use should already be fostered and promoted during studies. However, since creativity is connected with expertise, creative thinking and the motivation to utilise creativity (Amabile 1998; 2001), the challenge is how creativity can best be realised when the future experts are still studying. Finally, to sum up the theoretical foundation of Article 3, it comprises the integration of creativity and entrepreneurship education and the challenges and risks in using creativity in studies. Finally, it discusses different types of creativity.

2.2.4 Attitudes towards entrepreneurship

Article 4 first presents the basic *intention-based process model* (Ajzen 2001; Krueger & Carsrud 1993) in order to demonstrate the role of attitudes in an individual's behaviour. It is argued that attitudes towards the behaviour, subjective norms, and perceptions of behavioural control affect one's own intentions. According to the theory of planned behaviour, people act in accordance with their intentions and perceptions of their control over the behaviour. (Ajzen 2001). For example, to start a business is intentional and can best be predicted by intentions. Starting a business cannot be predicted by attitudes, beliefs, personalities or demographics. However, intentions are best predicted by certain attitudes. In other words, attitudes predict intentions which, in turn, predict behaviour, and further, only intentions directly affect behaviour, while attitudes affect intentions. (Ajzen 2001; Krueger & Carsrud, 1993). In general, an attitude represents a summary evaluation of a psychological object. Further, one's own belief associates the object with a certain attribute, and the person's overall attitude towards an object is determined by the subjective values of the object's attributes in interaction with the strength of the associations. Only beliefs that are readily accessible in memory influence attitudes at any given moment (Ajzen 2001). Thus an attitude is a mentally prepared state for any known subject, and is a subjective consciousness that is affected by the environment. The attitude towards entrepreneurship, in turn, is an individual's conception of entrepreneurship, assessment and his or her inclination towards entrepreneurial behaviour or self-employment. (Chen & Lai 2010, 3). All in all, attitudes are relevant for understanding and predicting people's social behaviour (Ajzen 2001).

Article 4 next discusses *gender differences in entrepreneurial attitudes*. Despite the increasing number of females who start their own businesses in the western countries, their number still lags behind that of male entrepreneurs (Ljunggren & Kolvereid 1996, 3; Verheul, van Stel & Thurik 2006, 151). The distinction between female and male entrepreneurship reflects that pertaining in the workforce in general. Traditional occupations for female entrepreneurs have typically included hair-dressing and the hotel and restaurant business. Nowadays female entrepreneurs also

operate in other fields, such as in training and consultancy. (Aaltio et al., 2008). In earlier studies new female entrepreneurs have emphasized independence as a reason for starting up a new venture (Ljunggren & Kolvereid 1996; Carrier et al., 2008). Further, common reasons for women to start up a business are also the desire for self-fulfillment and the possibility of making a profit. (Carrier et al., 2008). According to several studies male students express greater interest in entrepreneurship and are more likely to start up their own businesses. For example, in the findings of Urbano (2006) gender had a significant effect on the intention of starting up one's own company. The findings of Kundu and Rani (2008) also demonstrated that gender and family background had significant effects on determining one's entrepreneurial attitude in general. However, there are also a few studies claiming that gender has no significant effect on intentions to start up a business. In other words, female students are as likely as male students to become entrepreneurs and set up their own businesses. (Shinnar et al., 2009).

Article 4 moves on to consider *entrepreneurial characteristics, interest, motives and barriers*. The article initially notes that there are several studies indicating many positive characteristics related to entrepreneurship and entrepreneurial behaviour (Henry et al. 2005; Chen & Lai 2010; Ristimäki 2004a; Gibb 2005) and concludes that many entrepreneurial features and characteristics can be developed, yet some of them can also be regarded as inborn characteristics.

Article 4 also discusses the *entrepreneurial intention and stability of attitudes* among students in higher education. Entrepreneurial intention refers to the intention to start a new venture. The findings of Pihkala (2008) indicate that the entrepreneurial intentions of polytechnic (UAS) students seem to be constant during studies. Further, although the studies in higher education increase the awareness of entrepreneurship in general, they do not support and enhance the entrepreneurial intention. In fact, it seems that the conceptions of entrepreneurship became more negative during studies, which does not support the entrepreneurial intention to set up one's own business. The findings of Urbano (2006) indicated that if there were entrepreneurs among relatives, this had a significant effect on the intention of starting up one's own company. The findings of DeGeorge & Fayolle (2008) also claim that the level of intention seems to be higher when there is an entrepreneur in the immediate family, yet at the statistical level the relation was not significant in their results.

Article 4 argues that *strong attitudes* are expected to be relatively resistant to change. Thus, despite some recent contradictory findings, strong attitudes are said to be relatively stable over time, to be resistant to persuasion, and to predict manifest behaviour. Further, high personal relevance of the information on which an attitude is based increases its strength. (Ajzen 2001). According to the findings of DeGeorge and Fayolle (2008) entrepreneurial intention level seems to be a stable variable over a long period of time. In other words, the academic year of the programme, the stage at which a student is in his or her studies, does not have influence on the variable, which was also supported by the findings of Shinnar et al. (2009). In addition, in light of earlier studies, it seems that when attitudes change, the new attitude overrides but does not replace the old attitude. According to this model of dual attitudes, a person can simultaneously hold two different attitudes toward a given object.

Finally, to conclude the theoretical foundation of Article 4, it includes the basic-intention-based process model and also includes gender differences of entrepreneurial attitudes. It includes the entrepreneurial characteristics, interest, motives and barriers as well as the entrepreneurial intention and stability of attitudes among students in higher education. Further, the theory of strong attitudes is introduced in brief.

2.2.5 Development of entrepreneurial competences

Article 5 discusses two main aspects of entrepreneurship education. The first is the current *significance of entrepreneurship education* in business studies and the second is various learning objectives of entrepreneurship education in higher education. Article 5 first discusses what students should learn about business and entrepreneurship during their education in terms of the most important competences. However, if the aim is to increase the number of new business ventures, various skills for setting up a new business should be learnt. All in all, the education system is becoming more important in the creation of new businesses. Due to constant changes throughout the world, the importance of entrepreneurship is acquiring more value at different levels. Entrepreneurship is becoming a future option for an ever greater number of students. The education should prepare them so that they will have the competences needed in order to appreciate the option of starting a business after the graduation or later.

Article 5 also discusses the *aims and content of entrepreneurship education* in higher education. In general, entrepreneurship education refers to knowledge about entrepreneurship and competences in entrepreneurship. Entrepreneurship education can be seen as a process in which students start by paying attention to it. Then interest in entrepreneurship will help them to understand different relations and reasons. Finally, the students who are oriented towards starting their own businesses will set up their own business after having acquired the competences needed for owning and running a business (Blenker, Dreisler & Kjeldsen 2006, 92). In the article it is argued that the goals of entrepreneurship education and training may vary, but they are generally expressed in terms of developing an entrepreneurial skills battery, enhancing an entrepreneurial mind-set, stimulating entrepreneurial behaviour, and preparing and helping students' entrepreneurial endeavours. However, a common goal of many training programmes is to stimulate entrepreneurship in its various forms. (Kickul, Gundry, Barbosa & Simms 2010, 38). Kyrö and Carrier (2005) compare the orientation of different constructs, aims and focuses in entrepreneurship education. With the comparison they emphasise two things: how different the learning outcomes might be if we focus only on the cognitive aspects of learning, and how important it is to broaden our views about the learning environment. All in all, competence-based learning is best stimulated in a learning environment which is functional, realistic, activating and inviting to learn (Nab, Pilot, Brinkkemper, & Ten Berge 2010, 22).

To define the focus of learning and course content, Kyrö and Carrier (2005, 28) present four different aims for entrepreneurship education. First, learning *about entrepreneurship* focuses on rationality and reasoning, and typically the course content is a business plan and takes a functional approach. Learning *for entrepreneurship* focuses on the will and competences to start up a business. Then the course content includes different aspects of starting and managing a business. If the aim is to learn

through entrepreneurial pedagogy, the focus will be on increasing competences to find needed knowledge, to create knowledge and ventures. Finally, learning *in an entrepreneurial environment* supports and focuses on increasing and developing competences for enjoying and acting in complexity and insecurity. The focus is on recognising as well as creating the inherent opportunities.

To summarize the theoretical foundation of Article 5, it comprises the significance of entrepreneurship education in business studies nowadays and secondly various learning aims and goals of entrepreneurship education in higher education. Further, it includes the different focuses of learning and course content of entrepreneurship education.

2.2.6 Motivation and goals in learning

Article 6 first discusses the *nature of the goals and motivation in learning*; i.e. to understand the outcomes of students' entrepreneurial learning one should also be aware of the motivational aspects of a learner to achieve goals. Goal-setting refers to standards of performance and is an important motivational process (Pintrich & Schunk 2002, 165). According to earlier studies motivation is considered to be an important factor in a student's learning and achievement of learning goals (e.g. Barkoukis, Tsorbatzoudis, Grouios & Sideridis 2008; Pintrich & Schunk 2002). However, it is worth emphasising that there are two contradictory goals in learning: mastery goals and performance goals. The mastery goals are related to learners' desire to develop their knowledge, understanding and competences, whereas in the performance goals learners desire to avoid demonstrating incompetence. (e.g. Kuyper, van der Werf and Lubbers 2000, 183; Clayton, Blumberg & Auld 2010, 350).

Article 6 then continues with the concept of motivation, which can be regarded as a product or as a process. According to the theory of achievement motivation (Atkinson 1957; 1964), it is a product with three components: motives (to approach success or avoid failure), expectancy (subjective probability of success) and incentive value (pride, affect, and the sense of achievement one will have on accomplishing a task) (Bembenuitty 2010, 4). Based on this, a distinction can be made between three motivational components in learning: students' beliefs about the importance and value of the task (value component), students' beliefs about their ability or skill to perform the task (expectancy component), and students' feelings about themselves or their emotional reactions to the task (affective component) (Pintrich & McKeachie 2000, 33). Nevertheless, Pintrich and Schunk (2002, 5) regard motivation as a process rather than a product, since motivation is not directly observable and is inferred from such behaviours as choice of task, effort, persistence and verbalization. In addition, motivation involves goals, at least something in mind that an individual is trying to attain or avoid.

There are three main intrinsic motivation theories: self-determination theory (Deci & Ryan 1985; adopted perspectives from Hebb 1955, White 1959 and deCharms 1968), which argues that people seek out optimal stimulation and challenging activities and find these activities intrinsically motivating because they have a basic need for a competence. Further, intrinsic motivation is maintained only when actors feel competent and self-determined. (Eccles & Wigfield 2002, 112). Flow theory

(Cikszentmihalyi 1988) refers to the immediate subjective experience that occurs when people are fully engaged in an activity (in terms of emotional state) (Eccles & Wigfield 2002, 113). The third approach is individual difference theories of intrinsic motivation. These are three highly correlated components: preference for hard or challenging tasks, learning that is driven by curiosity or interest, and striving for competence and mastery (Eccles & Wigfield 2002, 114).

In order to continue with the nature of motivation, according to self-determination theory (Deci & Ryan 1985), there are three kinds of motivation: intrinsic and extrinsic motivation as well as amotivation (the absence of contingency between one's actions and outcomes). (Barkoukis et al. 2008, 40). Intrinsic motivation may be more associated with challenges and enjoyment whereas extrinsic motivation is more related to affective responsiveness to a competitive outcome (e.g. winning or losing) (Abuhamdeh & Csikszentmihalyi 2009, 1615).

According to some research, intrinsic motivation relates positively to perceived competence. Students who believe that they are competent enjoy tasks more and display greater intrinsic motivation than students who judge their competence as being low. (Pintrich & Schunk 2002, 250). Further, students with intrinsic motivation are able to develop high regard for learning various types of course information without the inclusion of external rewards and they engage in an activity because they are interested in it and enjoy it. Extrinsically motivated students, in turn, rely heavily on rewards and desirable results which serve as a catalyst for their study motivation and engage in activities for instrumental or other reasons (e.g. receiving a reward) (Eccles & Wigfield 2002, 112; Lei 2010, 153). Amotivated students do not seem to have specific purposes and goals, and they do not seem to approach ends in systematic ways. They do not demonstrate intent to engage in an activity. (Barkoukis et al. 2008, 40). Further, motivation is the result of numerous factors, some of which are under the learner's control, while others are the results of the learner's past and present environmental circumstances. (Lei 2010, 159). To sum up the theoretical foundation of Article 6 in brief, it consists of different kinds of goals of learning and the concept of motivation. It also includes descriptions of three kinds of motivation.

2.2.7 Summary of the positioning of the articles

The entrepreneurial competences of this study consist of personal characteristics, intentions, attitudes, knowledge and skills. They have been positioned in the theoretical framework of the study in the following way: Article 1 introduces various human competence structures and also discusses the concept of generic competences. Further, the first article presents entrepreneurial competences and introduces the link between the generic competences and the entrepreneurial competences. Article 2 discusses the concept and context of entrepreneurial learning. It also presents cognitive learning strategies and meta-cognitive learning strategies. Article 3 introduces the concept and various dimensions of creativity, and discusses the role of creativity in higher education. Article 4 presents the concepts of attitudes and intention, and makes a distinction between them. It introduces gender differences in entrepreneurial attitudes based on earlier studies. It also discusses the stability of attitudes. Then, Article 5 discusses the role and aims of entrepreneurial education in higher educa-

tion. It also presents different perspectives of learning entrepreneurial competences (i.e. learning about, for and through entrepreneurship). Finally, Article 6 discusses the nature and goals in learning as well as the concept of motivation. It introduces performance and mastery goals in learning as well as intrinsic and extrinsic motivation. In order to sum up the main topics, key concepts and theories of each article Table 5 presents a summary of them (with the names of the main authors in brackets).

Table 5. Summary of the main topics, key concepts and theories

Article number	Main topics of the article	Key concepts and theories
1.	GENERIC COMPETENCES AND ENTREPRENEURIAL COMPETENCES	<ul style="list-style-type: none"> • human competence structures (e.g. Bergenhenegouwen et al. 1996; Vaastra & Vries 2007; Voorhees 2001) • generic competences (e.g. Boni & Lozano 2007; Nygaard et al 2008) • entrepreneurial competences (e.g. Collins et al 2004; Gibb 2005)
2.	ENTREPRENEURIAL LEARNING AND LEARNING STRATEGIES	<ul style="list-style-type: none"> • entrepreneurial learning (e.g. Cope & Watts 2000; Minniti & Bygrave 2001) • cognitive learning strategies (e.g. Vermetten et al. 1999) • meta-cognitive learning strategies (e.g. Ruohotie & Nokelainen 2000; Huang 2008)
3.	CREATIVITY AND USE OF CREATIVITY IN STUDIES	<ul style="list-style-type: none"> • concept of creativity (e.g. Amabile 1998) • different types of creativity (e.g. Sternberg & Lubart 2003; Unsworth 2001) • creativity in education (e.g. Gundry & Kickul 1996; Petrowski 2000)
4.	ATTITUDES TOWARD ENTREPRENEURSHIP	<ul style="list-style-type: none"> • concepts of attitude and intention (e.g. Ajzen 2001; Krueger & Carsrud 1993) • gender differences in attitudes (e.g. Ljunggren & Kolvereid 1996; Urbano 2006; Shinnar et al. 2009) • stability of attitudes (e.g. Ajzen 2001; Degeorge & Fayolle 2008)
5.	DEVELOPMENT OF COMPETENCES	<ul style="list-style-type: none"> • role of entrepreneurship education (e.g. Blenker et al. 2006; Kickul et al. 2010) • aims of entrepreneurship education (e.g. Kyrö & Carrier 2005; Paajanen 2001) • entrepreneurship competences (e.g. Blenker et al. 2006)
6.	MOTIVATION AND GOALS IN LEARNING	<ul style="list-style-type: none"> • self-regulation of learning (e.g. Ruohotie & Nokelainen 2000; Kuyper et al. 2000) • concept of motivation (e.g. Eccles & Wigfield 2002) • intrinsic and extrinsic motivation (Abuhamdeb & Csikszentmihalyi 2009; Barkoukis et al. 2008) • performance and mastery goals (Clayton et al. 2010; Kuyper et al. 2000; Pintrich & Schunk 2002)

3 Methodology

This chapter introduces the methodology of the dissertation. First, the methodological foundation is presented, and then the participants of the study are introduced. Next, the data collection and data analysis are described followed by the discussion of reliability and validity of the data.

3.1 METHODOLOGICAL FOUNDATION

This study assumed that since the students were only studying and learning the competences, the most convenient and practical way to examine these competences was to ask the students to assess them by themselves. Therefore, as the epistemological approach the study has adopted to study perceptions of the competences, not the competences demonstrated in practice. (cf. Gonczi 2003, 182). Therefore it was assumed that the students were willing and able to reflect their own learning processes and outcomes. However, to enrich the expected findings related to the perceptions, a mixed methods approach was selected for data collection during the research process. In other words, both numerical and verbal data were collected for the study, because it was assumed that neither quantitative nor qualitative methods are sufficient by themselves to capture the details of the phenomenon and situations (Creswell & Clark 2011, 104, 304). Further, these methods were used both as “within methods” (e.g. different types of qualitative data collection strategies) and as “between methods” (using qualitative and quantitative data collection methods). (Brannen 1995, 11-12; Creswell 1994, 174). The purpose of comparing different kinds of data (qualitative and quantitative) and different methods was to see whether they complement one another. This form of comparison is also called triangulation (Anttila 2006; Jick 1979; Brannen 1995; Silverman 2001; Wilson 2010). Using a mixed methods approach allows researchers to be more confident of their results, since it can improve the accuracy of their judgements by collecting different kinds of data on the same phenomenon (Jick 1979, 608). All in all, in this study the use of triangulation facilitated to produce a multi-faceted picture of the research topic.

This study is hermeneutic and interpretative (Gadamer 2005). The interpretative approach acknowledges subjectivity, which is one of the main criticisms voiced by the

positivists since they claim that it destroys the objectivity of science (Scott & Usher 2011, 28). Nevertheless, this study explains the social world by involving understanding it and the meanings that both construct and are constructed by interactive human behaviour. The perspectives of the participants reflect their subjective views of their social world, and the researcher also brings own subjective influences to the research process, particularly during data collection and interpretation. (Hennink, Hutter & Bailey 2011, 19).

The essence of language is what is expressed and expressed to someone (Gadamer 2005, 85). Therefore the English language was the only one common to all the students and to the researcher, and it was used as a *lingua franca* for data collection, analysis, and reporting. Further, it is worth mentioning that both formal and informal styles in students' writing were employed in the data collection: especially at the beginning of the study the writing was more informal, and at the end they more formal in terms of using correct concepts and terms in writing.

3.2 PARTICIPANTS

This follow-up study addressed the competences of international students who started their studies according to a new competence-based curriculum in autumn 2007. The students were bachelor's level students who had applied and had been selected to study on an international business management programme in Mikkeli, Finland. Business management studies was their major subject and they could choose their own specialization by taking a study period abroad (one or two terms) during the third year of their studies. Another option was to stay in Mikkeli throughout the programme and take part in the international summer courses in order to graduate faster than within the regular completion time of three and a half years. Officially, the annual student intake for new students was 20 and the aim was that 20 students would also graduate within their three and half years.

In autumn 2007, altogether 25 students started their studies according the new curriculum. The students represented different nationalities and continents: they came from Africa (Cameroon and Nigeria), Australia, Western Europe (Finland and Germany), Asia (China, Pakistan and Vietnam), America (Mexico), Ukraine and Russia. There were 13 males and 12 females. However, four students dropped out after the first year. In terms of graduation, the first student in the group already graduated in December 2009. Then eight students graduated in 2010, eight students graduated in January-August 2011, and two students graduated in December 2011. Unfortunately, it turned out that one student lacked too many courses and was not able to complete his studies and he was the last drop-out of the group. However, in December 2011 another student was granted an extension to his study right until the end of June, 2012 for personal reasons and he graduated in June 2012. All in all, of those who started in autumn 2007 20 graduated and two of them set up their own businesses during their studies.

In terms of learning, it was assumed that this multicultural student group consisted of students with different learning styles (Kakkonen 2007). However, they followed the same curriculum and therefore they were expected to achieve the same main

learning outcomes. Nevertheless, since the students and their backgrounds differed, it was assumed that there would be individual differences in learning outcomes inside the curriculum, especially in terms of learning entrepreneurial competences.

It was also assumed that the students who came to Mikkeli from abroad had a certain courage and willingness to take risks to some extent. They had no financial benefits in Finland (Finnish students receive study grants from society) and they had difficulties in finding part-time employment while studying. Therefore it was assumed that they had good motivation and strong conation to complete their studies as soon as possible. In addition, since the language of instruction of the studies was English, it was more demanding than to study in one's own mother tongue and therefore it was assumed that the students were more willing and able to work hard in their studies. Based on the foregoing, it was also concluded that they had already displayed some entrepreneurial behaviour by embarking on these studies.

3.3 DATA COLLECTION

Six subsidiary studies were carried out in different phases of the research process and the quantitative and qualitative methods were mixed. Multiple data sets were applied through the application of different methods (data collection was through individual written texts, course assignments, essays and questionnaires). Further, data collection involved the use of different priorities in time (two timepoints of the studies), and different levels of analysis (individual level and group level). It is assumed that when the two approaches are properly combined, one approach enhances the other. (Bryman 1995, 69). Further, in order to position the findings and make them relative and in that sense comparable, other student groups were included in the survey data (see Articles 4 and 5 in the appendices). Finally, to understand the development of the competences throughout the programme four cases were selected and the data from the beginning and end of the process were analysed and compared (the individuals' perspectives).

In practice, there were four qualitative subsidiary studies (Articles 1, 2, 3 and 6) and two quantitative subsidiary studies (Articles 5 and 6). The first two of these were qualitative and based on authentic course-related assignments. The third was also qualitative: the students were asked to assess and write about their experiences related to the topic. Finally, for the fourth qualitative study (Article 6) the data were collected from different phases of the research process. In other words, once the cases had been selected for the study, the data were collected from the earlier research data.

Two quantitative surveys (Articles 4 and 5) were conducted during the research process (the questionnaires are appended as Appendices 1 and 2). The first survey was related to the students' attitudes towards entrepreneurship and used a Likert scale 1-5. The questionnaire included four main topics; i.e. "Entrepreneurial features and characteristics", "Entrepreneurial motives", "Interest in one's own enterprise", and "Barriers to entrepreneurship". The survey was carried out twice within one year in order to monitor the development of the attitudes. The entrepreneurial intention was examined by asking if a student had thought about starting up a business alone or together with others in the future and by providing the following options: "I have

not, Sometimes I have toyed with the idea and dreamed about it, I have made some plans already, and I have already started a business or I am the owner of a business”.

The second survey was related to the business competences in the programme; i.e business operations and entrepreneurship, business environment, marketing and customer relationships, organizations and management, financial administration, and research and development in business. Further, the personal maturity skills were included by using the variables introduced by Schallenkamp and Smith (2008): the variables self-awareness, accountability, emotional coping and creativity. The entrepreneurial intention was examined on a Likert scale 1-5. Table 6 presents the informants, times and methods of data collection of the six subsidiary studies.

Table 6. Informants, time and methods of the data collection

Subsidiary-studies	Time of the collection	Number of informants	Method of the Data collection
Study 1	September 2007	25	course-related essays (1-2 pages each)
Study 2	April 2008	18	course-related essays (app. 2 pages each)
Study 3	April 2008	18	a self-assessment writing (1-2 pages each)
Study 4	Nov-Dec. 2008	19 + 87	questionnaires *) (from the student group and three reference groups)
	December 2009	18 + 39	questionnaires *) (from the student group and three reference groups)
Study 5	April 2010	18 + 93	questionnaires
Study 6	Sept. 2007	4	writings on expectations (1-2 pages each)
	Oct. 2007	4	essays (approx. 2 pages each)
	April, 2008	4	course-related essays (app. 2 pages)
	Before graduation	4	writings of learnt competences (1-2 pages each)

*) the questionnaire was used with the permission of Hilikka Lassila who designed and used it for her own studies in Finland

Although the study monitored only one student group (n = 25) for three and a half years, in order to position, compare and make the findings comparable, other student groups were included as reference groups in Articles 4 and 5. In total 196 students contributed to the study (the samples were described in detail in each article).

3.4 DATA ANALYSES

Since the perceptions of the students were studied with both qualitative and quantitative methods, both textual and numerical data were available for the analyses. The verbal data analysis started by typing the first essays which were written by hand when a good impression of the contents was received. Since the data of each subsidiary-study was analysed individually and it was feasible to do so without any computer soft-ware, the data analysis started by reading the data. SPSS software was

used in the data analysis of the surveys. The data analysis of each subsidiary study is presented in turn.

The data of *the first subsidiary study* included 25 course-related essays (1-2 pages each). Inductive content analysis was used to analyse the data, which was accomplished as follows: first, the data were divided into three parts according to the responses on the students' initial perceptions of becoming an entrepreneur after graduation: Yes, No or Do not know yet. Next, the texts were categorised using the categories of the human competence structure presented by Bergenhenegouwen et al. (1996, 31): knowledge and skills, intermediate skills, values, standards, ethics and morals of the respondent, and the deep, underlying personal characteristics. Some of the characteristics overlapped more than one level, and therefore they could have been included in two categories. However, these characteristics were included in only one most appropriate category based on the description of the experience. If the same characteristics appeared in similar ways, they were included only once in the findings. Then, in each category, the data was divided further into two groups according to the reported strengths or weaknesses of the students. Next, the competences were categorised under the main themes. Finally, all three types of students were analysed individually, and the three profiles were described in detail. They were named according to the core content of the descriptions in each case. Finally, the three profiles were compared between each other in terms of their competences.

The inductive content analysis of the data of *the second subsidiary study* included the following phases. First, all the essays were read and all pieces of text describing the learning situations were selected from the essay of each student. Some of the students had focused on and described various events or learning experiences and their main outcomes, whereas others described, for example, only two or three more significant learning experiences from different perspectives. In any case, the main principle of the analysis process was that each piece of text was regarded as one learning context with at least one learning outcome, and it was also described in terms of which activities and how the learning had occurred. The data were analysed in light of the research questions. First, in order to analyse the learning outcomes, the first-year learning objectives of the degree programme were used as a framework (both the generic competences and business-specific competences) and the data were categorised accordingly. The learning outcomes were identified in the text, which was written either by using the student's own words verbatim or with a couple of exact 'equivalent' words, if the original description was written in a general way. Next, in order to analyse the learning strategies, the data were also analysed inductively. First, the way of learning was identified from each piece of the texts and it was summarized in a few words. Finally, all the learning strategies were categorised according to main categories, which resulted in cognitive, meta-cognitive and resource management strategies.

The main phases of data analyses of *the third subsidiary study* were as follows. First all the essays were read as such in order to get a complete picture of each student's perceptions. After that all pieces of text related to the three research questions were arranged by topic. During the analysis process, the answers to the first research topic were divided into four different themes on the basis of the findings, the answers on the second research topic were divided into two themes, and the answers of the

third research topic were also divided into two themes. All the themes were then re-arranged further according to their sub-themes.

The data analysis of *the fourth subsidiary study* was made by using SPSS software. First, the frequencies, means and standard deviations were examined for each variable, and crosstabulations were made. Then the means of the variables were combined into the combined variables according to the four themes introduced above. The correlation between the combined variables were examined and tested by correlation analysis (Pearson) and the crosstabulations using Pearson's Chi-Square tests. In addition, T-tests were used to test statistical differences between two student groups (Independent-Samples T-Test) and one-tailed analysis of variance between several groups. Finally, the findings were reported according to the research questions of the study.

The data analysis of *the fifth subsidiary study* was also done with SPSS software. First the frequencies, means and standard deviations were examined for each variable. Then the means of the variables were combined into combined variables according to the business competences introduced above. They were called combined variables in this paper. The correlations between the combined variables were examined and tested by correlation analysis (Pearson) and the crosstabulations using Pearson Chi-Square tests. In addition, T-tests were used to test statistical differences between academic years, by gender and nationality (Independent-Samples T-Test).

The data analysis of *the sixth subsidiary study* was done as follows. First, the data were selected and combined from the preceding subsidiary studies: the data related to the beginning of studies and to the end of the first year of studies were combined in the same section of the findings. Then, the findings of the final situation were analysed and reported in a separate section. Finally, the findings were compared with each other and the relationship between different factors was analysed across the four cases by means of a cross-case comparison (see Hennink, Hutter & Bailey 2011, 244).

3.5 RELIABILITY AND VALIDITY OF THE DATA

This chapter discusses the validity and reliability of the data. Otherwise the implementation of the study is discussed and evaluated in Chapter 5.2. Since the study was a follow-up study, it provided data from different phases of the learning process of the students and the development of the entrepreneurial competences of the same student group has been examined. Therefore the added-value for the study was its longitudinal nature.

A study can be considered valid if its measures actually measure and examine what they claim to measure and examine, and if there are no logical errors in drawing conclusions from the data (Moutinho & Hutcheson 2011, 328). It can be argued that the epistemological choice of the study was to study perceptions and these were captured by examining them with different methods. Since almost the whole target group took part in the study, it improves the validity of the findings.

The validity of the questionnaires is also open to discussion. The questionnaire of subsidiary-study 4 (Appendix 1) was designed by another author (Hilkka Lassila) who used it in her earlier work. The questionnaire of subsidiary-study 5 (Appendix

2) was created by me and the statements of the questionnaire were formulated from the learning objectives (competences) of the degree programme. In other words, all the combined variables related to the business competences were constructed by combining all the individual variables of a learning objective together (e.g. Business Operations and Entrepreneurship). Further, Personal Maturity Skills as a combined variable of the questionnaire was used by Schallenkamp and Smith (2008). It includes the following four individual variables: Self-awareness, Accountability, Emotional Coping, and Creativity and they were examined by using a Likert-scale 1-5.

Further, intention as an individual variable was elicited in two ways in the questionnaires: in the first questionnaire the students were asked if they had thought about starting up a business alone or together with others sometime in the future and by using the following four response alternatives: "I have not", "Sometimes I have toyed with the idea and dreamed about it", "I have made some plans already", and "I have already started a business or I am in a business as an owner" In the second questionnaire, entrepreneurial intention elicited with the following statement: "My intention is to set up a business after graduation". The students were asked to score how well the statement corresponded with their opinions with the following alternatives: 1 = not at all, 2 = not well, 3 = fairly well, 4 = well, and 5 = very well. In addition, in the qualitative data collection of the subsidiary-studies the students were asked to write about their entrepreneurial intention after graduation.

All in all, data collection was done by asking the students to complete the questionnaires or write a piece of text during or after the classes. In any case the students were involved in the situation which may have been an encouraging factor and therefore the response rate was high in each subsidiary-study. They reported their perceptions on a Likert scale 1-5 or in their own words. Nevertheless, other options for data collection could have been used, e.g. interviews for a more detailed description of the phenomenon (Anttila 2006, 285; Scott & Usher 2011, 115) or even observations could have enriched the findings by means of a detailed description of social settings or events in order to situate students' behaviour within their own socio-cultural context. (Hennink, Hutter & Bailey 2011, 170; Scott & Usher 2011,105).

Further, data analyses of the qualitative studies were done by categorising the findings according to the main themes and further according to the sub-themes. This was useful to capture the most important aspects of a subsidiary-study, and so to enhance the understanding of the topic. There was a discussion in each article how the themes or categories were derived from the data. Nevertheless, one could have also analysed the data using different methods. For example, a different analysis method might have yielded a more profound understanding of the topics. In the reporting of the findings there was a clear distinction between the data and interpretation in the articles. The findings were reported in detail before the conclusions were drawn. (Silverman 2001, 222). In the quantitative analyses not only the frequencies of the variables were analysed, but correlation analyses were also made in the quantitative data analysis to determine any possible association (relationship) between two variables (Mouthiano & Hutcheson 2011, 56).

4 Discussion of the results

The research task of the study was to ascertain to what extent entrepreneurial competences develop during a bachelor's degree programme. To accomplish the research task six subsidiary studies were conducted to answer the research questions posed in the respective articles. The results of six subsidiary-studies are reviewed in this chapter. First, in each sub-chapter there is a short summary of the subsidiary-study (i.e. topic, objective, and research method). Then the main findings are discussed in the light of earlier studies.

4.1 ARTICLE 1: THE RELATIONSHIP BETWEEN SELF-PERCEIVED GENERIC COMPETENCES AND ENTREPRENEURIAL INTENTION

This qualitative study focused on the generic competences of new international students when starting their studies on a business degree programme in Finland. The purpose of the study was to examine and understand the self-perceived competences of the students and how these competences were related to their self-perceived entrepreneurial intentions. The students were asked to write about their strengths and weaknesses in terms of entrepreneurial characteristics at the beginning of the first year.

To sum up the findings of the study, they were analysed and categorised by applying the human competence structure presented by Bergenhenegouwen et al. (1996). The findings of the study were introduced as three different types of student profiles according to respondents' self-perceived intentions at the beginning of their degree studies. First it can be stated that the profile of those students who reported having entrepreneurial intentions included strong goal orientation, very positive self-image and high tolerance of uncertainty. The profile included quite positive attitudes to work, but positive values and standards, learning skills, social and communication skills only to some extent. In addition, the profile of those students who did not yet know about their entrepreneurial intentions consisted of good learning skills, and good social and communication skills. It evinced a fairly positive approach to work, fairly positive self-images and strong goal orientation, but tolerance of uncertainty and positive values and standards only to some extent. Finally, the profile of the students who reported not having entrepreneurial inten-

tions comprised all the following factors at a very low level: positive self-image, goal-orientation, tolerance of uncertainty, learning skills, and social and communication skills as well as positive approaches to work. Further, the profile included no positive values or standards at all. Given the descriptions of the profiles, they can be named as follows: "Independent achievers" (Yes-type), "Social team players" (Do not know yet-type) and "Dependent individuals" (No-type) since these best describe the contents of the profiles in each case.

The findings illustrated that the students have many generic and entrepreneurial competences when they start their studies, which is a good starting point for the learning of business specific competences later during their studies (Vaastra & de Vries 2007, 335). On the other hand, several students lacked many entrepreneurial competences which are difficult to acquire during studies. In business degree programmes it is obvious that students are highly likely to acquire business skills and knowledge as well as many intermediate skills they will need after graduation. In any case, one challenge for higher education is to find good ways to promote students' acquisition of entrepreneurial competences during their professional studies. Since the generic competences are considered to be a foundation for the students' participation and collaboration in working life and for their own professional development, learning these competences should be adequately taken into consideration and promoted in teaching. Nevertheless, these competences should not be taught in an abstract way, but in a way which has a direct relevance to the subject-specific competences (Cottrell 2001, 21) and it must not lead to an underestimation of the significance of subject-specific competences (Ruohotie 2002, 244).

Moving on to the assessment of the learning of the entrepreneurial competences, there are a couple of things which should be taken into consideration. Since the entrepreneurial competences are a set of positive attributes combined with personality characteristics, skills and knowledge (Gibb 2006; Kirby 2004; Koironen & Ruohotie 2001; Leskinen 1999; Paajanen 2001; Ristimäki 2004), the assessment of the learning outcome may be difficult. Usually the evaluation is based on the subject-specific competences of each study module in higher education, and the development of the generic competences is either integrated into the evaluation of the subject-specific competences or even ignored. Often the students focus on the credits and grades in their studies, therefore one challenge is how to make the evaluation of these competences more explicit and directly related to course contents, and therefore more important to learn for the students.

Finally, it is worth discussing a relevant aspect which also seems to be critical. Usually the teachers have a good command of subject-specific knowledge and skills as well as a good command of communication and pedagogical skills. Since our own personal underlying beliefs, values and self-image are deep-seated personal characteristics, they also determine to a great extent how we, as teachers of entrepreneurship, act in teaching situations (Bergenhengouwen et al. 1996). Eventually, the fundamental question can be posed: are we, as teachers, really ready and willing to put enough effort into facilitating and supporting the learning of different types of entrepreneurial students - whether they are independent achievers, social team players or dependent individuals?

To conclude, this study proposed that some of the generic competences can also be regarded as entrepreneurial competences. The generic competences serve to develop and foster a basis for the subsequent development of competences (Boni & Lozano 2007, 819; Nygaard, Hojlt & Hermansen 2008, 33; Vaastra & de Vries 2007, 335). The findings of this study showed that the students have many entrepreneurial competences on starting their studies, which is a good starting point for the learning of business specific competences later. On the other hand, several students lacked such entrepreneurial competences that are difficult to learn during studies. Three different entrepreneurial profiles of the students were identified.

4.2 ARTICLE 2: ENTREPRENEURIAL LEARNING AND LEARNING STRATEGIES OF THE FIRST YEAR BUSINESS STUDENTS IN HIGHER EDUCATION

This qualitative study examined the entrepreneurial learning of first year international business undergraduates. The aim was to understand what the students learn in terms of entrepreneurship as well as what strategies they use in their learning. The study was implemented through self-assessment tasks in which the students were encouraged to recall and describe their most significant learning experiences related to entrepreneurial learning during their first year.

According to the findings of this study, the most commonly used learning strategies of the first-year students are different cognitive strategies, yet metacognitive learning strategies are also used to some extent. The cognitive learning strategies of the students included four different strategies. *The strategy Learning by applying knowledge in practice in interaction with other people*, was the most used strategy in which the students emphasised both the application of knowledge in practice and also the social interactive process with other people. The next commonly used learning strategies were *Learning by applying knowledge in practice independently* and *Learning by listening and thinking*. The first was used in practicing some skills or in losing 'stage fright' as well as in applying knowledge from the classes in a learning assignment. The latter refers mainly to the classes taught by visiting professors from abroad. Finally, *the Learning by reading strategy* was used only once to get further information about the topic taught during the classes. It seems that the learning strategies used are connected to different learning situations and to the task involved in certain contexts (Ruohotie & Nokelainen 2000, 155; Vermetten, Lodewijks & Vermunt 1999, 1).

According to the findings, the metacognitive learning strategies were not so commonly used as cognitive strategies. Nevertheless, orientating oneself before starting on an assignment, assessing one's own progress, and using a 'mixed learning strategy' were the strategies used. The most common metacognitive strategy was assessing one's own progress when the outcomes were something other than what was expected. In other words, when things do not go as expected, the students are able to reflect on their experiences. Nevertheless, it seems that the students were not so familiar with the metacognitive learning strategies which might, however, help them to perform better and to be persistent in their learning efforts in acquiring knowledge and skills

and in monitoring their own learning progress (cf. Scholoemer & Brennan 2006, 81; Clayton, Blumberg & Auld 2010, 351), not only then when something goes wrong.

In order to summarise the learning strategies, it can be concluded that there are some similarities between the findings of this study and the common pattern of the first year students' learning strategies in higher education introduced by Vermunt and Vermetten (2004, 367). Although the research approach was different, the existence of the dimensions of the structure can be recognised in the findings. The meaning-directed learning pattern was recognised to some extent in the findings (critical processing and thinking, self-regulation of learning processes). The reproduction – directed learning pattern was illustrated, for example, by rehearsing (applying and processing the knowledge independently) and by in-taking of knowledge during the classes. The undirected learning pattern refers to lack of regulation, ambivalent learning orientation, cooperation and stimulating education together. Interestingly, according to the findings the students valued highly cooperation with other people (e. g. group work) and the classes given by visiting professors. This could be also a sign of lack of regulation pattern and the undirected learning pattern. Nevertheless, the application-directed learning pattern was the most commonly used: process and use of knowledge was emphasised by the students. In a way this is understandable, since the target organisation is a university of applied science. However, further studies are needed to understand these patterns better.

According to the findings the students seem to achieve the learning outcomes of the first year quite well. In fact the emphasis on the learning outcomes of the most significant learning competences was in the generic competences, which is a good starting point for their development of professional competences later. Thus it seems that the learning objectives are realistic for the first year students. It seems that the first year students learn best by doing: applying the knowledge acquired in practice in a group or independently. Further, it can be concluded that learning by reading is not used as a learning strategy. This can be explained in two ways: either this strategy is not related to the most significant learning experiences, or else the students neglect reading as a learning strategy. Although the target organisation was a university of applied sciences, it is worth emphasising that the students need theories to apply, otherwise the insight into the topics, taught during the classes, might remain too narrow. Since self-regulated learning is associated with success and academic achievements (Huang 2008, 529; Lan 1996, 106; Kuyper, van der Werf & Lubbers 2000, 181; Scholoemer & Brennan 2006, 81), the enhancement of the self-regulated learning skills might support and help the students to achieve their personal objectives better. One solution might be to teach these learning strategies to the students in an explicit way at the beginning of their degree studies, before they start their professional studies, and try to achieve more demanding academic objectives.

To conclude, although the use of learning strategies is personal and habitual, and are related to the context (Vermetten, Lodewijks & Vermunt 1999, 1), they have the potential to mediate the relationship between students' interests and their academic achievements (Soric & Palekcic 2009). Motivation and self-regulated learning are associated with success at school, and self-regulation is a good predictor of academic achievement (Kuyper, van derWerf & Lubbers 2000, 181; Scholoemer & Brennan 2006,

81; Lan 1996, 106; Huang 2008, 529). Nevertheless, the results of the study showed that self-regulation in learning is expected, yet the students may lack the abilities for self-directed learning and meta-cognitive learning strategies.

4.3 ARTICLE 3: BUSINESS STUDENTS' PERCEPTIONS OF THE USE OF CREATIVITY IN THEIR STUDIES

The main objective of this qualitative study was to explore and understand students' perceptions related to the use of creativity in their studies, and the inhibiting and promoting factors in using creativity in their studies in higher education. The sample consisted of those first-year students who had taken an entrepreneurship course, and also learnt the basics of creativity in general and in entrepreneurship in particular. The study was implemented through the self-assessment tasks of the students.

The results showed that the students mostly used their creativity to find new ways to study and improve their existing study methods. They also used their creativity in different learning tasks and projects and in occasional problem-solving situations. In utilising their creativity, the students took various risks, for example from the point of view of other people's reactions and the final outcome of the project. Furthermore, according to the results, there are both educational and social factors which inhibit or even prevent the utilisation of creativity in studies. Nevertheless, the students could increase their use of creativity in their studies by finding out themselves about new study methods, by making their own way of thinking more positive, by acquiring more courage, by developing their ability to tolerate uncertainty and risk, and by actively acquiring more knowledge about business life. The results also showed that changes in current practices at school and in teachers' modes of operation are required, so as to encourage and support the students' use of creativity in their studies. To sum up, it seems that the use of creativity is not as such very much involved in studies, but rather in study methods. Even then, the students take the personal risks of success or failure; i.e. the students are not encouraged and supported by teachers.

According to the findings, willingness to take risks and to use creativity to accomplish tasks seems to go hand in hand in an individual. Students therefore need both courage and encouragement to try something new. Because creativity and risk are essential phenomena related to entrepreneurship and entrepreneurial behaviour (Robinson & Stern, 1997), their use could be encouraged and promoted more forcefully by means of entrepreneurship education. If creativity, on the other hand, is defined fairly commonly as the ability to create something new, different and practically usable (Sternberg & Lubart, 2003), then creativity can be utilised in many different ways in teaching. Therefore only the teacher's own activity, ability and willingness set the limits to the use of creativity in teaching. If teachers themselves aim to work in an entrepreneurial way (Paajanen, 2001), the challenge is especially how to encourage students to use creativity when it is possible and appropriate, how to develop students' creative thinking and problem solving skills, how to encourage them to take controlled risks, and how to develop expertise, at the same time helping them to perceive new opportunities and current phenomena from different perspectives.

The findings indicated that the present state of the utilisation of creativity is closely involved only with responsive creativity. However, creativity could be genuinely supported if the whole environment behaves entrepreneurially and regards it as natural to work in complexity and uncertainty, understanding the risks, failures and successes involved (Kyrö & Carrier 2005, 29) and therefore by following Lücker (2011, 246) it can be concluded that a safe learning environment that facilitates and fosters creativity could cause creativity to flourish. To sum up, with creative processes there is always the risk of failure; therefore it is necessary to emphasize the importance of an atmosphere where failure is allowed. From this point of view creativity, inventiveness and the courage to utilise them are closely related to entrepreneurship and entrepreneurial behaviour. Then the utilisation of creativity is a real challenge for both teachers and students.

To conclude, creativity can be considered to be an important part of an individual's entrepreneurial behaviour (Gibb 2005; Ko & Butler 2007; Ristimäki 2004a+b). Since students' entrepreneurial learning aims at a new kind of behaviour in the present and in the future, entrepreneurial behaviour could be an aim, if circumstances, methods, learning activities and processes support and facilitate it. Further, since there is always some uncertainty in testing a new thing, there is also the chance of success or risk of failure. Therefore students should have a fairly good tolerance of uncertainty as to be able to exploit their own creativity in their studies: the better students tolerate uncertainty, the better they will tolerate risk. (Kyrö & Ripatti 2006). The findings of the study indicated that the use of creativity is not so much involved in studies as in study methods. Even then, the students take the personal risks of success or failure; i.e. the students are not sufficiently encouraged and supported by teachers.

4.4 ARTICLE 4: INTERNATIONAL BUSINESS STUDENTS' ATTITUDES TO ENTREPRENEURSHIP

On a degree programme in business management in Finland this study aimed to ascertain the attitudes of business students towards entrepreneurship. The study was implemented by distributing a questionnaire with 27 statements related to the four main themes to ascertain students' attitudes towards entrepreneurship. Beside these statements, the students were asked to provide background and report their entrepreneurial intentions. The study was carried out in 2009 and four different international student groups were selected for the sample (n = 106). In addition, two of the student groups had already responded to the same questionnaires in 2008, therefore the development aspect of the attitudes was included in the study and the findings of the two groups were compared between the years studied.

It can be stated that according to the findings the male students did not have more entrepreneurial features than the female students. However, they had more motivational factors and interest in entrepreneurship than the female students, which supports Urbano's (2006) as well as Kundu and Rani's (2008) research results. In addition, the barriers of entrepreneurship are lower for male students than for the female students. According to the findings it seems that the entrepreneurial features and

characteristics are positively related to the interest for one's own enterprise as well as the entrepreneurial motives. In addition, motivational factors for entrepreneurship are negatively related to the barriers of entrepreneurship. The findings illustrated that even if there was an entrepreneur in the core family or among acquaintances, it had no statistically significant influence on the perceived entrepreneurial intention of the international students (cf. Urbano 2006; Degeorge & Fayolle 2008). Further, summarising the findings related to the development of attitudes, it seems that they do not differ between academic study groups or between study years, but remain almost the same. This also supports the theory that strong attitudes are expected to be relatively stable over time (Ajzen 2001).

The findings of this study revealed the attitudes and entrepreneurial intention of international students. Further, since attitudes affect and predict intentions which, in turn, predict behaviour (Ajzen 2001; Krueger & Carsrud, 1993), it can be concluded that the findings indicated that the entrepreneurial attitudes of the international business students are quite positive. This means that they might have a real intention for setting up their own businesses later, which could be taken into consideration and supported during their studies.

However, based on earlier studies as well as the present findings, the attitudes seem to be fairly stable during the studies in higher education, which can be concluded in two different ways: depending on the aims of entrepreneurship education in an university, the attitudes could be taken more into consideration while selecting students carefully for entrepreneurship training, based on their attitudes towards entrepreneurship, and provide the training especially for them. On the other hand, if the aim is to increase the more effort could be put on the promotion of all the dimensions of entrepreneurship before and during the studies in higher education. In general, although the attitudes seem to remain stable during the studies in higher education, the level of them is what accounts. In fact, in order to influence the attitudes, the promotion activities should be taken up much earlier by the society through up-bringing and basic studies. All in all, how to affect and promote entrepreneurial attitudes is still a big practical challenge both for the education and also for business life.

4.5 ARTICLE 5: STUDENTS' PERCEPTIONS OF THEIR BUSINESS COMPETENCES AND ENTREPRENEURIAL INTENTION

The aim of the study was to ascertain how business students perceived their professional competences related to business and entrepreneurship, and to examine the students' self-perceived intentions to set up their own businesses after graduation. The study was carried out in 2010 and eventually 111 questionnaires were returned. The questionnaire included 37 statements related to the business competences taught on the degree programme. The students were asked to rate themselves against these competences (learning outcomes). In this study an additional competence was included, namely *Personal maturity skills*, and consists of four dimensions also related to entrepreneurship: Self-awareness (the ability to reflect and make self-assessments), Accountability (the ability to take responsibility for resolving a problem), Emotional

coping (the emotional ability to cope with a problem), and Creativity (the ability to produce a creative solution to a problem). In addition, the students were asked questions related to their background and the likelihood of their setting up a business after graduation (entrepreneurial intention by self-evaluation).

In light of the findings it can be argued that the students were quite positive and confident in rating their competences. Most of the students gave themselves very high ratings against almost all the competences (cf. Henry, Hill & Leitch, 2003). In that respect it can be concluded that the learning objectives of the degree programmes have been achieved. Nevertheless, the entrepreneurial intention of the students remained quite clearly at a lower level than the business competences.

The findings also revealed that international students had higher scores than the Finnish students related to all the competences and in the intention. To some extent the differences can be explained by the fact that the Finnish students specialize either in Financial Administration, Marketing or Business Administration as their major, whereas the international students, as one small group of students, take almost the same courses during the programme. On the other hand, as Pihkala (2008) notes, the findings could be explained so that entrepreneurship education triggers uncertainly to the Finnish students' confidence in their own entrepreneurial skills, if they perceive, for example, having oversized objectives set for entrepreneurship education, lack of encouragement and intellectual support for entrepreneurship. Further, as the likelihood of setting up one's own business seems to be higher when students have spent a long period of time in a foreign country (Degeorge & Fayolle 2008), the findings of this study support that argument. The students who go to study abroad seem to have more entrepreneurial features and characteristics than those studying in their home country. Nevertheless, since both study programmes have almost the same content and learning objectives, but the language of instruction, implementation and the learning environment differ, this may to some extent account for the differences.

Then, to describe what kinds of differences in the perceptions between different student groups by academic years exist, the first notion is that there were only small differences between the second and third academic years, which also support the findings of Arnold et al. (1999). However, in comparing the second- and third-year students and also the internationality, the international students rated themselves with higher scores than the Finnish students. Finally, in order to understand female and male students' perceptions of their business competences and their entrepreneurial intention, it can be argued that there were only small differences between the genders. The findings showed that there were no statistical differences between the male and female students (cf. Ljunggren & Kolvereid 1996). Based on that, it seems that female students of the programme are as likely – or as unlikely – to set up their own businesses after the graduation as male students are.

Since it seems that the intention does not develop during the education, it might be useful, as Pihkala (2008) presents, to select the students with stronger intention at the beginning of the studies and provide them special entrepreneurship study modules. In addition, since it seems that international students studying abroad have a higher likelihood of setting up their own businesses than those who study in their

own country, it might be useful to profile the small study programme as an entrepreneurship programme which supports and facilitates the students' intention for becoming entrepreneurs during the whole study programme. Nevertheless, it is also important to include all the dimensions of entrepreneurship in the study programmes to provide learning opportunities for all students both about entrepreneurship and for entrepreneurship (Kyrö & Carrier 2005). Since the learning process starts with paying attention to the phenomenon and continues to the development of the competences (Blenker, Dreisler, & Kjeldsen 2006), the awareness of entrepreneurship is a good starting point for all the students, not only for all potential candidates for entrepreneurship.

To conclude, the entrepreneurial intention does not increase during the studies in higher education, but either remains stable or even declines during the studies (e.g. Degeorge & Fayolle 2008; Leskinen 1999; Pihkala 2008; Shinnar, Pruett & Toney 2009). The findings of this study supported these findings so that although the studies in higher education increase awareness of entrepreneurship in general, they do not encourage and enhance entrepreneurial intention. The degree programme had a positive influence on the development of business competences, but not on entrepreneurial intention, even though the aim is that some of the students would actually set up their own businesses.

4.6 ARTICLE 6: BUSINESS STUDENTS' SELF-PERCEIVED ENTREPRENEURIAL CHARACTERISTICS AND COMPETENCES AT THE BEGINNING AND AT THE END OF THEIR STUDIES

The purpose of this qualitative study was to examine and understand how the entrepreneurial characteristics and competences of the students developed during the bachelor's degree programme and also what kind of relationship pertained between the nature of goals and motivation at the beginning of the studies and the outcomes at the end of the studies. This subsidiary study was the last part of the research and took a qualitative approach in order to capture the details of the topic of interest here. For this subsidiary study the data of the cases were collected from the preceding subsidiary studies of 2007, 2008 and 2010.

The findings of this study showed that entrepreneurial intention seemed to be stable during studies, which supports earlier findings. Further, the findings of this study showed that entrepreneurial intention was apparently connected to the nature of the goals (performance vs. mastery) and the nature of motivation (intrinsic vs. extrinsic). According to the findings, it seems that the typical entrepreneurial characteristics and skills for business and entrepreneurship had been developed (Leskinen 1999; Paaajanen 2001; Ristimäki 2004), although there were individual differences. Further, it seems that the level of motivation as well as the nature of the goals in the studies were strongly related to the learning outcomes (e.g. Barkoukis et al. 2008; Pintrich & Schunk 2002). In the end the learnt entrepreneurial competences, i.e. knowledge, skills and attitudes towards entrepreneurship, also relate to the expectations of the students in the beginning. The findings of this study also illustrated that if a student

was motivated and willing to learn and master various and specified knowledge and skills, he or she seemed to achieve them better. In addition, the learning outcomes seemed to be connected with the nature of the goals in studies: A performance goal drives and ends-up with basic knowledge and skills, whereas a master goal drives for more advanced skills for business and entrepreneurship. (Kuyper et al. 2000, 183; Clayton et al. 2010, 350). The findings indicated that the entrepreneurial intention was a driving force for the development of the entrepreneurial competences, and vice versa.

In order to answer to what kind of relationship there is between the nature of the goals and motivation at the beginning and the outcomes at the end of the studies, it can be presented that based on this qualitative study, there seemed to be an obvious connection with them. The student, who was considered an amotivated student (Barkoukis et al. 2008, 40) in terms of business and entrepreneurship, had a lack of expectancy component of motivation and had a strong performance goal in her studies, she seemed to be very uncertain of her actual business skills and competences at the time of the graduation. She seemed to have a strong extrinsic motivation in her studies. The students, who had value and affective components of motivation at the beginning of their studies, were willing to achieve all the needed competences for their career in the international business, and they perceived to be quite pleased with their learning outcomes. They had mastery goals dominant in their studies and intrinsic motivation seemed to be a catalyst for their learning (Lei 2010, 153). Further, they did not have so much interest in further development in business studies in terms of quantity, but the quality: they were interested in continuing their studies at a master level. In addition, it seemed that the student, who had set up a company during his studies, had learnt most the entrepreneurial competences as well as grown as an individual. Since having set up a business, he had learnt the relevant entrepreneurial skills for and through the company (see Kyrö & Carrier 2005, 28). The achievement motivation was to master everything in practice and to be successful in real business.

To conclude, goal setting refers to standards of performance and the goal setting is an important motivational process (Pintrich & Schunk 2002, 165). Motivation is considered to be an important factor in a student's learning and achievement of learning goals (e.g. Barkoukis, Tsorbatzoudis, Grouios & Sideridis 2008; Pintrich & Schunk 2002). However, there are two contradictory goals in learning: mastery goals and performance goals. The mastery goals are related to learners' desire to develop their knowledge, understanding and competences, whereas performance goals reflect a desire to avoid demonstrating incompetence. (e.g. Kuyper, van der Werf and Lubbers 2000, 183; Clayton, Blumberg & Auld 2010, 350). The findings showed that entrepreneurial intention was a driving force in the development of entrepreneurial competences and vice versa. Further, it can be claimed that this points to a connection between the nature of the goals and motivation at the beginning and the outcomes at the end of studies. The findings of this study moreover indicated that entrepreneurial intention was apparently connected with the nature of the goals (performance vs. mastery) and the nature of motivation (intrinsic vs. extrinsic).

4.7 SUMMARY OF THE MAIN RESULTS AND CONCLUSIONS

The main findings and conclusions of the subsidiary-studies can be briefly summarised as follows: According to the findings of the first subsidiary study, it seems that competence profiles and entrepreneurial intention are already interrelated at the beginning of studies. This could be better taken into consideration at the beginning and during the studies, for example by streaming for entrepreneurship education and training: first, the students seen to have entrepreneurial intention could be offered good opportunities to enhance and increase their competences on the degree programme. The main conclusion is that since some of the students already had a strong entrepreneurial intention at the beginning of their studies, that intention should be fostered and developed in order to realise it in terms of business ideas. Further, positive values and standards should be fostered and more segmentation and individual support are needed for entrepreneurship education and training if the aim is to produce more entrepreneurial students during and after the programme.

According to the findings of the second sub-study, it seems that the learning objectives of the degree programme are realistic for first-year students. The findings can be concluded so that the first-year students learned best by doing: applying the knowledge imparted in practice in a group or independently. Further, it can be concluded that learning by reading is not used as a learning strategy. It seems that therein lies a paradox: self-regulation in learning is expected, but the students did not necessarily have the abilities for self-directed learning and meta-cognitive learning strategies. Therefore the use of these should be encouraged and supported already at the beginning of studies.

According to the findings of the third subsidiary study, willingness to take risks and use creativity to accomplish tasks seems to go hand in hand in an individual. Students therefore need both courage and encouragement to try something new. The findings indicated that the present state of utilisation of creativity is closely involved only with the response creativity. Then the utilisation of creativity is a real challenge for both teachers and students. It seems that therein lies the following paradox: the use of creativity in studies is expected, but it is not sufficiently supported and encouraged by the teachers.

The findings of the fourth subsidiary study permit the conclusion that the entrepreneurial attitudes of the international business students were quite positive. The main conclusion is that the attitudes towards entrepreneurship remained stable or declined during studies even though they should be promoted among the students during their studies.

To sum up the findings of the fifth subsidiary study, business-related competences were developed according to the objectives of the programme. However, the entrepreneurial intention remains stable or declines to some extent. In order to influence this, too, teaching methods and learning environments could be changed to be more entrepreneurial. All in all, the main conclusion is that the programme did indeed positively affect the development of business competences, but not entrepreneurial intention.

The findings of the sixth subsidiary-study showed and confirmed that entrepreneurial intention remained stable during studies. Further, the findings showed that

entrepreneurial intention seemed to be connected to the nature of the goals (performance vs. mastery) and the nature of motivation (intrinsic vs. extrinsic). It can be concluded that since there are differences in what the students really learn and since there seems to be a connection with motivational components, more attention should be paid to learning goals and outcomes. In other words, the motivational factors should already be taken better into consideration at the beginning of studies.

5 Conclusions of the study

This study took a broad and holistic approach to the entrepreneurial competences (COM(2005)548; Frank 2007; Nab et al. 2010) and included both innate and learnt competences. Further, the entrepreneurial competences were also regarded as generic competences and subject-specific competences. The research task of the study was to ascertain *to what extent students' entrepreneurial competences developed on the degree programme*. The research task was accomplished by conducting six subsidiary-studies and by answering the respective research questions one by one. The objectives of the study were achieved through increasing the understanding of learning entrepreneurial competences in higher education. However some critical assessment is appropriate.

5.1 ASSESSMENT OF THE IMPLEMENTATION OF THE STUDY

In this chapter the whole study is discussed and assessed. Traditional scientific research criteria for evaluation are often based on positivist or post-positivist perspectives. Lincoln and Cuba (1985) have proposed the following four criteria for qualitative research, which also correspond to the traditional scientific research criteria: credibility, transferability, dependability, and confirmability. (Wigren 2007, 385). Since this dissertation applied both qualitative and quantitative methods to study perceptions, these four criteria are used as a basis of evaluating this study, after which ethical aspects of the study are presented and assessed. It is worth reminding that the reliability and validity of the data has been discussed and assessed in the last sub-chapter of the Methodology chapter (3.5.)

Credibility

The credibility of the researcher and research methods can be discussed. Since the interpretive approach acknowledges that the researcher's background, position or emotions are an integral part of the process of producing findings (Hennink, Hutter & Bailey 2011, 19) this is discussed first. My own role during the study was not only that of a researcher, but also that of an actor in the programme, which made it easier to carry out this longitudinal study. I taught the students two courses during the first

year and supervised theses at the end of programme. During my years as head of the small international degree programme I came to know the students well (their backgrounds, problems, interests, aims and achievements). I was also able to follow their learning process and outcomes in real time, not only retrospectively. All in all, the perspectives of the students reflected their subjective views of their social world, and I also brought my own subjective influences to the research process, particularly during data collection and interpretation. (Hennink et al. 2011, 19).

Due to the research skills achieved through an earlier doctorate, it was not too demanding to implement the subsidiary-studies and follow the reporting and publishing strategy initially selected. Nevertheless, some challenges were encountered in conducting the study. One challenge was the participants themselves. First, one might ask if the students were able to write about their personal characteristics and skills, if they had enough language skills to express themselves or if they had enough basic communication skills to do so, especially at the beginning of the programme. Secondly, one might also consider if the students were willing to write about themselves on course-related assignments. Thirdly, the cultural aspect should be taken into consideration: most of the students come from Russia, Asia or Africa, where the study environment is different from Finland. For example, the students are not used to reflect their own issues in the study assignments. In other words, some of the personal features and characteristics may have been deliberately omitted from written texts and some of the skills or behaviour may have been overemphasized. In addition, the students described their own competences, of which many are invisible and therefore also difficult for them to identify. Therefore it may be that some of the competences have not been included in the writings or they might have been written selectively to describe only some of them. Further, the students may not have been able to recall and write of such metacognitive learning experiences.

Transferability

The study was implemented on one international programme and followed the learning process and outcomes of one group of students. Therefore the findings are valid only in this context. Nevertheless, since earlier studies have indicated similar types of results to some extent, one could consider how the results could be transferred in another same type of context. For example, the entrepreneurial learning of other students in another international business degree programme in Finland could be valid. Moreover, the results related to entrepreneurial attitudes and intention could be valid in other higher education institutions. Nevertheless, each reader has to consider the transferability of the findings of the study for himself or herself.

Dependability

Since the study followed the learning process and outcomes of one student group, it was logical that the research process started when the students started their studies on the programme and that the research process continued until the students' graduation. The first part of the research process examined and analysed the starting point, i.e. the competences students had at the beginning followed by different subsidiary-studies throughout this process, and ending up at the situation of graduation. In other

words, the research process followed the learning process of the students during the period 2007 – 2010. To obtain a comprehensive picture of the development of the competences during the entire study process of the students, six subsidiary-studies were conducted during the study periods, although fewer would have sufficed for a dissertation.

In reporting and publishing the following strategy was adopted. Once each subsidiary-study was completed, it was reported and the paper was presented in an international conference. At each conference, the best conference papers were selected after the review process for publication in selected journals. All the articles in this dissertation were first written as conference papers, then selected for publication as articles. The chosen strategy had three main advantages: First, the deadlines encouraged and motivated me as the researcher to complete the papers on schedule. Secondly, it provided an opportunity for oral feedback on the papers during the conference and then written comments on the papers after the review process. Thirdly, it was quite a convenient and fast way to revise the papers and eventually publish the articles. This reporting and publishing strategy ensured that each phase of the research process was documented after its implementation. In addition, the research process is described in details in Chapter 1.4. to provide readers with an opportunity to trace all the phases of the research process. However, the chosen publishing strategy also had disadvantages. The conferences and journals in which the papers were published may not be the most representative for European entrepreneurship education. Now, considering the decisions in hindsight, I could have been more ambitious in terms of the level of the publishing forums, at least for some of the papers.

Confirmability

Since the competences can best be verified and tested by doing a specific task or job (Gonczi 2003; Nab et al. 2010) and since the students were only studying and therefore learning their professional competences, the epistemological choice was to study perceptions of the competences. However, competences were examined by using many methods in order to enrich the results: method triangulation and source triangulation were used (Anttila 2006, 469). Qualitative research and quantitative research yield different kinds of findings and each has its limitations. Therefore the limitations of one method can be offset by the strengths of the other method and the combination of quantitative and qualitative data provide a fuller understanding of the research problems than either approach by itself. (Creswell & Clark 2011, 8) Therefore it can be concluded that the triangulation (Jick 1979) not only improved the reliability of the findings, but also enriched the findings derived from the data. Nevertheless, since the epistemological choice was to study perceptions of the competences, the results do not necessarily reflect the actual competences of the students.

The theoretical framework was selected separately for each subsidiary-study one by one. The theoretical part of the study included relevant aspects of the earlier studies. However, the theoretical framework could have been broader in each subsidiary-study in order to ensure a more profound understanding as a starting point.

Ethical aspects

In order to conclude this evaluation of the study the following ethical aspects are raised. Throughout the research process the following ethical aspects (see Hennink, Hutter & Bailey 2011, 63; Wilson 2010, 94) were taken into consideration. First of all, the students were provided with sufficient information about the research to make a voluntary decision on participation. In fact, it seemed that most of the students were quite interested in taking part in the study by writing their texts and giving their answers. Initially the willingness to take part in the study seemed to be stronger than at the end, although there were not many drop-outs. (cf. Wilson 2010, 121). Secondly, it was emphasised that the students had the right to decide regarding their own participation in each study. The identities of the participants were protected and all data were kept confidential at all times.

5.2 PRACTICAL IMPLICATIONS

The results of this dissertation confirm the findings of earlier studies, that there is still a need for changes in didactics, pedagogy and learning environments of entrepreneurship education (Blenker, Dreisler, Färgemann & Kjeldsen 2008; 50; Kirby 2004, 510). This chapter discusses what changes are needed and how they could be implemented towards more entrepreneurial. In general, the goal of the business education should not be only the teaching of commercial subjects. Entrepreneurship education is then seen widely as a matter concerning the entire learning community and promoting an individual's entrepreneurial behaviour. It is emphasised that entrepreneurial pedagogy should be applied in teaching and the focus should be especially on the learning process and its dynamics. For example, the following methods could be used to facilitate and enhance entrepreneurial learning: interdisciplinary projects for companies, integration of teaching and RDI-activities, web-based studies, business games and simulations, using entrepreneurs and alumni in teaching, and setting up new ventures and enterprises (ARENE 2011). All in all, the main idea is to train "in", rather than about, for or through (cf. Kyrö & Carrier 2005). On the other hand, also different learning strategies could be taught to the students in order to facilitate the students to achieve their personal learning objectives better. For example, there could be more business related learning environments and real-life challenges for students' learning in order to support the use of learning "learning by doing". The students could learn on the projects with local companies. An interdisciplinary approach, in turn, requires more co-operation between study fields. The business students possess business skills and entrepreneurial competences which they will contribute in the co-operation with students of other fields (health care, engineering, design, culture, etc.) who bring their expertise to the joint projects.

In addition, one focus will be on the increase of the competences to find the knowledge required, to create knowledge and ventures (Kyrö & Carrier 2005, 28). Finally, learning in an entrepreneurial environment supports and focuses on increasing and developing competences for enjoying and acting in complexity and insecurity. The focus is on recognising as well as creating the opportunities involved in it. Thus the

environment has an important role in learning. At its best it offers the learners stimuli and triggers learning, challenges and problems that demand study as well as information and solution models needed for problem-solving. Further, it provides structures and tools that support learning, opportunities for practice and experiment as well as social interaction, and opportunities for testing and applying what has been learnt. All in all, it is a forum for learning together and imparting expertise. (Manninen et al. 2007, 20). However, it is also emphasized that learning entrepreneurial competences is not achieved only through experiences (e.g. in an entrepreneurial context), but are also promoted by well-directed educational efforts (Klandt & Volkman 2006, 197).

The focus of entrepreneurial teaching could also be more on creativity and innovations. According to the findings of this study, the focus should shift from the responsive creativity to the proactive creativity. This could be supported and facilitated in various ways. For example, to improve students' abilities to diagnose and solve the problems encountered in organizational creation, teachers can incorporate creative thinking and behavioural techniques in the classrooms and there are various methods and techniques for enhancing creative thinking and behaviour in a classroom. (Gundry & Kickul 1996; Epstein 2000; Bowkett 2006; Higgins 2006; Proctor 2006). In general, to promote creativity in classes a few general guidelines can be presented: provide opportunities for student choice and discovery, emphasise mastery and self-development rather than sticks and carrots, promote supportable beliefs about creativity, and teach techniques and strategies for creative performance. (Petrowski 2000).

Since there are both internal actions, reasoning, feeling, sensing, intuiting, remembering, imaging, and willing (Mulligan 1997, 46-47) and external factors involved, both should be considered in the learning process. Then, teaching makes entrepreneurial learning possible - teachers are coaches who assist students in developing their conceptual understanding, but the learning occurs in the complex and incomplete in real-life situations in particular contexts (Bécharde & Grégoire 2005, 115- 116). Therefore it is also important that the entrepreneurial competences of teachers are defined and facilitated (ARENE 2011). In addition, making the traditional role of a teacher more that of a coach and facilitator could be challenging for many teachers. Teachers need training to become coaches and they need opportunities to improve their skills in training entrepreneurial competences. Also, one might consider if more teachers could be drawn from the business world, when there is a need for a new teacher. All in all, the programme could encourage teachers to become more involved in entrepreneurial activities by offering incentives.

In light of the findings of this study, it can also be concluded that setting up a business is really significant for learning motivation and outcomes in entrepreneurship. It seems that then the learning goal is strong, since all the knowledge, skills and competences are learnt for real need, success in business will depend on them. Nevertheless, students should be able and willing, but also have enough entrepreneurial competences to set up their own businesses, in order to learn more entrepreneurial competences for and through the running of a company. Students with strong entrepreneurial intention already at the beginning of the studies as well as strong motivation and mastery goals in their studies, could be encouraged to set up their own businesses in order to enhance learning, yet it has to be their own decision

to set up a business – not the teacher’s nor that of other people involved. Then it is no longer a learning environment of the school, but the students’ own personal learning environment for learning entrepreneurial competences.

In order to sum up, it seems that many things could be done in order to facilitate the learning entrepreneurial competences of students in higher education. In fact, the changes should be done in an explicit way towards more entrepreneurial learning processes in more entrepreneurial learning environments. Then the changes in the learning processes as well as the learning outcomes are possible. Nevertheless, it is also worth emphasising that without the changes needed it may not be possible to expect more learning entrepreneurial competences in a broad way.

5.4 SUGGESTIONS FOR FURTHER STUDIES

This study enhanced the understanding of learning entrepreneurial competences in only one student group. Therefore the first suggestion for further studies is related to the sample, i.e. a new study could be conducted as a longitudinal study in another context. In other words, it might be worthwhile to follow the progress of the entrepreneurial competences of students especially in an entrepreneurial learning context (e.g. Tiimiakatemia or some other entrepreneurship programme in Finland or abroad). It could be interesting to seek further information on the development of the goals and learning motivation of those students with an initially entrepreneurial mind-set.

This study was implemented solely from the students’ perspectives. A study was conducted (Kakkonen 2012) comparing students’ perceptions of their competences with the final grades given by the teachers. The first findings indicated that there were no big differences between the self-perceived business competences of the students and the grades given by the teachers. Nevertheless, further comparative studies are needed and could be carried out in order to draw conclusions based on this.

Since the entrepreneurial competences include a set of positive attributes combined with personality characteristics, skills and knowledge (Gibb 2005; Kirby 2004; Koironen & Ruohotie 2001; Leskinen 1999; Paaajanen 2001; Ristimäki 2004), assessing the learning outcome may be challenging. Usually, in higher education the assessment of learning outcomes is based on the subject-specific competences of each study module, and the development of the generic competences is either integrated into the assessment of the subject-specific competences or even ignored. Therefore one suggestion is to examine and develop the model to make the assessment of these competences more explicit and directly related to course contents, and therefore more important for the students to learn.

Finally, the results of this study demonstrated that competence profiles and entrepreneurial intention are already interrelated at the beginning of studies. Nevertheless, more studies are needed. It would also be desirable to learn more about how entrepreneurial and other business competences as well as entrepreneurial intention develop simultaneously during the degree studies. The final suggestion for further studies is related to the nature of the findings, i.e. the perceptions of the students. In other

words, they were not the competences which have been analysed and demonstrated in practice (Nab et al. 2010). According to this study, it is not possible to evaluate how well these self-perceived characteristics and competences correspond to the actual competences at work. In addition, the method of the study was a self-evaluation, which does not necessarily reflect the actual level of the learnt competences, but reflects, for example, the level of the students' self-confidence. Nevertheless, only the evaluation after graduation given by the future employers will reveal the real level of competences, and thus how competent actors the students really are in their respective professions. This, too, could be examined in further studies.

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Appendices

APPENDIX 1 QUESTIONNAIRE 1 (STUDY 4)

We are doing a survey about universities of applied sciences students' attitudes towards entrepreneurship, becoming an entrepreneur and about their interest in entrepreneurship, enterprises and entrepreneurial education.

The following statements concern various conceptions about small entrepreneurship and enterprising in general, and your personal opinions about work, education etc. Answer by circling the number which best corresponds to your opinion. There are no right answers. Read the statement carefully and consider hard that your chosen number corresponds with your opinion. (Pay attention to the negative and the positive statements!).

The statement corresponds with my opinion

1 = not at all 2 = not well 3 = fairly well 4 = well 5 = very well.

1. An entrepreneur holds an esteemed position in society				
1	2	3	4	5
2. An entrepreneur has the chance to be independent, his/her own master				
1	2	3	4	5
3. The entrepreneurial risk is not for me				
1	2	3	4	5
4. I like to work in changing circumstances				
1	2	3	4	5
5. It is no use becoming an entrepreneur without practical experience				
1	2	3	4	5
6. You cannot educate yourself to entrepreneurship; it is a native talent or a trait learned at home				
1	2	3	4	5
7. An entrepreneur can affect his success with his own actions				
1	2	3	4	5
8. Entrepreneurship is interesting and challenging				
1	2	3	4	5

9. I would like to utilise my education in my own enterprise				
1	2	3	4	5
10. My income level is better as an entrepreneur than in paid work				
1	2	3	4	5
11. Entrepreneurship takes all the time so there is not enough time left for the family or my own hobbies				
1	2	3	4	5
12. I cannot tolerate economic uncertainty				
1	2	3	4	5
13. As an entrepreneur I cannot develop myself enough				
1	2	3	4	5
14. As an entrepreneur the quality of life is better than if I would work in a paid job				
1	2	3	4	5
15. My education does not support my becoming an entrepreneur				
1	2	3	4	5
16. Entrepreneurship just does not interest me				
1	2	3	4	5
17. As an entrepreneur I have a chance to succeed				
1	2	3	4	5
18. I do not master the skills required in business				
1	2	3	4	5
19. As an entrepreneur I could take responsibility for my work				
1	2	3	4	5
20. In my work I want to advance resolutely to the goals I have set				
1	2	3	4	5
21. I do not want to be responsible for the enterprise and its employees				
1	2	3	4	5
22. I would take up enterprising if a suitable opportunity would knock				
1	2	3	4	5
23. An entrepreneur's life is nothing but toil				
1	2	3	4	5
24. If you work hard you can make it as an entrepreneur, too				
1	2	3	4	5
25. Being an entrepreneur, I could make independent decisions				
1	2	3	4	5
26. I want to work in a familiar and safe environment				
1	2	3	4	5
27. Entrepreneurs are usually doing quite well economically				
1	2	3	4	5

RESPONDENT'S BACKGROUND DATA

1. Gender: (circle the correct alternative) 1. male 2. female

2. Age in years: _____ years

3. Are there entrepreneurs in your core family (mother, father, siblings) (incl. farm economies and part-time entrepreneurs)? In this survey an entrepreneur means a person mainly responsible for the business, the form of enterprise does not matter.

1. Yes 2. No (circle)

If yes, then who? _____

4. Are there entrepreneurs among other persons in your circle of acquaintances?

1. Yes 2. No (circle)

If yes, then who? _____

5. Have you thought about starting your own business alone or together with others sometime in the future (circle the correct alternative)?

1. I have not.

2. Sometimes I have toyed with the idea and dreamed about it.

3. I have made some plans already.

4. I have already started a business or I am in a business as an owner.

Thank you for your answer!

APPENDIX 2 QUESTIONNAIRE 2 (STUDY 5)

We are doing a survey about universities of applied sciences students' learning of business and entrepreneurship.

The following statements concern various conceptions about business operation, business environment, marketing, management, finance, and research and development in business. Answer by circling the number which best corresponds to your opinion. There are no right answers. Read the statement carefully and consider hard that your chosen number corresponds with your opinion.

The statement corresponds with my opinion

1 = not at all 2 = not well 3 = fairly well 4 = well 5 = very well.

I Business Operations and Entrepreneurship				
1. I have adopted the principles of the business economic way of thinking.				
1	2	3	4	5
2. I have learned the basic concepts of business.				
1	2	3	4	5
3. I have become familiar with the operational processes of a company				
1	2	3	4	5
4. I am able to apply entrepreneurial principles as an entrepreneur and employee.				
1	2	3	4	5
5. I understand the possibilities of entrepreneurship.				
1	2	3	4	5
6. I know how to set up a company.				
1	2	3	4	5
7. I know how to write a business plan.				
1	2	3	4	5
8. I have the skills and knowledge needed of becoming an entrepreneur				
1	2	3	4	5
9. I have a business idea for a new/real business				
1	2	3	4	5

II Business Environment				
10. I recognise the interaction between business operations and business environment.				
1	2	3	4	5
11. I am able to follow and analyse the operational environment.				
1	2	3	4	5
12. I can create actively connections with the internal and external interest groups.				
1	2	3	4	5

III Marketing and Customer Relationships				
13. I am aware of competitive tools of marketing.				
1	2	3	4	5
14 I am aware of the principles of customer service.				
1	2	3	4	5
15. I am able to apply the competitive tools of marketing in running business.				
1	2	3	4	5
16. I am able to apply the principles of customer service in running business.				
1	2	3	4	5
17. I can acquire and analyse information to develop business with marketing research.				
1	2	3	4	5
18. I know the role of marketing in business.				
1	2	3	4	5

IV Organisations and Management				
19. I am able to act as a member of a working community.				
1	2	3	4	5
20. I am able to supervise and develop its activities				
1	2	3	4	5
21. I have adopted to the changing situations of working life.				
1	2	3	4	5
22. I understand the principles of project management.				
1	2	3	4	5
23. I am able to plan, implement and follow projects.				
1	2	3	4	5
24. I understand strategic management.				
1	2	3	4	5
25. I am able to use the main analysis tools of strategic management.				
1	2	3	4	5
26. I am able to make a strategic plan for a company.				
1	2	3	4	5

V Financial Administration				
27. I know the principles of accounting.				
1	2	3	4	5
28 I know the principles of managerial accounting and cost-effective activities.				
1	2	3	4	5
29. I know the key figures of a profit and loss statement and a balance sheet.				
1	2	3	4	5
30. I am able to analyse a balance sheet of company.				
1	2	3	4	5

VI Research and Development in Business				
31. I realise the principles of research and development needed in acquiring and adopting in-depth business expertise.				
1	2	3	4	5
32. I have skills needed in applying qualitative methods.				
1	2	3	4	5
33. I have skills needed in applying quantitative research methods.				
1	2	3	4	5

VII Personal maturity skills				
34.. Self-awareness: I have ability to reflect and be introspective				
1	2	3	4	5
35. Accountability: I have ability to take responsibility for resolving a problem.				
1	2	3	4	5
36. Emotional coping; I have emotional ability to cope with a problem				
1	2	3	4	5
37. Creativity: I have ability to produce a creative solution to a problem				
1	2	3	4	5

VIII Respondent's background data				
38. Gender: (circle the correct alternative)				
1. male	2. female			
39. Age in years: _____ years				
40. Nationality: _____				
41. Study group: _____				
42. My intention is to set up a business after graduation.				
1	2	3	4	5

The statement corresponds with my opinion
 1 = not at all 2 = not well 3 = fairly well 4 = well 5 = very well.

Thank you for your answer!

Articles

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