

Entrepreneurship education in the Nordic countries

Strategy implementation and good practices



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December 2012

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Preface

It has been long understood that entrepreneurship is a key driver of economic growth, employment, innovation and productivity. Entrepreneurship could also contribute to social and environmental development.

In the years to come, the Nordic countries are faced by the challenges related to demographic changes and aging population that also result in the need for promoting new entrepreneurship as well as successful transfer of companies and the related knowledge and skills to the next generation.

Entrepreneurship education and training are among the key drivers in the process of building a stronger culture of entrepreneurship and entrepreneurial mindsets. With the help of entrepreneurship education, schools and other educational institutions could increase the awareness of entrepreneurship as a career choice, promote young people's entrepreneurial spirit, and support the development of their entrepreneurial skills.

Entrepreneurship education is a life-long learning process and entrepreneurial mindset can be applied also in other context for enhanced creativity and innovation. The question is which policies and strategies the Nordic countries should promote in order to develop entrepreneurship education in the Nordic region.

An entrepreneurial culture is best realized in cooperation with the operational environment according to the set strategy and objectives. In general, Nordic countries have the strategies for entrepreneurship education in place, but the countries are in different stages of implementing the strategies. The report aims at presenting the current status of the implementation as well as bringing up a range of good projects and practices.

In the Nordic Cooperation Programme for Innovation and Business Policy 2011 - 2013, the cooperation is especially counted in fields where it can generate added value and innovative solutions to shared challenges, and the

work in the area of entrepreneurship education has started within the Nordic Entrepreneurship Project.

The list of the good practices and projects presented in the report is not an exhaustive one but alongside with the findings of the report, will hopefully facilitate discussion on possible areas for further work and collaboration at the Nordic level.

Nordic Innovation would like to take this opportunity to thank all the interviewees for their valuable time and input for the report as well as the Nordic ministries and agencies for their feedback. We hope that the report will be useful for future discussions and work in this area.

January 2013

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1. Executive summary

Nordic Innovation has conducted this preliminary study of implementing entrepreneurship education strategies in the Nordic countries in order to facilitate the related discussion within the framework of Nordic Entrepreneurship Project. The project is one of the Lighthouse Projects of the Nordic Co-operation Programme for Innovation and Business Policy 2011-2013.

The aim of the study was to enumerate the initiatives, measures, development and achievement of implementing the entrepreneurship education strategies in the Nordic countries, in particular after the High Level Reflection Panels of European Commission in 2009, to reveal obstacles and common characteristics, and to bring up good practices for reference and discussion.

The main findings of the study are that

- In general, Finland, Denmark and Norway have advanced well in implementing their entrepreneurship education strategies, whereas Sweden is following. In Iceland the process seems to take more time. Overall, there is still room for improvement in teacher education and training, especially how to motivate teachers to engage in entrepreneurship education, and in the area of continuing professional training.
- The Nordic countries, through years of developing, have established a distinguished 'Nordic model in entrepreneurship education'. This could also provide certain opportunities for cooperation between Nordic countries and various actors in the area. The model includes the following common features:
 - » Key role of Junior Achievement - Young Enterprise organizations
 - » Cross ministerial cooperation
 - » Full autonomy of implementing entrepreneurship education by educational institutions as long as they comply with National Qualification Framework or steering documents
 - » Intensive business engagement

- » Entrepreneurship education embedded at all levels and types of education
- » Teachers' role to function as facilitators
- On the other hand, the following main obstacles were identified in the interviews:
 - » Teachers' motivation and engagement in entrepreneurship education
 - » Lack of sufficient funding and human resources
 - » Entrepreneurship education perspective not incorporated in the current examination system
 - » Insufficient interaction between the policy makers and practitioners
 - » Lack of national platforms for good practices
 - » A need for curriculum and tool development
- The common characteristics of good practices were intensive collaboration with business sector; networks with external stakeholders; high level of international cooperation and media exposure; focus on experiential learning; and the ability to cope and manage with the scarce human resources and funding.
- Factors promoting good practices include organizations specializing in their own strongest area and leveraging others' expertise in other areas; effective communication and promotion strategy; and deliberately matching and selecting partners from business sector.

It is important to note that, due to the limited resources available, the approach of this study represents a subjective interpretation of the current status and the findings are based on relatively few interviews and a desk study, thus the report may not fully include all the relevant information. The aim is to provide an overall picture of the status and examples of good practices and projects, but not an in-depth analysis.

The good practices which are presented in this report were brought up in the interviews. The main selection criteria were that they could act as a source of inspiration and also provide ideas for possible Nordic collaboration in the future.

This report is not intended for comparing the stages of the Nordic countries or the methods adopted in implementing the entrepreneurship education strategies, nor to provide concrete policy recommendations. However, the purpose is to initiate and facilitate the related discussion on the Nordic level.

2. Introduction & Background

2.1 Introduction

Entrepreneurship education has a key role in shaping the mindsets of young people, enhancing entrepreneurial capabilities, and providing lifelong learning that can also be used in other areas than the business world alone. Whether the performance of entrepreneurship education is superior or not, depends mostly on the underlying strategy and how effectively it is implemented. As the baby-boom generation is about to retire, we need a good education system to disseminate entrepreneurial knowledge and skills.

The study was conducted during the period of March and August 2012. It was based on an analysis of reports and material of European Commission and OECD, and of the ministries, government organizations and educational institutions in the Nordic countries. In addition, a number of interviews and surveys were carried out.

Since the aim of the study is to facilitate discussion in the Nordic countries in this area, and possibly even generate ideas for joint-Nordic projects in entrepreneurship education, we firstly look at the initiatives and measures as well as the development and status of the strategy implementation in each Nordic country. Followed by this, the main obstacles of implementation are listed, as identified in the interviews. In total of fifteen good practices and projects are brought up in different categories based on the recommendations or references of the interviewees. Finally, the factors inhibiting or promoting good practices are identified, followed by areas for possible further discussion or research.

The report consists of three main parts that should be linked together for discussion, namely:

1. Initiatives and measures, and development and status of the strategy implementation,
2. Features of a 'Nordic model in entrepreneurship education', and
3. Selected examples of good practices.

2.2 Background of the study

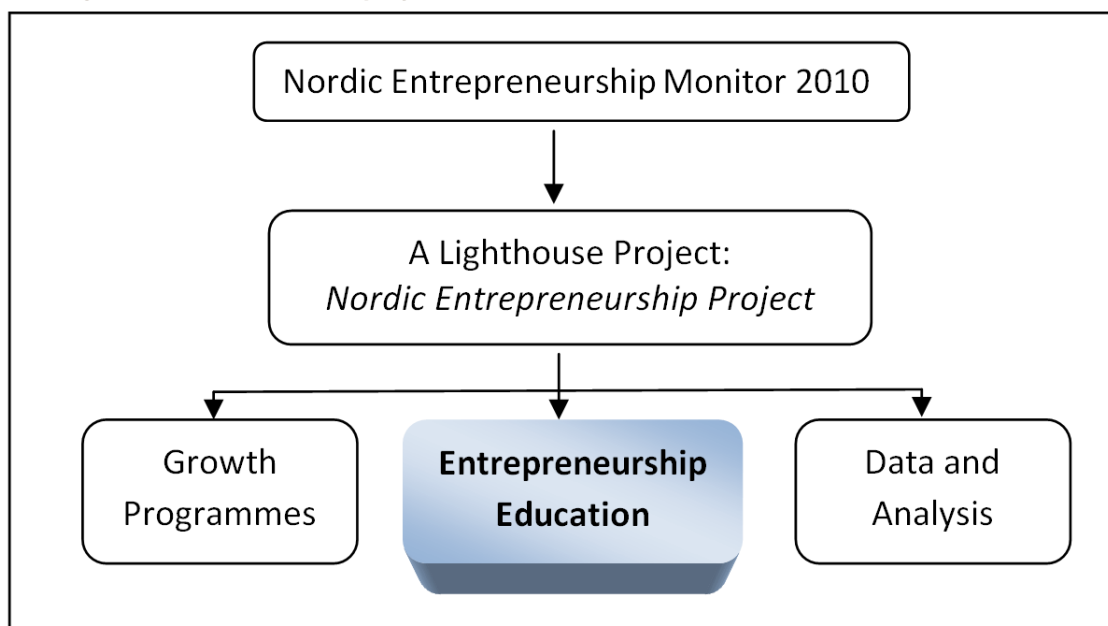
2.2.1 Lighthouse Project on Entrepreneurship

In June 2010, 'Nordic Entrepreneurship Monitor' was published by the Nordic Council of Ministers. Based on its findings, the following Nordic policy recommendations were put forward:

1. To build a common Nordic growth programme,
2. To establish a Nordic entrepreneurship education programme,
3. To create a Nordic entrepreneurship policy forum,
4. To improve Nordic entrepreneurship financing opportunities, and
5. To strengthen Nordic entrepreneurship data, policy analysis and international benchmarks

Followed by the recommendations, a Lighthouse Project on Entrepreneurship was included in the Nordic Co-operation Programme for Innovation and Business Policy 2011-2013. The project was named Nordic Entrepreneurship Project, and is owned and led by the Ministry of Employment and the Economy of Finland in collaboration with the Ministry of Education and Culture. The project includes three focus areas which are growth programmes, entrepreneurship education, and developing related Nordic data & analysis. This study is centered on the area of entrepreneurship education of the project (see figure 1).

Figure 1: Visualization of project



2.2.2 Previous approach of European Commission

In 2009, the European Commission carried out a pilot action that brought together senior officials from the ministries of education and enterprise of EU Member States and EEA countries, along with representatives from stakeholder groups such as business organizations and teachers' trade unions. There were total of four High Level Reflection Panels (HLRP) of which Iceland participated in the 1st HLRP (16-17 March 2009 in London) and Denmark, Finland, Norway and Sweden in the 2nd Panel (23-24 April 2009 in Stockholm).

After the panel meetings, a report "Towards Greater Cooperation and Coherence in Entrepreneurship Education"¹ was published. The report stated that an ideal national Entrepreneurship Education strategy needs to contain the following five dimensions (see figure 2 for The Progression Model for Entrepreneurship Education Ecosystems):

1. Developing the national strategy framework
2. Support to educational institutions
3. Teacher education and training
4. Developing an active role for local and regional authorities
5. Engaging with businesses and private associations and organizations

Figure 2: The Progression Model for Entrepreneurship Education Ecosystems

Stage	Pre-strategy (based on individual initiative)	Initial Strategy development	Strategy Implementation and Consolidation & Development of Practice	Mainstreaming
<i>Indicative timeframe</i>	Starting position	0-2 years	2-5 years	5 years +
<i>National strategy, frameworks</i>				
<i>Support to educational institution</i>				
<i>Teacher education & training</i>				
<i>Regional and local authorities</i>				
<i>Business, private associations and organizations</i>				

Source: DG Enterprise 2010

¹ DG Enterprise (2010), Towards Greater Cooperation and Coherence in Entrepreneurship Education: Report and Evaluation of the Pilot Action High Level Reflection Panels on Entrepreneurship Education initiated by DG Enterprise and Industry and DG Education and Culture, http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/reflection-panels/files/entr_education_panel_en.pdf

The report also noted that most countries were still in the early stages of the progression model, whereas the Nordic countries were at a relatively advanced stage of evolution with many strategies in place or under development. The support needs to be directed towards the implementation phase rather than the theoretical or strategic development phase (DG Enterprise 2010, A42). This is also the focus of our study.

2.2.3 Definitions

Entrepreneurship is the individual's ability to translate ideas into action. It encompasses creativity, innovativeness and risk-taking, as well as ability to plan and direct action towards the achievement of goals. Entrepreneurship education mainly refers to wide-ranging work within the educational administration with a view to enhancing entrepreneurship. It is provided and supported by many educational institutions, labor market parties and organizations. Entrepreneurship education is rooted in lifelong learning and a networked mode of operation (Ministry of Education of Finland 2009, 11)².

In this study we also look at the possible strategies for entrepreneurship education in creative industries since creative entrepreneurship is seen as a globally growing area (Development Strategy 2008, 7)³. The creative industries include such sectors as cultural and experiential services, design, graphical industries, architecture, film and TV production and distribution, digital content production, music and audio production, book publishing and distribution, performing arts, visual art and cultural programme services as well as cultural events production.(Development Programme 2008, 3)⁴.

2.3 Recent actions of European Commission, Nordic Council of Ministers and Young Enterprise at Nordic level

This section briefly lists out the projects, reports and programmes in progress or which have been recently carried out in order to avoid the duplication of the prior work.

2.3.1 European Commission

2.3.1.1 Workshops

At the practitioners' level, European Commission organized an international workshop on enabling teachers for entrepreneurship education in initial teacher education in

² Ministry of Education, Finland (2009), Guidelines for entrepreneurship education, <http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2009/liitteet/opm09.pdf?lang=fi>

³ Development Strategy for Entrepreneurship in the Creative Industries Sector for 2015, http://www.server003.b14cms.dk/users/kreanord.org/www/sites/default/files/rapport/24507_creative_industries_str_finland.pdf

⁴ Development programme for business growth and internationalism in the creative industries 2007-2013, <http://www.server003.b14cms.dk/users/kreanord.org/www/reports/development-programme-business-growth-and-internationalisation-creative-industries-2007-2013>

Dublin on May 2-4, 2012⁵. The workshop brought together teacher educators and representatives from universities and teacher colleges, with the objective to exchange good practices and information between practitioners, to look at possible areas of development and cooperation, and to encourage work on transnational projects.

During the workshop, many participants pointed out that the development of creative pedagogies and of appropriate assessment methods was a key to the successful implementation of entrepreneurship education in teacher education. Some participants also took the opportunity to invite partners for collaboration⁶. A manual with guidelines on the implementation of entrepreneurship education in teacher education will be published by the end of 2012, and a second workshop will be held in autumn 2012 addressing to entrepreneurship education for teachers in-service.

2.3.1.2 Reports

European Commission has recently published a report on the impact of entrepreneurship programmes at university⁷. The study shows clearly that entrepreneurship education makes a difference. Students who completed entrepreneurial programmes and activities displayed more entrepreneurial attitudes and intentions, got a job earlier after finishing their studies, could innovate more even as employees in a firm, and start up more companies.

2.3.1.3 Call for Proposal

A Call for Proposal of European Commission in the spring 2012 invited relevant organizations in the EU member states to submit European projects in the following areas. The results are expected to be published by autumn 2012.

- Teacher education and training in entrepreneurship
- The creation of a European on-line platform on entrepreneurship education to be used by teachers, where they would be able to find information on teaching methods and materials, and receive advice from peers
- Developing European tools and indicators to assess the acquisition of entrepreneurial attitudes and skills by students

5 Newsletter, http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/teacher-education-entrepreneurship/index_en.htm

6 Ibid, Newsletter, page 7

7 European Commission (2012), Effects and impact of entrepreneurship programmes in higher education http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/effects_impact_high_edu_final_report_en.pdf

2.3.2 Nordic Council of Ministers

Nordplus Programme 2012 - 2016

This 5-year programme aims to promote quality and innovation in the education system in the Nordic and Baltic countries by supporting many types of exchanges, projects and networks. It consists of 5 sub-programmes which currently have an open call for proposals. The sub-programmes are: Junior, Higher Education, Adult, Horizontal and Nordic languages⁸. However, the programme does not specifically address the issue of entrepreneurship education.

2.3.3 Young Enterprise projects at Nordic level

There are various forms and extent of Nordic cooperation between Young Enterprise organizations in the Nordic countries. The following project was mentioned in an interview and appears as established.

Ungt Entreprenørskap (UE) Oslo, UE Østfold, together with Ung Företagsamhet (UF) Gothenburg and UF Fyrbodalen has initiated a project called 'SE UT' (Samarbeid for Entreprenørskap i Utdanningen)⁹. During the period of 2010-2013, the organizations work with selected schools and teachers to develop models of:

- How to work with entrepreneurship in vocational training, and
- How to train teachers in the teachers' school to work with entrepreneurship in schools.

⁸ NordPlus, www.nordplusonline.org

⁹ Ungt Entreprenørskap, http://ostfold.ue.no/pls/apex32/f?p=16000:1002:3730532945113387:::1002:P1002_HID_ID:11677

3. Research Methodology

The research methodology of this study relies mainly on qualitative research, tending to be exploratory, flexible and gaining insights. Firstly, a desk study was conducted by studying the published reports and the website material of European Commission, OECD and the Nordic countries in relation to entrepreneurship education. For details, please see appendix 1 and 2 (List of desk study, and Online research and date respectively). Then a questionnaire was prepared, and interviews and surveys conducted, which were followed by a content analysis.

3.1 Steps of the study

3.1.1 The questionnaire

For policy level, the questionnaire was developed on the basis of the action plan recommended in the Oslo Agenda 2006¹⁰ and Budapest Agenda 2011¹¹. The target interviewees were officials at policy level, such as ministries, agencies or partnerships of cross-ministerial cooperation. The questionnaire was divided into 5 sections (as 5 dimensions in the Progression Model for Entrepreneurship Education Ecosystems). Since the role of teacher education in the development of entrepreneurship is lagging behind (DG Enterprise 2011, 18) and we tried to be in line with EU's current initiatives, more focus of the questionnaire was put on point (3), Teacher education and training. The questionnaire was also modified according to the different organizational structure or model in each Nordic country.

For practitioner level of educators, the same questionnaire was sent as for policy level, in order to have their supplementary comments on how the entrepreneurship education strategy is implemented. Regarding the good practices, the websites of organizations or educational institutions were studied, and then questions were raised on how the

¹⁰ Oslo Agenda 2006, http://ec.europa.eu/enterprise/policies/sme/files/support_measures/training_education/doc/oslo_agenda_final_en.pdf

¹¹ Budapest Agenda 2011, http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/teacher_education_for_entrepreneurship_final_report_en.pdf

organizations implement and promote entrepreneurship education and measure their respective performance, and how this is different from other similar organizations.

3.1.2 The Interviews and surveys

At the policy level, the interviewees were the members of a Nordic working group appointed by EK-U of Nordic Council of Ministers on 31.03.2012. In case the interviewee replied that she or he had only limited knowledge in certain area of the questionnaire, we asked a referral for a further interviewee in this regard.

At the practitioner level, a note was made on the good practices mentioned or recommended by the interviewees, and the information was studied on the relevant websites followed by an interview or a survey accordingly.

Not all the persons in the original target group gave their replies or response. However, total of five face-to-face, two Skype, and sixteen email interviews and surveys were completed. Figure 3 below summarizes the conducted interviews and surveys. For the detailed information of the interviewees see appendix 3 (List of interviewees at policy and practitioner level).

For the purpose of easy coding in the stage of the content analysis, the interviewees were labeled as '#DK', '#FI', '#NO', '#SE' and '#IS' representing different Nordic countries.

Figure 3: Summarized conducted interviews and surveys

Level	Country	Face-to-face	Skype	Email
<i>Policy</i>	Denmark	2		
	Sweden	1		2
	Norway	1		
	Iceland		1	
	Finland			1
<i>Practitioner</i>	Denmark			3
	Sweden	1		2
	Norway			1
	Iceland			3
	Finland		1	4
<i>TOTAL</i>		5	2	16

The interviews and surveys took place between May and July 2012. During the two-hour personal interview, a semi-structured method was employed. It means that there was a format for written questions, but it was also possible to ask additional or alter the pre-defined questions. In terms of confidentiality, the interviewees were assured that any information given by them could only be released after their approval. In addition to taking notes, the interviews were tape-recorded on the interviewees' approval.

3.1.3 Content analysis

All the face-to-face and Skype interviews were recorded and put in transcriptions that were sent to the interviewees for their review. Together with the replies to surveys, the content analysis was conducted basically by the following steps (based on Seikkula-Leino et al, 2009, 5):

1. First, the transcriptions and surveys were read several times with the aim to construct an overall picture of the responses,
2. they were read more reflectively and analytically, aiming to organize the information through the questions,
3. they were mirrored against the reports reviewed,
4. then, the analysis of transcriptions and surveys was integrated in the contents accordingly.

After the 1st draft report was finished, it was sent out to all the interviewees for their comments. During this process, further information was added and corrections were made.

3.2 Limitations of the research methodology

3.2.1 The selection of good practices

The selection of good practices was mainly based on their mentioning or referring by the interviewees that may leave out the good practices that they are not aware of. This 'self-selection' process is thus rather subjective and could be biased. Moreover, there is still no benchmarking and evaluation of what good practices really are in this area. However, the main purpose of including the examples in the study is to provide good ideas and a source for inspiration.

3.2.2 Lack of holistic view by interviewees

An important limitation is that the interviewees might not have complete and holistic information about the overall status and the process of the strategy implementation. This might be due to the cross ministerial collaboration, a division of tasks, and knowledge dispersion. As the area of entrepreneurship education is dynamic and wide both horizontally and vertically, it is impossible that one could capture every detail of the implementation process.

3.2.3 The questionnaire's focus more on teachers' education and training

The selected focus of the questionnaire on teachers' education and training might lead to an imbalance in understanding the whole implementation process and other dimensions might be neglected to some extent. However, the purpose was to be in line with EU's current initiatives on entrepreneurship education that could save resources and work when identifying the areas to be improved. To avoid duplication with the work of EU, the questionnaire in this study adopted a top-down approach in order to see how strategies have been implemented. In the recent actions of the European Commission (see chapter 2.3), the approach could be regarded as targeting at bottom-up initiatives with the aim to motivate practitioners to suggest ideas, changes and projects for the policy level.

Moreover, according to Nordic Entrepreneurship Monitor (2010, 67), the main barrier is often the lack of sufficient entrepreneurial training capabilities in the education system. Therefore we followed and looked closer in this dimension.

3.2.4 Subjective content analysis

The content analysis is based on limited number of interviews and the desk study. It would not be scientific and thorough enough to represent the overall status, especially when the replies from the interviewees were not complete. This would be a problem if the purpose were to make some comparisons between the countries. As stated in the beginning of the study, the aim of the study is to give general indications and a picture reasonably close to the reality as well as to facilitate the discussion in the area.

3.2.5 Incomprehensiveness of the study

Due to the limited resources available, not all the responsible persons could be reached, and some of the information related to relevant good practices, publications and websites could be missing. However, the idea is to describe the current status of the strategy implementation in the Nordic countries, present a number of good practices, and to facilitate the discussion in the area of entrepreneurship education, thus the study might provide a basis and point of departure for these.

4. The five dimensions in the Nordic countries

This chapter enumerates the initiatives and measures, and development and status of the Nordic countries according to the five dimensions model¹². Figure 4 summarizes the information found and also the information that could not be found during the study.

Figure 4: Initiatives, measures, development and status of Nordic countries

	DK	IS	NO	SE	FI
(1) Developing the national strategy framework					
Cross ministerial cooperation and other organizations' involvement	✓	✓	✓	✓	✓
The embeddedness of entrepreneurship education	✓	✓	✓	✓	✓
National knowledge centre, research centre and platform	✓	✓	✓	✓	✓
Performance evaluation	✓	?	✓	✓	?
Strategy for creative industries	✓	?	✓	✓	✓
Strategic partnership between NGOs and schools	✓	?	✓	✓	✓
(2) Support to educational institutions					
Funding	✓	✓	✓	✓	✓
(3) Teacher education and training					
Initial teacher education	✓	✓	✓	✓	✓
Continuing professional development/in-service training	✓	✓	✓	?	✓
Assessment of teacher performance, teaching methods and materials	?	?	?	?	✓
National support	✓	✓	✓	✓	✓
(4) Developing an active role of local and regional authorities					
Studies carried out and funding by regions and municipalities	✓	✓	?	✓	✓
Regional entrepreneurship centres	✓	✓	✓	✓	✓
(5) Engaging with businesses and private associations and organizations					
Intensity of business involvement	✓	✓	✓	✓	✓
Research of motivate business community	✓	?	✓	?	✓
Project co-financed by business sector	✓	?	✓	✓	✓
Discussion needs of business sector	✓	✓	✓	?	✓
✓ Information found in interviews and desk study ? Information not found					

¹² DG Enterprise (2010), Towards Greater Cooperation and Coherence in Entrepreneurship Education: Report and Evaluation of the Pilot Action High Level Reflection Panels on Entrepreneurship Education initiated by DG Enterprise and Industry and DG Education and Culture, http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/reflection-panels/files/entr_education_panel_en.pdf

The goals presented in the national strategy, action plan or guidelines of each Nordic country were also reviewed (see figure 5).

Figure 5: National strategies for entrepreneurship education in Nordic countries

Country	National strategy for entrepreneurship education
<i>Denmark</i>	Strategy for Education and Training in Entrepreneurship 2009
<i>Iceland</i>	(No specific strategy for entrepreneurship education)
<i>Norway</i>	Action Plan 2009-2014
<i>Sweden</i>	Strategy for Entrepreneurship 2009
<i>Finland</i>	Guidelines for Entrepreneurship Education 2009

4.1 The five dimensions in Denmark

Two face-to-face interviews were conducted with the interviewees #DK1 and #DK2 who represented Ministry of Education and Danish Business Authority respectively. Additional information from The Danish Foundation for Entrepreneurship - Young Enterprise (FFE-YE) was also obtained after the first draft report.

In Denmark, the implementation of the strategy is different in the sense that a centralized and private organization FFE-YE was established in January 2010 (1) to strengthen and to create a coherent national commitment and initiative for promoting entrepreneurship, and (2) to establish a national knowledge centre for education and training in entrepreneurship.

In relation to the five dimensions, the following initiatives, measures, development and achievement in implementing entrepreneurship education in Denmark could be enumerated:

1. Developing the national strategy framework

Cross ministerial cooperation and other organizations' involvement

- Mainly four ministries are involved in formulating strategy in entrepreneurship education, without other external organizations directly engaged.

The embeddedness of entrepreneurship education

- Entrepreneurship education is embedded in all levels and types of education. There are some compulsory courses in vocational education and training, and in business

universities. Also business gymnasium and technical gymnasium have compulsory entrepreneurship education for all students.

National knowledge centre, research centre and platform

- FFE-YE acts as a national knowledge and research centre, and platforms for teacher training and teaching material.

Performance evaluation

- FFE-YE has recently published an evaluation report, carried out by an external consultant, to see whether it has fulfilled its goals and for further funding.

Strategy for creative industries

- According to Strategy for Education and Training in Entrepreneurship (2009, 15), there is strategy in entrepreneurship education for artistic and cultural education institutions.

Strategic partnership between NGOs and schools

- Strategic cooperation between government organizations and educational institutions is mainly relied on FFE-YE.

2. Support to educational institutions

Funding

- FFE-YE has set up calls for projects and offers funds for the development of programmes and courses. Funding for higher education (DKK 8.8 million in 2011) is much higher than primary level (DKK 1.7 million).

3. Teacher education and training

Initial teacher education

- Entrepreneurship education is available in initial teacher education. Moreover, FFE-YE has a task force performing courses and teacher training on demand for schools and organizations.
- FFE-YE has created links for teachers to the local community and to businesses.

- FFE-YE has cooperated with University College Capital to develop project involving teacher education during 2011-2012.

Continuing professional development/in-service training

- In relation to 'Teaching the teacher', lots of events and activities have been done, such as nationwide training workshops in entrepreneurial teaching methods and knowledge of entrepreneurship.
- Excursions for educators and professors at the higher education (in 2012, London).
- In-service teachers are encouraged to join and promote initiatives such as Roundtable on Entrepreneurship Education and PhD Summer School.

Assessment of teacher performance, teaching methods and materials

(No related information available.)

National support

- Initiatives at international and national levels are mainly those of FFE-YE.
- Specific calls for educators and professors where they can apply for funds to establish events and conferences.
- Financial rewards are not promoted, but role models and pupils' stories are the key in motivating teachers.
- FFE has set up 'Network for Educators In School' (NEIS) that functions as a forum where teachers can share experiences and good practices and build up networks.
- Teachers have guidelines when cooperating with local companies.
- There are special programmes for talented young people to stimulate their innovative thinking and overseas study.

4. Developing an active role of local and regional authorities

Studies carried out and funding by regions and municipalities

- Municipalities have carried out studies but mainly aim for looking at the workforce; how to keep companies in the region and bring welfare to the region, but not specifically related entrepreneurship education.
- Good amount of funding from municipalities and regions.

Regional entrepreneurship centres

- FFE-YE acts as knowledge bank to most regional initiatives. There are active regions or municipalities performed as entrepreneurship centres such as: Lyngby-Taarbæk has a strategy for city knowledge and urban development where innovation and entrepreneurship is an integral part of the strategy; and Ikast-Brandeb, Northern Jutland and South Denmark have strong links with authorities, educations and the business community.

5. Engaging with businesses and private associations and organizations

Intensity of business involvement

- FFE-YE is main sponsor of Venture Cup (a startup competition for university students). Venture Cup has a close link with business community who involve as jury and advisers.
- Yearly events like Global Entrepreneurship Day on week 46 and monthly meetings that involve business and private sector.
- According to FFE-YE, 19% of the companies are involved in education to some degree as for instance guest teachers, and 25% deliver cases as teaching material for students participating in innovation camps.
- FFE-YE regions act as a meeting place for school management and local businesses. A large number of students receive coaching on business startup.

Research of motivating business community

- The Ministry of Education completed a study with Chamber of Commerce on how education and business sectors support each others.

Project co-financed by business sector

- Business sector also sponsors projects, in general 50% & 50%.

Discussion needs of business sector

- Each of the 12 regions under FFE-YE has its own Board of directors with an equal representation from the business and educational sector. They reflect the business needs.

4.1.1 Review of Strategy for Education and Training in Entrepreneurship 2009

Since FFE-YE is the sole agency for implementing the strategy, assessing FFE-YE's performance almost equals to examining the effectiveness of strategy implementation. FFE-YE has just completed its performance evaluation carried out by an external consultant and the evaluation report could therefore be used as a main source for FFE-YE's performance in relation to the goals set by the Ministries. The conclusions of the evaluation are as follows (NIRÁS 2012, 9):

- The Foundation has contributed to disseminating, strengthening and anchoring education and training in entrepreneurship broadly in the educational sector and has created a solid platform for the future work.
- It has been welcomed by the stakeholders and has been capable of adding to good relations in the entire educational system.
- The constellation - a private foundation and public funding - works well and contributes to ensuring the business community affiliation.
- Having the Foundation as a player, Denmark has obtained more education in entrepreneurship with the same funds and has developed its position as a pioneer country.

4.2 The five dimensions in Iceland

One Skype interview was conducted with the interviewees #IS1, #IS2 and #IS3 simultaneously. All the interviewees represented the Ministry of Education, Science and Culture. In addition, one supplementary interview was carried out by email with the interviewee #IS6 who works as lecturer in University of Iceland.

Basically, there is no specific strategy for entrepreneurship education. The major avenue promoting entrepreneurship education is the yearly event 'The Entrepreneurial Student Competition (ESC)' where funding, teacher training, guidelines, teaching material and business engagement could be found¹³. ESC is the only specific funding and tool for entrepreneurship that has been running every year. The Competition was launched by 'entrepreneurs/grassroot' in 1992 but some years ago the Ministry bought the license for the Competition. It has been aimed at the age groups from 6 to 16 years but now ESC is revising its focus on age groups from 9 to 12 (5th to 8th grade).

¹³ The Entrepreneurial Student's Competition (ESC), <http://www.nkg.is/nkg-in-english>

One of the interviewees commented that there is a need for policy on the Ministry level including continuity and coherence throughout the educational system for further progression, but it is hindered by the lack of plans and focus for supporting entrepreneurship education policy.

However, Iceland has started to catch up, and is now focusing on teacher training in both basic teacher education as well as continuing in-service training. In relation to this, two projects are planned: a handbook for Teachers on Entrepreneurship Education, and that of In-Service Education for Teachers. According to the interviewees, the Government plans also to increase the cooperation between the Ministry of Education, the Ministry of Industry, and the Innovation Centre Iceland in the area of entrepreneurship education. Moreover, the Icelandic Association of Innovation and Entrepreneurship Teachers (FÍKNF) has initiated collaboration with the Innovation Centre Iceland for enhancing entrepreneurship education, in collaboration with the University of Iceland, School of Education and University of Reykjavík.

1. Developing the national strategy framework

Cross ministerial cooperation and other organizations' involvement

- Mainly two ministries are responsible for entrepreneurship education strategy, without other external organizations directly involved. However, Innovation Center Iceland, and Science and Technology Council are invited for discussion.

The embeddedness of entrepreneurship education

- Entrepreneurship education is not a specific subject in pre-school, primary, upper secondary school, or vocational education. However, it is supposed to be integrated into all subjects and be elective. In higher education, it is compulsory only for all first year students in University of Reykjavík.
- Iceland is in the process of publishing new curriculum guidelines that introduces entrepreneurial thinking for all three levels of the school system.

National knowledge centre, research centre and platform

- The Ministry has not built up any national platform where programmes, projects and teaching material, and good practices can be shared. Yet it has funded some projects to provide courses for in-service teachers. Within these courses, good practices have been shared.

Performance evaluation

(No related information available.)

Strategy for creative industries

(No related information available.)

Strategic partnership between NGOs and schools

(No related information available.)

2. Support to educational institutions

Funding

- The only specific funding is 'The Entrepreneurship Student Competition¹⁴'. This is a yearly programme started in 1992.

3. Teacher education and training

Initial teacher education

- There is not much going on in the area of teacher education in entrepreneurship. A programme coordinator has recently been recruited to develop a program at the *University of Iceland*.
- The main avenue that teachers can access to teacher training, guidelines and teaching material in entrepreneurship is through the courses in the 'Competition'. Other options are through the Association of Teachers in innovation and entrepreneurship, and Innovation Centre.

Assessment of teacher performance, teaching methods and materials

(No related information available.)

Continuing professional development/in-service training

- There are some courses for in-service teachers. Internships and placements of teachers in enterprises have been promoted.

¹⁴ The Entrepreneurship Student Competition (ESC), www.nkg.is/nkg-in-english

National support

- There is 'open door' policy since 2008, but this is not specifically aimed at entrepreneurship.
- Iceland is in the process of building a national qualifications framework. Schools work together on curriculum matters, but not in particular on entrepreneurship.

4. Developing an active role of local and regional authorities*Studies carried out and funding by regions and municipalities*

- Regions and municipalities may be engaged to some extent but no systematic studies have been carried out.

Regional entrepreneurship centres

- The Innovation Center locates parts of its operations in the countryside. The Industrial Development Associations supported by the Ministry of Industry are also involved locally.

5. Engaging with businesses and private associations and organizations*Intensity of business involvement*

- Significant cooperation in the curriculum for vocational education and training
- Some programmes for working in companies.

Research of motivating business community

(No related information available.)

Project co-financed by business sector

(No related information available.)

Discussion needs of business sector

- There are dialogue meetings with business companies, partly for discussing entrepreneurship education in vocational education and training.

4.3 The five dimensions in Norway

One face-to-face interview was conducted with the interviewee #NO1 from the Norwegian Association of Higher Education Institutions. In Norway, objectives and learning outcomes for all types of education are well defined in the Norwegian Qualifications Framework (NQF)¹⁵ that has to be followed, but the implementation by educational institutions could vary.

1. Developing the national strategy framework

Cross ministerial cooperation and other organizations' involvement

- Mainly three ministries are involved in formulating strategy without other external organizations directly engaged. However, other ministries may be indirectly involved.

The embeddedness of entrepreneurship education

- Entrepreneurship education is embedded in all levels and types of education; there are only some compulsory courses in vocational education and training, and in universities.

National knowledge centre, research centre and platform

- The Norwegian Association of Higher Education Institutions (UHR) is the national platform as well as national knowledge centre. It facilitates dialogue between the Ministry and the institutions, provides teaching material and good practices. It organizes different councils and committees for research, for education and for specific areas.
- Another national platform is 'Norgesuniversitetet' (Norway Opening Universities NOU). It is a national initiative for change and innovation in Norwegian higher education.
- The Ministry is the meeting centre of different international group.

Performance evaluation

- There is ongoing research on strategy evaluation by an external organization 'Nordic Institute for Studies in Innovation, Research and Education (NIFU)', and yearly meeting called 'Etatstyring' where the Ministry discusses with the institutions whether they have reached their goals and targets set by the Ministry. However, entrepreneurship is only part of it.

¹⁵ <http://www.regjeringen.no/upload/KD/Vedlegg/Kompetanse/NKR2011mvedlegg.pdf>

Strategy for creative industries

- There is no particular strategy for entrepreneurship education in creative industries. However, there are a number of programmes and projects in this area.

Strategic partnership between NGOs and schools

- Strategic cooperation between government organizations and educational institutions is mainly coordinated by JA-YE and Innovation Norway.

2. Support to educational institutions*Funding*

- The institutions are funded by the Ministry. The Ministry also supports projects or initiatives which have a goal to improve education quality, such as Norgesuniversitetet (NOK 4.5 million), The Norwegian Directorate for Education and Training (UDIR) (NOK 2.2 million), Young Enterprise (NOK 19.8 million), and Nordplus (Euro 9 million).
- The National Budget has established more places for full time students in continuing and further education
- Grants have been offered for studies in intellectual property rights in 2009, this has increased the awareness of IPR and many disciplines work on how to deal with IPR in their areas

3. Teacher education and training*Initial teacher education*

- Entrepreneurship education is integrated in initial teacher education, but not as compulsory.
- There are some examples about internships and placements of student teachers in enterprise.
- The institutions have information centres which form a forum and Norgesuniversitetet has focus groups.
- Projects such as 'Bag pack' where the pupils with their teachers go to different organizations.

Continuing professional development/in-service training

- 'Teaching the teacher' can be accessed in UDIR
- There are different initiatives related to in-service training/continuing professional

development, for example, 'ingeniørdidaktikk' and 'Computing in Science Education'.

- Examples like 'Bergen - Real FAG' where teachers in lower and higher education work together.

Assessment of teacher performance, teaching methods and materials

(No related information available.)

National support

- Experiential learning is the result of implementation of the National Qualification Framework that specifies the objective and learning outcome.
- 'The website for teaching aid for entrepreneurship in primary and secondary education and training will be launched', Action Plan (2009, 27). It is still under development.
- There are both financial rewards (for example, 'Utdanningskvalitetsprisen') and non-financial awards (for example, 'Læringsmiljøprisen') to entrepreneurial teachers.

4. Developing an active role of local and regional authorities

Studies carried out and funding by regions and municipalities

(No related information available.)

Regional entrepreneurship centres

- Innovation Norway works at local, regional and national level.
- Norwegian University of Science and Technology (NTNU) and different universities and university colleges serve as entrepreneurship centres at regional or local level where teachers, companies and entrepreneurs are linked.

5. Engaging with businesses and private associations and organizations

Intensity of business involvement

- All universities in higher education need to establish 'Råd for samarbeid med næringslivet' (RSA - Council for Operation with Working Life). It links teachers to the business and local community.

- Programmes such as 'Lector 2' where people from enterprises come into schools and teach for some time related to their professional area.
- Meeting places and arenas such as 'Connect in Norway' are for connecting students and entrepreneurs to the business community.
- 'Norge 2020' and ongoing conferences.
- Business involvement is both ad hoc and integrated in entrepreneurship education.

Research of motivating business community

- 'Nærings Ph.D.' is funded by the Research Council and business in cooperation. It is a joint effort between companies, the Research Council and universities to increase research in business.

Project co-financed by business sector

- A number of examples of co-financed projects with business and regional players.

Discussion needs of business sector

- Examples like curriculum for engineering education involving people from business sector in the working group.

4.3.1 Review of Action Plan 2009-2014

The Action Plan for Entrepreneurship in Education and Training puts emphasis on higher education. It proposes 14 measures that aim to strengthen the efforts concerning entrepreneurship in education and training. The following are mentioned in relation to this study:

- Universities and university colleges revised their programme descriptions in order to show learning outcomes with regard to innovation.
- The grant offered to IPR studies increased the awareness of IPR.
- The Ministries were performing well in connecting education and business life.
- UDIR¹⁶ was still developing online training, guidelines, teaching material and good practices on entrepreneurship for teachers in primary and secondary education.
- The digital teaching aid and tools in entrepreneurship were still under development.

16 www.udir.no

- The external evaluation report of the grant given to JA-YE Norway was completed and published in September 2011. One of the main findings was that JA-YE Norway had achieved to a large extent the objectives of cooperating within compulsory education and upper secondary education, but within higher education there were still major challenges.
- There were a large number of conferences and meeting places for entrepreneurship education and training.

4.4 The five dimensions in Sweden

One face-to-face and two email interviews were conducted with the interviewee #SE1, from Swedish National Agency for Education (SNAE), and the interviewees #SE2 and #SE3, from Swedish National Agency for Higher Education (SNAHE). SNAHE is focused on higher education, whereas SNAE centers on other levels. The main task of both agencies is to ensure that government education objectives are achieved and the quality of education at a local and regional level is monitored, but they do not promote education. Since not any comprehensive reply was received regarding teacher education, the following analysis might underestimate the progress and current status in this area.

According to the research by GHK (2011a, 32), the level of activity in initial teacher education is medium. Only 1 out of 21 screened teacher education institutions explicitly focused on entrepreneurship education. However, an interviewee from SNAHE claims that even though the degree ordinance for teachers does not directly point out entrepreneurship, there is an indirect link through the requirements on curriculum that do so, and entrepreneurship education is targeted in the upcoming 2013 budget. Moreover, SNAE is planning to organize conferences in autumn 2012 for teachers to share experiences of entrepreneurial learning.

1. Developing the national strategy framework

Cross ministerial cooperation and other organizations' involvement

- Mainly two ministries are involved in formulating strategy without other external organizations directly engaged.

The embeddedness of entrepreneurship education

- Entrepreneurship education is embedded in all levels and types of education. It

is compulsory and cross-curricular in primary, lower secondary and vocational schools, and taught as a separate subject and compulsory in four programmes in upper secondary level. However, the courses in the subject are offered optionally to other interested students.

National knowledge centre, research centre and platform

- Officially, there is no national platform where programmes, projects and teaching material, and good practices can be shared and disseminated. However, 'Pedagogiska Institutionen' functions as a research centre.

Performance evaluation

- There was a national mapping in 2009 to analyze different initiatives. Another mapping is upcoming. Moreover, a major evaluation of the reforms in Swedish school system is planned but not only regarding entrepreneurship education. However, the Confederation of Swedish Enterprise is carrying out the performance evaluation but for internal purpose only.

Strategy for creative industries

- There is no particular strategy in entrepreneurship education for creative industries. However, the Knowledge Foundation published a model called ERIBA as policy framework for the creative industries.

Strategic partnership between NGOs and schools

- There is strategic cooperation between practitioners. JA-YE Sweden's primary school programs are a good complement to Snilleblixarna, and JA-YE Sweden is Snilleblix-actor in two places in Sweden.

2. Support to educational institutions

Funding

- Chalmers University of Technology, Gothenburg University and Lund University are appointed and funded to develop cutting-edge programmes in entrepreneurship and innovation.
- There is funding to municipalities, independent schools and organizations working with entrepreneurship education.

3. Teacher education and training

Initial teacher education

- Not all teacher education institutions have implemented entrepreneurship education. It is mainly in the economic-technical and medicinal field. Moreover, entrepreneurship education modules are not compulsory for degrees in teacher education.
- The Agency has not developed any web-based tool boxes of entrepreneurial teaching methods, but there are some networks doing this.

Continuing professional development/in-service training

(No related information available.)

Assessment of teacher performance, teaching methods and materials

(No related information available.)

National support

- Sweden is working on some support material to clarify what is meant by entrepreneurship at schools in the steering documents.
- There are awards for entrepreneurship education, for example, the best teachers of the year awarded by JA-YE Sweden.
- There is a communication plan not only for students but also between teachers to promote entrepreneurial skills and learning.
- The Agency collaborates with ten universities offering competence development for all teaching and all types of schools and education.
- The Agency is planning open space conferences for teachers sharing experiences of entrepreneurial learning during the autumn of 2012.

4. Developing an active role of local and regional authorities

Studies carried out and funding by regions and municipalities

- Several studies are carried out by regions and municipalities.

Regional entrepreneurship centres

- Incubators in the universities more or less serve as entrepreneurship centres

5. Engaging with businesses and private associations and organizations

Intensity of business involvement

- The Agency provides funding to the organizations that stimulate schools' cooperation with business life.
- Business involvement is either ad hoc or integrated in entrepreneurship education. It depends on municipalities' strategies.

Research of motivating business community

(No related information available.)

Project co-financed by business sector

- There are probably other stakeholders in business sector co-financing some projects in relation to entrepreneurship education such as teaching materials and conferences.

Discussion needs of business sector

(No related information available.)

4.4.1 Review of Strategy for Entrepreneurship 2009

There are 11 initiatives included in the strategy to encourage the integration of entrepreneurship throughout the education system. However, most of them aim at secondary and higher education.

- Entrepreneurship education is embedded in all levels and types of education. It is compulsory and cross-curricular in primary, lower secondary and vocational schools. It is taught as a separate subject and compulsory in four programmes in upper secondary schools, but the courses are also offered and optional to other students interested.

- Regarding to taking business life closer to schools, SNAE funds organizations such as 'Transfer' (www.transfer.se) so that teachers can book lectures from a range of entrepreneurs in different sectors.
- In relation to vocational competence, SNAE submitted a proposal in October 2010 about how vocational competence could be designed. In 2012, the Agency was given a new mission to promote quality in apprenticeship education.
- There will be a mapping exercise by SNAE to see how entrepreneurship programmes are carried out in schools and what their results are.
- The Government has assigned Chalmers University of Technology, Gothenburg University and Lund University to develop cutting-edge programmes in entrepreneurship and innovation.

4.5 The five dimensions in Finland

One email interview was conducted with the interviewee #FII from the Ministry of Education and Culture.

A significant restructuring of certain higher educational institutions took place in 2010 when Aalto University was established by merging the Helsinki University of Technology, the Helsinki School of Economics, and the University of Art and Design in Helsinki. The ensuing multidisciplinary group work and entrepreneurial spirit have encouraged novel research ideas and innovations across all the disciplines. According to Cardwell & Louko (2012, 2), universities alone do not build and generate prosperity but their positive impact falls short if they are not strongly integrated with other players in the ecosystem.

GHK (2011b, 67) points out that there is no national framework for monitoring the extent to which educational and training institutions follow the curriculum in practice. The under-developed framework for quantitative indicators is due to the decentralization of the educational system, a high degree of trust on education providers and teachers, and the lack of a national system of external evaluation. However, various international and national studies and surveys have shed light into entrepreneurial education activity in Finland.

Based on the research by GHK (2011a, 32), the level of activity in initial teacher education was high. 8 out of 8 screened teacher education institutions explicitly focused on entrepreneurship education; subject was compulsory in three institutions and elective in others. Yet, there still is room for improvement in the area of continuing professional development.

As for Finland it should be noted that some of the information provided by Eurydice¹⁷ in 2012 is not correct. According to Eurydice, the Strategy for Education and Training in Entrepreneurship in Finland was launched and developed since 2007 and is now in its second wave of measures 2011-2016 (Eurydice 2012, 10). However, based on the interviewees in Finland, the first guidelines for Finland have been established in 2004 and then in 2009.

1. Developing the national strategy framework

Cross ministerial cooperation and other organizations' involvement

- Two ministries and sixteen external organizations directly are involved in formulating strategy. Steering group for entrepreneurship education was first set up in 2002 and the third time since then.

The embeddedness of entrepreneurship education

- Entrepreneurship education is embedded in all levels and types of education. One interviewee in Finland commented that entrepreneurship and enterprise education is embedded in the curriculum from kindergarten, up to primary, secondary, and even to tertiary education.

National knowledge centre, research centre and platform

- YVI project - The Virtual Learning Environment for Entrepreneurship Education - acts as a national platform.
- YES Entrepreneurship Education Centres serve as resource centres at national or local levels.
- More and more research has been carried out in the last years. Very important research area is 'entrepreneurial learning environments'.

Performance evaluation

(No related information available.)

¹⁷ The Eurydice Network provides information on and analyses of European education systems and policies. As from 2012 it consists of 38 national units based in all 34 countries participating in the EU's Lifelong Learning programme (EU Member States, EFTA countries, Croatia, Serbia and Turkey). It is coordinated and managed by the EU Education, Audiovisual and Culture Executive Agency in Brussels, which drafts its studies and provides a range of online resources, <http://eacea.ec.europa.eu/education/eurydice>

Strategy for creative industries

- There is a particular strategy solely for creative industries¹⁸.

Strategic partnership between NGOs and schools

- There is strategic cooperation between practitioners. YES Entrepreneurship Education Centre (YES)¹⁹ works hand-in-hand with Junior Achievement - Young Enterprise (JA-YE) Finland²⁰, and also promotes the Measurement Tool for Entrepreneurship Education (MTEE)²¹ of Lappeenranta University of Technology, whereas YVI²² provides teacher training and teaching materials for MTEE.

2. Support to educational institutions*Funding*

- The support is mainly carried out by YVI project which is funded by European Social Fund (ESF) and nationally co-funded by the Finnish National Board of Education. Additionally, the project receives funding from the Centre for School Clubs, the Regional Development Centre (currently ELY Centre) and the Ministry of Employment and the Economy. YVI project includes web-based tool boxes of entrepreneurial teaching methods and the project as a whole strengthens the development of entrepreneurship education in Finnish teacher education. It focuses on the development of curricula and strategies and national networking. Moreover, it enhances teacher educators' pedagogical skills of entrepreneurship education.

3. Teacher education and training*Initial teacher education*

- Entrepreneurship education for teachers is compulsory in three teacher education institutes, (Kajaani Department of Teacher Education of the University of Oulu, crafts teachers' programme in the Rauma Department of Teacher Education of the University of Turku, and the Vaasa Department of Åbo Akademi University), and elective in several others. All universities providing teacher education offer

¹⁸ Development Strategy for Entrepreneurship in the Creative Industries Sector for 2015

¹⁹ YES Entrepreneurship Education Centre, www.nuoriyrittajys.fi

²⁰ Junior Achievement – Young Enterprise Finland, <http://ny-yritys.fi/en>

²¹ Measurement Tool for Entrepreneurship Education, www.lut.fi/mittaristo/svenska

²² The Virtual Learning Environment for Entrepreneurship Education, www.yvi.fi

entrepreneurship education as elective studies for teacher trainees (DG Enterprise 2010, 48).

- Work life knowledge and skills of the teaching staff is being developed and maintained by learning-in-job. This takes place in actual work places.
- YVI project includes web-based tool boxes of entrepreneurial teaching methods
- The core curricula for Initial Vocational Education and Training (IVET) state that all IVET qualifications include at least 5 credits (weeks of study) of entrepreneurship and business studies. The core curricula for further and specialist VET qualifications include entrepreneurship either as a compulsory or elective subject (GHK 2011b, 69).
- There are internships and placements of teachers in enterprises organized by Economic Information Office and YES networks.

Continuing professional development/in-service training

- 'Teaching the teacher' is also included in the course offered by the vocational teacher training.

Assessment of teacher performance, teaching methods and materials

- Teachers' entrepreneurship education practices, teaching methods and contents of teaching are assessed by MTEE.

National support

- An 'entrepreneurship education group' with members from 13 teacher education schools has been set up, with the focus on providing better support services for guided teaching practices, and special emphasis on support material for curricular work (Ministry of Education, Finland 2009, 30).
- There are mainly non-financial incentives that reward entrepreneurial teachers.
- A Scientific Association for Entrepreneurship Education arranges conferences as national forum; YVI project and YES network arrange local networks and discussion forums.
- YVI project has disseminated its practices at international and cross-national level. SAFE coordinates international co-operation and JA-YE provide an international network and forum.
- The Ministry of Education has allocated specific funding for research and development projects in teacher education and the training of teacher educators

in entrepreneurship education. Measures have been taken to recruit more teacher trainers with a personal experience in entrepreneurship (GHK 2011a, 76).

4. Developing an active role of local and regional authorities

Studies carried out and funding by regions and municipalities

- Some regions and municipalities or groups of municipalities have also carried out more detailed studies into entrepreneurship education in their regions but there is no framework to bring this information together in a comparable format at national level (GHK 2011b, 74).

Regional entrepreneurship centres

- YES centres also function as entrepreneurial resource centres at regional or local level.

5. Engaging with businesses and private associations and organizations

Intensity of business involvement

- According to the interviewee, 'to strengthen the co-operation with companies and working life organizations, teacher training councils in all vocational teacher training units have members from organizations representing employment, working life and entrepreneurship. In-the-job-learning and co-operation with companies and working life is an integral part of vocational education'.
- Both company visits by schools and school visits by companies are included in the programme.
- Various measures have been set up in the development plan by the Ministry of Education and Culture to strengthen the links between education and working life (Education and Research 2011-2016, 16).

Research of motivating business community

- The Federation of Finnish Enterprises provides training for entrepreneurs, is involved in designing national policies into entrepreneurship education and carries out regular surveys (GHK 2011b, 71).

Project co-financed by business sector

- There are European Social Fund (ESF) projects in this area, co-financed by relevant stakeholders.

Discussion needs of business sector

- Stakeholders from business sector are involved and integrated in developing the national policy framework.

4.5.1 Review of Guidelines for Entrepreneurship Education 2009

Finland has implemented a national strategy for entrepreneurship education including a variety of measures with the aim to²³:

- Develop a participatory, active citizenship; enhance creativity and innovation in education and training, in leisure activities and in working life.
- Create a positive entrepreneurial culture and climate of attitudes both nationally and regionally.
- Promote business startups, develop entrepreneurs' prerequisites and businesses and support transfer of business to the next generation.

According to the interviewee, the dimensions of the Finnish strategy are (1) government policy, (2) normative steering (curriculum framework), (3) information steering, (4) strong networks and collaboration, (5) teachers' basic and in-service training, and (6) development projects (e.g. with the support from European Social Fund). Nevertheless, there were three more dimensions mentioned in the Guidelines (p.26), namely development of entrepreneurs' competences, research and evaluation.

Entrepreneurship education has been a part of Finnish national basic education curricula since 1994. However, nationally and internationally a measurement system concerning teachers' actions in entrepreneurship education was missing and therefore a national project was launched in 2008. MTEE project, co-funded by European Social Fund, was targeting at this challenge by creating an assessment tool for teachers of basic and secondary education.

There are 11 objectives in the Guidelines for entrepreneurship education to be achieved by 2015. Based on the email interview and the desk study, it could be said that most of them are already well implemented. Yet the area for continuing professional education is lagging behind - 'a model has been created for widening teachers' access to continuing professional education and to secondments related to entrepreneurship education' (p.15). The interviewee explained that the model is very difficult to create because of the lack of resources; thus the work is still incomplete.

²³ Ministry of Education, Finland (2009), Guidelines for entrepreneurship education, <http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2009/liitteet/opm09.pdf?lang=fi>

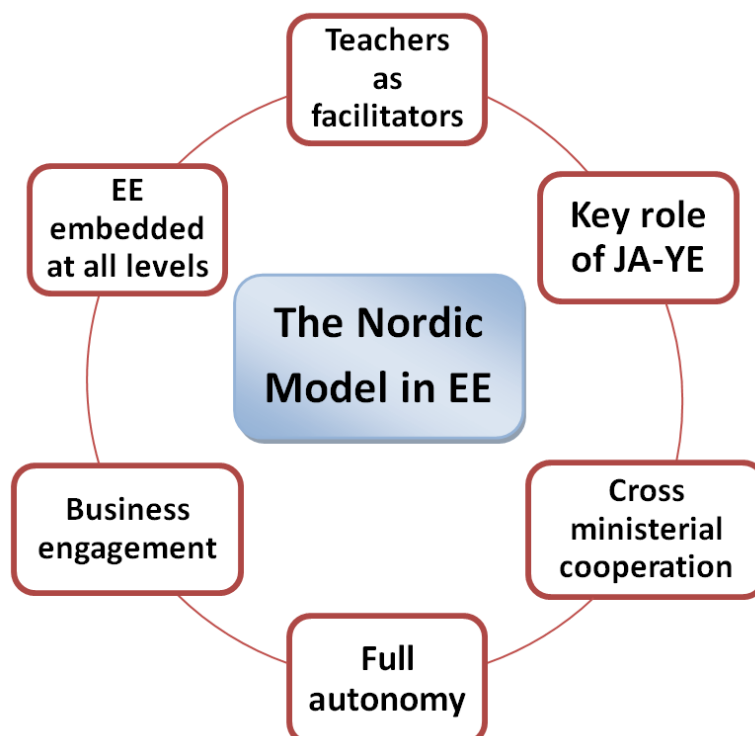
4.6 The features of the 'Nordic Model in entrepreneurship education'

As indicated by DG Enterprise (2010, A42), the strategies for implementing entrepreneurship education are in place or under development in the Nordic countries. Yet, the pace of the implementation and the development by the five dimensions in each Nordic country is not exactly the same. This could be due to the lack of government recognition, financial support, infrastructure, and enthusiastic teachers, or attitudes towards change, labor and tax regulations, and economic circumstances.

Through years of developing entrepreneurship education, all the Nordic countries have adopted certain common features which distinguish them from other countries. For example, in Asia, the strategy for entrepreneurship education is generally formulated only by the Education Authority, and entrepreneurship education is mainly offered by higher education. There are no non-profit organizations which would play a key role in enhancing and promoting entrepreneurship education.

The 'Nordic Model in entrepreneurship education' could be seen as a starting point when discussing possible Nordic collaboration in this area (see figure 6).

Figure 6: The combined features of the 'Nordic Model in entrepreneurship education'



4.6.1 Junior Achievement - Young Enterprise as a part of the curriculum

Except in Iceland, Junior Achievement - Young Enterprise (JA-YE)²⁴ has made a significant contribution to entrepreneurship education in the Nordic countries, and is therefore more than just a good practice. Most of the programmes are integrated as a part of the curriculum in educational institutions. Not only they integrate the national strategy in entrepreneurship education but, for instance, JA-YE Finland is also a part of the national working group to develop the national strategy (Finland 2009). In Denmark, the objectives for the Danish Foundation for Entrepreneurship - Young Enterprise (FFE-YE) are to ensure the integration of entrepreneurship in every educational level of the Danish education system.

JA-YE has already become a significant feature of entrepreneurship education in the Nordic region. In figure 7, the aim is to identify similarities and differences in implementation between JA-YEs.

Figure 7: Similarities and differences in implementation of JA-YE in the Nordic countries

JA-YE	Covered region	Programme		External funding recd 2011	Teacher training	Teaching materials	Awards	Nordic collaborated projects	Measuring performance	Research in EE	Alumni
		category	item								
Finland	19	Pre-school & grade 1-6	3	€ 115 000	Yes	Yes	Yes	No	Coming	No	No
		Grade 7-9	3								
		Sec school	3								
		Higher edu	2								
Norway	17	Grade 1-7	3	NOK 87m	Yes	Yes	Yes	Some	Yes	Yes	Yes
		Grade 8-10	6								
		Upper sec	6								
		Higher edu	5								
Sweden	20	Grade 2-5	1	SEK 77m	Yes	Yes	Yes	Few	Yes	Yes	Yes
		Grade 6-9	1								
		Aged 16-20	1								
Denmark	12	Mostly in secondary level	10	DKK 32m	Yes	Yes	Yes	Some	Yes	Yes	Yes
Iceland	1	Aged 16-22	1	€ 3 000	At request	Yes	No	No	No	No	No

Highlights:

- It is obvious that JA-YE Norway received the largest amount of financial support from government organizations, business sectors, regional and local communities in 2011 compared to other Nordic countries. Therefore, it has more programmes covering different levels of education.

²⁴ In Sweden it is called Junior Achievement. In Denmark, it is called the Danish Foundation for Entrepreneurship - Young Enterprise (FFE-YE)

- The external funding of JA-YE Finland is lower but it relies on volunteer working and strong networks.
- According to the CEO of JA-YE Iceland, there was a lack of recognition and government support which could result in closing down the organization.
- JA-YE Finland and JA-YE Norway provide programmes that form an entrepreneurial path from preschool to university level.
- All the Nordic JA-YEs provide teaching material and teachers' training. In Finland, however, teachers' training is carried out by YES Entrepreneurship Education Centre.
- Though there is some interaction between the Nordic JA-YEs, the CEOs of JA-YE Denmark and Finland mentioned that the Nordic collaboration could be improved.
- JA-YE Denmark was merged with a large public funded entity, The Danish Foundation for Entrepreneurship, in 2010.
- JA-YE Norway, Sweden and Denmark also make use of their alumni in relation to coaching, mentoring and business connections.

4.6.2 Close cooperation between ministries

In the Nordic countries, the formulation of policy, strategy and guidelines in entrepreneurship is no longer resting on one ministry alone. In case of Finland, a broad-based approach is adopted directly involving business confederations, educational institutions, trade unions, local and regional authorities and non-government organizations (see appendix 4 Cross ministerial involvement in Nordic Countries).

4.6.3 Educational institutions' full autonomy and flexibility in implementation of entrepreneurship education

European Commission (2008, 8) has stressed that the strength in promoting innovative capacity of higher educational institutions, and hence their entrepreneurial potential, is their autonomy. In line with the national strategies in the Nordic countries, most educational institutions have autonomy and flexibility when implementing entrepreneurship education as long as they do not deviate from their National Qualification Framework, curriculum regulation or steering documents that set the objectives and the learning outcomes. The Action Plan (2009-2014, 8) of Norway states that 'how the training in entrepreneurship actually takes place is organized by the individual educational institution'. One interviewee referred to their right to set the implementation policy, whereas one also appreciated the low intervention of the Ministry, and one affirmed that the commitment of teachers was better in decentralized system. This is exactly what it called 'framing'; one of the five important elements in the open method of coordination (Education and Training 2010, 10)²⁵.

²⁵ Policy-making for Lifelong Learning. The Development of Education Policy in Iceland in the context of Europe. http://eng.menntamalaraduneyti.is/media/MRN-pdf-namskrar/ET_2010_Iceland_-_English_translation.pdf

4.6.4 Engagement of business sector essential

Examples of involvement of the business sector can easily be found in the Nordic countries. This differs with the findings by Wilson (2008, 7) that in Europe, most universities lack the experience and incentives to initiate proactive outreach with the private sector. At policy level, the decision makers have opened up channels with business representatives for strategy formulation and discussion. Some local communities and business confederations also provide company lists for schools. Collaboration between educational institutions and companies has been integrated as a part of the teaching curriculum, and examples of the activity include mentoring and coaching, internships, mutual project developing and company visits. However, it is not so common to find examples of 'teacher-to-company' activities where teachers are placed in companies. Moreover, another issue is whether the collaboration is adequately linked to studies.

4.6.5 Entrepreneurship education being well embedded

Entrepreneurship education is provided at all levels and types of the educational institutions in the Nordic countries but in most cases it is optional. Only few courses are compulsory in vocational education and training. In the primary and lower secondary level, it is generally conducted as a cross-curricular subject. This is consistent with the analysis of Eurydice (2012, 13) indicating that entrepreneurship is not generally taught as a separate subject in these levels. It takes time to mainstream and mandate entrepreneurship education in the curriculum. However, all pupils and students are given opportunities to learn how to think entrepreneurially, and to develop entrepreneurial skills.

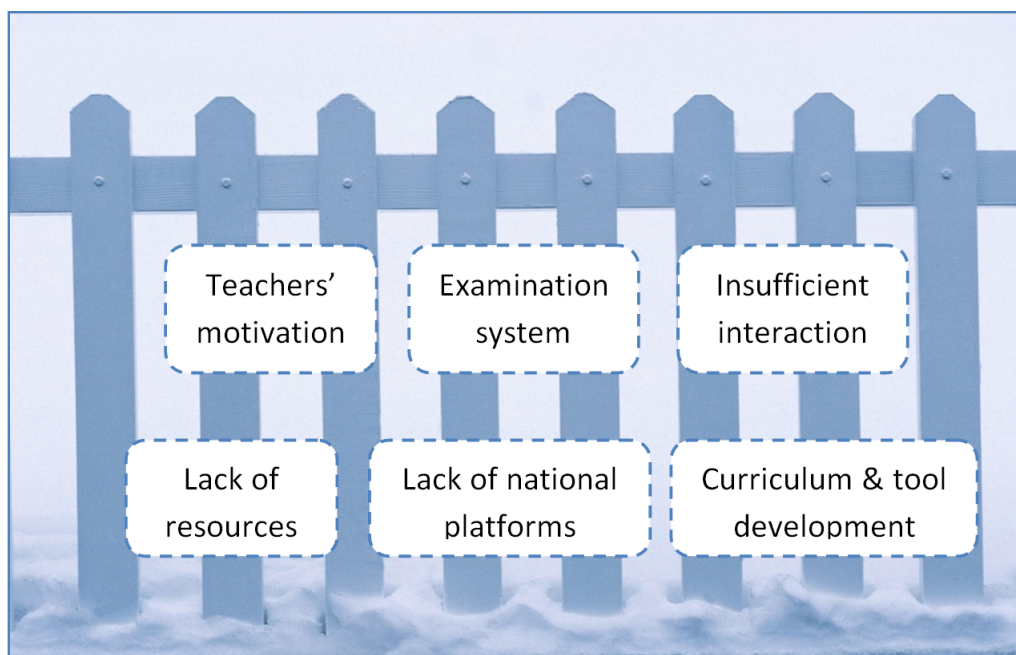
4.6.6 Teachers as facilitators

European Commission (2008, 8) concludes that teachers are becoming moderators instead of lecturers but a more interactive learning approach is still needed. DG Enterprise (2011, 16) states that entrepreneurship education requires the use of active learning methods that place the learner at the centre of the educational process and enable one to take responsibility for his or her own learning to experiment and learn. Therefore, the role of teachers has changed. In many of the reports studied, it was advocated that teachers should not act as controllers in the class, but rather function as facilitators. They should guide students to think reflectively and creatively, to work collectively and to find out possible solutions by themselves.

5. The obstacles identified in the interviews

It takes time to mainstream entrepreneurship education and various obstacles could be encountered in the stages of implementation. The major obstacles that were mentioned in the interviews are described below in figure 8. Some of them could also open discussion for Nordic collaboration.

Figure 8: Obstacles in implementing entrepreneurship education



When comparing to the results of FORA (2008, 200), teachers' motivation and lack of resources are still the main barriers to entrepreneurship education, whereas the issues related to examination system, insufficient interaction, lack of national platforms, and curriculum and tool development were raised up in the interviews.

5.1 Motivating teachers to engage in entrepreneurship education

'The main barrier is often lack of sufficient entrepreneurship training capabilities in the education system', Nordic Entrepreneurship Monitor (2010, 10). At present, teacher training, materials and platforms for entrepreneurship education are in place and the focus should be on how to motivate teachers to engage in teaching entrepreneurship education. According to European Commission (2008, 7), 'there is very little in terms of incentives to motivate and reward teachers for getting involved in entrepreneurial teaching... Entrepreneurship is very much dependent on the willingness and vision of certain leaders'. This is still an unsolved barrier.

DG Enterprise (2011, 30) suggested that 'perverse incentives' discourage teachers from becoming facilitators and need to be addressed. It further advised that teachers should be included in the discussion of development agenda in entrepreneurship education. In addition, 'teacher champions', i.e. those teachers who have already been convinced of the benefits of entrepreneurship education, play an important role in promoting the topic to their colleagues (DG Enterprise 2011, 41). European Commission (2012, 7) proposed that more insight into the impacts of entrepreneurship could contribute to overcoming this obstacle.

There was a consensus among the interviewees that financial rewards would not work but role models, academic recognition by award, good practices and communication could be the solution to this issue. In the following it is described how each Nordic country works with the issue:

1. In Finland, 'In quite many schools, there is one or two 'Star' teacher; the one who concerns and follows entrepreneurship education', told by one of the interviewees. Instead of using money, educational institutions adopt selective communication and marketing strategies when trying to reach and motivate teachers. Moreover, they use stories and role models to tell how entrepreneurship education makes a difference.
2. Interviewees in Denmark also agreed that financial rewards alone are not important to teachers. Not only they try to highlight and share the role models for good practices, but also focus on the pupils' stories about being part of a project. One interviewee suggested that external experts in innovation and entrepreneurship should participate in teaching together with teachers.
3. One of the interviewees in Sweden told that there is a communication plan to help teachers and students understand the meaning of entrepreneurship education. Money is not the motivator as such.

4. In Norway, there are awards to teachers performing well. It is important to show examples and give feedback so that teachers could assess and verify their learning. At the same time, money could also be a good incentive. The award itself is important in guiding to the desired way of working.
5. One interviewee from Iceland also told that they rely much on individuals. To motivate teachers in Iceland, practical guidelines and good practices are used to help teachers to learn more about entrepreneurship education, and its possibilities and value.

5.2 Lack of funding and human resources

The question of resources has been outstanding for a long time. Action-oriented teaching is labor-intensive and costly. There is clearly a need of both human resources and funding for taking entrepreneurship education forward. One interviewee mentioned that they are not able to do follow-up research on projects because there is no funding for that kind of research. Other examples include JA-YE Iceland receiving only 3,000 euros of funding in 2011 and some interviewees referring also to their scarce human resources.

5.3 Traditional examination system not suitable to entrepreneurship education

Some interviewees agreed that one of the main problems in implementing innovation and entrepreneurship education is the current examination system with the focus on testing students' theoretical knowledge and heavily relying on grades. However, the effective way of learning entrepreneurship is through experiential training that could not be tested by traditional examinations. 'Without a change in this area it is difficult to see how the goals of entrepreneurship education will be achieved', DG Enterprise (2011, 29). Therefore, the examination system should be altered to accommodate both theoretical and practical knowledge. In Denmark, it is looked into how to develop new examination methods that would support education and training in entrepreneurship (NIRÁS 2012, 11). One Interviewee commented that there are quite different ways of evaluating students' performance; sometimes on paper, sometimes through a project work. It depends very much on what the goals are and what you wish to evaluate.

5.4 The other side of full autonomy

Since educational institutions have much flexibility in implementing entrepreneurship education suited to their own needs and circumstances, the policy makers might fail in monitoring and controlling the implementation process. Some of the Interviewees commented that a problem in the implementation is not the governmental organizations but the educational institutions; the ministry does not follow up closely the work at the school level and the universities might – despite the national strategies – decide not to take entrepreneurship education into consideration in their own strategies and activities.

5.5 Lack of a national platform for sharing good practices

In general, the Nordic countries are lacking national platforms where good practices in different categories could be systematically and periodically updated and shared. FORA (2008, 39) suggested that a national taskforce could collect and disseminate examples of good practices in entrepreneurship education at the institutional level and at teachers' level. One interviewee advised that the platform should be attractive, well designed, inspiring and user-friendly, 'If you do that, you should use YouTube way ... it will be easily done as a 2-minute interview, just pitch the idea, and you can push a new button to get a longer explanation for 10 minutes, something like that'.

5.6 Curriculum and tool development essential

Due to the specific situation in each Nordic country, there is no universally applicable curriculum that could be adopted by different educational institutions and different countries. However, there is a high demand for flexible design of curriculum and appropriate tools, such as those for the assessment and evaluation. One interviewee from Finland commented that the development of curriculum and tools for the implementation of entrepreneurship education is essential in order to successfully mainstream the subject in teacher training. According to Wilson (2008, 7) research and curriculum development are of particular importance in helping to ensure the rightful place of entrepreneurship among the academic disciplines.

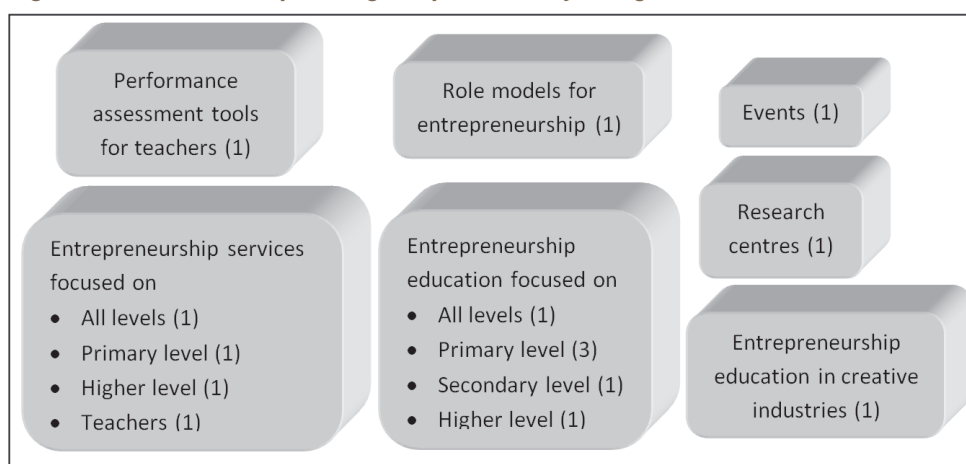
6. Good practices

One of the recommendations of Nordic Entrepreneurship Monitor (2010, 67) was to create a Nordic Entrepreneurship Education Forum where Nordic policymakers, practitioners, service providers and academia could exchange best practices related to the implementation of national entrepreneurship education strategies and design of entrepreneurship training programmes. However, it is important to stress that learning does not equal to simply copying good practices. Any good practice needs to be adapted to the special characteristics of a given society and economy (Hoffmann et al, 2008, 143). In this chapter, good practices are divided into two sections; one is the good practices mentioned or recommended by the interviewees of this study and the other includes examples presented in certain previous reports. Finally, conclusions are made for summarizing the chapter.

6.1 Good practices mentioned or recommended by the interviewees

In total, fifteen good practices were brought up; four from Finland, four from Denmark, three from Sweden and Norway, and one from Iceland. The aim is to list at least one good practice in each category as visualized in figure 9 and described in more detail in the following chapters. Many of these practices could be used for inspiration in other countries and some could even be applied at the Nordic level.

Figure 9: Fifteen examples of good practices by categories



In general, the common feature of good practices is intensive collaboration with business sector and networking with external stakeholders. Regarding the organizations providing entrepreneurial services, the attributes include the ability to cope and manage also with the scarce human resources and funding, and having high level of international cooperation and media exposure. In terms of good practices of educational institutions, the notable characteristics were the following:

- They emphasize the importance of experiential learning, practice and learning by doing, especially in secondary and upper secondary schools.
- Generally, there was no specific subject called entrepreneurship in primary and lower secondary education. However, entrepreneurship education is integrated in other subjects that aim to stimulate and inspire pupils' creativity.

6.1.1 Performance assessment tool for teachers – Measurement Tool for Entrepreneurship Education (MTEE)²⁶ by Lappeenranta University of Technology, Finland

Teacher training without impact assessment does not help to improve performance. MTEE is a web-based self-evaluation tool that aims at helping to assess teaching performance. With its effective communication and marketing strategies, it has been successfully implemented and used by more than 800 teachers in Finland and Sweden. Before the tool, there were for instance questionnaires related to teachers' attitudes but not measuring their actions in entrepreneurship education. The tool can be used by teachers, principals and administrators in primary, secondary, vocational and higher education, as well as instructors and students in teacher education. The quality of MTEE itself has been assessed both internally and externally. Its wide database contains statistics that can be used for entrepreneurial indicators, and the developers would be eager to collaborate internationally for the further improvement and possible international launch of the tool.

Based on this study, there appears to be a lack of tools for measuring teacher performance. The MTEE tool could possibly fill this gap in the Nordic countries by its uniqueness, applicability, innovative approach and user friendliness.

The advantages of using MTEE are:

- To teachers, the most innovative part is that they can receive both verbal and score feedback instantly after filling the questions. The feedback indicates in a chart form the teachers' capabilities and competences in different dimensions compared

²⁶ Swedish version: www.lut.fi/mittaristo/svenska, Finnish version: www.lut.fi/mittaristo and something about the tool in English: www.lut.fi/entre

to the average, and suggests areas for improvement by linking with relevant teaching materials and websites. This opens the teachers' mind on the concept of pedagogical solutions and hence enhances their reflection process.

- To principals, the MTEE could be used as a tool for development discussion with teachers and even for assessing teachers' performance.
- To municipalities, there is an opportunity to get a report about their level of entrepreneurship education together with a development plan. MTEE serves as a steering tool for entrepreneurship education.
- Teachers, principals and municipalities are the direct beneficiaries of using MTEE, however, there is also indirect and positive impact on pupils, students and the educational standards.

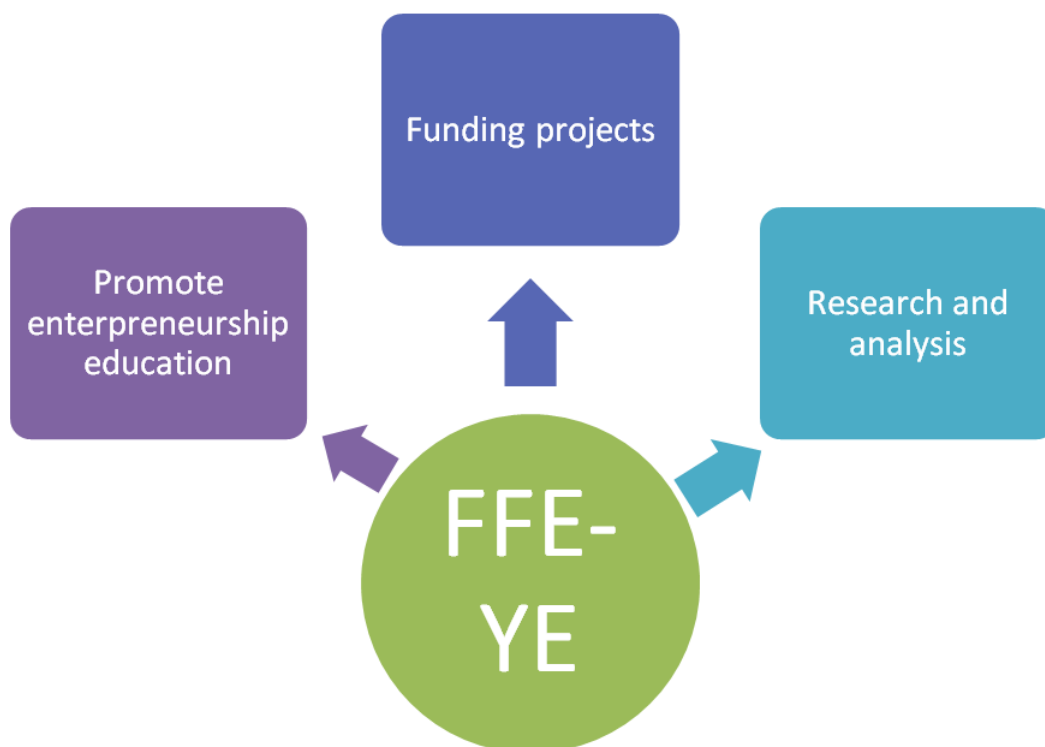
The limitations of MTEE are:

- At higher education, MTEE is originally aimed for universities having teacher education and training, but not for other kinds of universities such as university of technology or arts. This could be the area for further improvement.
- There is no platform or forum in MTEE where teachers, principals or decision makers in municipalities could discuss, exchange information and good practices. Yet, this is included in a project called YVI in which the developer of MTEE, Lappeenranta University of Technology, is also a project partner.

6.1.2 Entrepreneurship services focused on all levels of education – The Danish Foundation for Entrepreneurship – Young Enterprise, Denmark²⁷

The specialty of the Danish Foundation for Entrepreneurship - Young Enterprise (FFE-YE) is its multi-functionality in 3 areas performed by one organization; namely promoting entrepreneurship education, funding entrepreneurial projects, and research and analysis in the field of entrepreneurship education.

²⁷ www.ffe-ye.dk

Figure 10: Multifunction performed by FFE-YE

Young Enterprise was merged with the public funded entity 'The Danish Foundation for Entrepreneurship' in 2010. Thereafter, it is called The Danish Foundation for Entrepreneurship - Young Enterprise (FFE-YE). Hence it has a very broad partnership with Danish ministries, and has become the major arm of implementing and promoting entrepreneurship education in Denmark. Its objective is to ensure that entrepreneurship is integrated in the Danish education system by getting more students on every education level to participate in entrepreneurship education. In many incidences, the programmes provided by FFE-YE are part of the curriculum of educational institutions.

In terms of promoting entrepreneurship education, it facilitates teacher training by providing national workshops, teaching materials, network and platform for educators (NEIS), excursion for educators and conferences. It stimulates students' interests by organizing competitions and events such as Danish Entrepreneurship Award 2012, Venture Cup, Startup Programme, innovation camps, and study tours. It networks former students by Young Enterprise Alumni Denmark (YEAD) where members can make use of each other's experience and skills. It serves as a regional knowledge bank as well as a meeting place for school management and local businesses.

Regarding funding project, FFE-YE support funds to co-finance projects and activities that strengthen Denmark's competitiveness by influencing attitudes and interest in entrepreneurship and innovation. This could include the development and implementation of innovative teaching materials, concepts or qualifications of teachers. In the area of 'teaching the teacher', it has specific calls for educators and professors to apply for funds to establish events and conferences. According to NIRÁS (2012, 80), there are 151 projects granted funding from 2010 to 2011 that amounted to 12.8 million DKK.

Research and analysis is performed by the unit called 'Knowledge and Analysis' that yearly measures the spread of entrepreneurship education at all levels of the Danish educational system and carries out research on the impact of entrepreneurship education.

In January 2011, FFE published a study 'Impact of Entrepreneurship Education in Denmark 2011' investigating the impact of entrepreneurship education on the ninth-graders at lower secondary level and university students at graduate level. FFE is now conducting a longitudinal PhD study by following these ninth-graders over the years. It aims to investigate the effect of educational design on the individuals' attitudes and behavior in relation to choice of education, business startup and income. Since 2009, FFE also publishes 'Entrepreneurship from ABC to PhD' which gives an overview of the prevalence of entrepreneurship education in the entire Danish education system.

The findings of the studies are important to teachers and principals in entrepreneurship education, to design courses and programmes, and to receive further financial support. It is also crucial to the government organizations for formulating and assessing entrepreneurship strategy and policy.

In May 2012 a report called 'Evaluation of the Danish Foundation for Entrepreneurship - Young Enterprise' was published. The evaluation by an external consultant shows that FFE has met the majority of its goals, that were (1) to strengthen entrepreneurship in the Danish educational sector, (2) to create a coherent national initiative, and (3) to develop a national knowledge centre for and training in entrepreneurship (NIRÁS 2012, 9).

6.1.3 Entrepreneurship services focused on primary education – The Enterprise Society of Economic Information Office, Finland²⁸

The creative and impressive feature in The Enterprise Society (TES) is its mobile learning environment which not only can be transferred to different localities, but can link schools, business sector, municipality, university and parents together.

²⁸ www.tat.fi

The project offers to 6th grade pupils of the age 12 to 13 an experience of the society, enterprises and different professions. The premises, over 500 square meters, simulate the operations of 15 companies and public services. The Enterprise Society consists of a 10-lesson study module as the preparation, followed by a one-day Enterprise Society visit. During the one-day visit, the pupils get a chance to work in a profession, earn salary and act as consumers in their own society. Through this, they get to familiarize themselves with working life and the role of a citizen.

The partner enterprises are real Finnish companies that provide their brand and visual material as a part of the learning environment, and give lectures during the study module. They represent trade, healthcare, banking, forestry, catering, energy, and building sectors and public organizations. The Enterprise Society also cooperates closely with local educational institutions that offer study modules to the pupils and provide training to the teachers. The mentors are local students at universities where they study economics and/or pedagogic. Guiding pupils has already been integrated as a part of mentoring students' university courses. Parents are also involved in the learning module and invited for discussion.

Since its piloting stage in 2009, TES mobile unit has visited five towns around Finland. Moreover, permanent TES units have been established in Helsinki and in the Eastern Finland. In total, more than 15 000 pupils will visit the three units each school year. Opportunities for extending activities to other regions are looked upon. There are 70 collaboration partners, including the government, companies, municipalities, and foundations.

6.1.4 Entrepreneurship services focused on higher education – Stockholm School of Entrepreneurship (SSES), Sweden²⁹

Established in 1999, SSES targets students at university. The specialty about SSES is that it is a centralized agency that represents five universities; the Royal Institute of Technology (KTH), the Stockholm School of Economics (SSE), Karolinska Institute (KI), Stockholm University and Konstfakt University of Arts, Crafts and Design. It brings different disciplines (business, design, medicine and law) under one roof to provide an interdisciplinary platform for the students. This means that one student can study the art of applied entrepreneurship in interdisciplinary groups of students with different backgrounds. This diversity stimulates creative thinking. Its courses are focused heavily on practical approach such as mentoring, internship, business planning, setting up company, sales and marketing. 'We call it applied entrepreneurship, that is, learning by doing', told an interviewee. SSES is also active in international collaboration, such as

²⁹ www.sses.se

with Stanford University, Aalto Center for Entrepreneurship and National Institute of Design in India for exchanging good practices.

6.1.5 Entrepreneurship services focused on teachers - YES Entrepreneurship Education Center (YES), Finland³⁰

The smart thing about YES is its networking which builds bridges between teachers and businesses. It targets at basic education, general and vocational upper secondary schools in whole Finland. Every regional YES Center has their own YES team for networking, sharing and updating information, and supporting YES local manager's work, that is, to act as a resource for local teachers. Not only YES trains teachers and distributes teaching material, it also collects good practices and publishes them nationally every year. There are programmes in which teachers are placed in companies, and YES cafes where teachers and entrepreneurs can discuss their co-operation. YES also works hand-in-hand with JA-YE Finland.

6.1.6 Role models for entrepreneurship – Ambassadors for Women's Entrepreneurship, Sweden³¹

Since 2008, the Swedish Government has commissioned the Swedish Agency for Economic and Regional Growth, to coordinate a national network of women entrepreneurs. There are 919 women ambassadors, who serve as role models for other women, in the network all over Sweden. The ambassadors make four missions a year on a voluntarily basis. They share their experiences as entrepreneurs by speaking at schools, universities, networks and non-profit organization. This project became "best premium practice" 2009 chosen by the European Commission and inspired the European Commission to launch the project "EU Ambassadors for Entrepreneurship" which now includes 21 countries in Europe.

6.1.7 Entrepreneurship education focused on all levels – The Norwegian Association of Higher Education Institutions (UHR)³², Norway

As written in Section 4.3, UHR is the most important cooperative body for Norwegian universities and colleges, as well as an important education and research policy player in Norway. UHR sees innovation is highly related to entrepreneurship. In spring 2013, UHR will publish 'EUREKA! Om innovasjon i UH-sektorens kunnskapskretsløp' that clarifies the role of universities and higher education institutions in relation to promote creative economies and sustainable communities.

³⁰ www.yes-keskus.fi

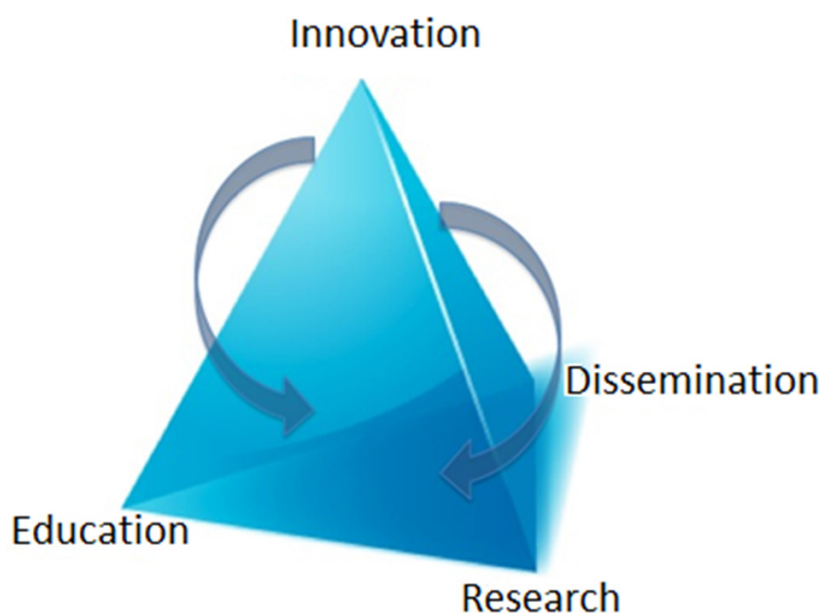
³¹ www.ambassadorer.se

³² www.uhr.no

In the report, it illustrates 'the knowledge pyramid' model (please see the figure 11) that is not only included innovation, education and research, but also the dissemination pillar which has not been focused previously. Dissemination includes communication, mediation and distribution that are important to link knowledge institutions, business sector, society and cross-border nations together.

This concept could be well perceived but has not been properly integrated in the definition and highlighted its importance. By disseminating good practices, knowledge can be shared and learnt with each other.

Figure 11: The knowledge pyramid



Source: EUREKA

Under this model, UHR proposes a broader definition of innovation:

- Innovation is a new or significantly improved products, services or processes that are used and provide added value and benefit to society.
- In the higher education sector, research, education and dissemination are fundamental for innovation and also a means to promote innovation.
- Innovations are based on research when the expertise, knowledge and ideas arising from research activities used in the development of improved products, services or processes.
- Innovations include both contributions to ensure economic and sustainable growth and competitiveness, and contribute to greater social benefit in terms of better public services and a better functioning social system.

This concept is relevant for all disciplines. It is essential to stimulate interactions between innovation, education, research and dissemination. In order to highlight the interdependence between the four core activities, numbers of direct and indirect strategies, activities, initiatives and good practices are presented in the report for reference.

6.1.8 Entrepreneurship education focused on primary level

6.1.8.1 - Snilleblixarna, Sweden³³

The special feature about Snilleblixarna is the way it transmits knowledge in an innovative and enjoyable way. Snilleblixarna works through local and regional actors. The actors' role is to provide teaching material, organize training sessions for Snilleblixarna teachers and assist in arranging local or regional fairs. It has 97 actors in Sweden now which is why Snilleblixarna was awarded the Knowledge Prize in 2009 and presented in the Swedish pavilion of the Shanghai World Exhibition in 2010. It aims at primary school teachers and to raise children's interest in entrepreneurship, technology, natural sciences and inventions. It has also some cooperation with JA-YE Sweden. The advantage of Snilleblixarna is a cost effective model where the actors are funded by their respective municipalities, and do not require many employees. The Snilleblixarna concept therefore could exist and continue via the actors.

6.1.8.2 Hellerup Skole, Denmark³⁴

Hellerup Skole (HS) creates an open and flexible learning environment, for children of age 6 to 16, to meet each child's learning preferences. 'There are no classrooms in HS. Every square meter is used as learning environment', told the interviewee. The organizational features have either disappeared or become less significant. In the teaching, the children are actively involved instead of being examined. They are assembled at a 'base' room at the beginning of the day to have a short instruction, and then spread out in the learning environment for individual or group work. Also, teachers and pupils cooperate in setting up aims of different subjects, and social and personal skills. In this way, HS strengthens the children's ability to solve problems independently, to think critically and to respond creatively. HS has collaborated with schools from Sweden, Finland and the UK, and is functioning as Microsoft Advisory Leadership Team for other schools in the Microsoft Partners Learning Programme.

³³ www.snilleblixarna.se

³⁴ www.hellerupskole.dk

6.1.8.3 *Grunnskólinn austan Vatna, Iceland*³⁵

Connecting pupils of age 6 to 16 to their closest environment is one of the main themes at Grunnskólinn austan Vatna (GaV). According to the interviewee, GaV tries to make pupils aware of their environment and neighborhood to realize the benefits and the opportunities offered, and to enable them to think in a creative and sustainable way. Once pupils care more about their school and local community, they may understand the world as a whole and how to protect the environment.

6.1.9 Entrepreneurship education focused on secondary level – Egaa Gymnasium, Denmark³⁶

Egaa Gymnasium (EG) targets at pupils of 16 to 19 years old at the upper secondary school. One innovative feature is how EG trains pupils to think reflectively. In its math classes, no math books are used but pupils are left to make their own books as a part of the teaching. During the class, two pupils take notes and others can focus more on learning. The two pupils then write up a paragraph and record a video for their own math book, and upload them on the homepage. This motivates pupils to participate, to think and to reflect on math. Moreover, pupils are also given opportunity in participating in the school board, working groups, and Committee of Pedagogic Development so as to train skills such as decision-making and team working.

6.1.10 Entrepreneurship education focused on higher level – Aalto University, Finland³⁷

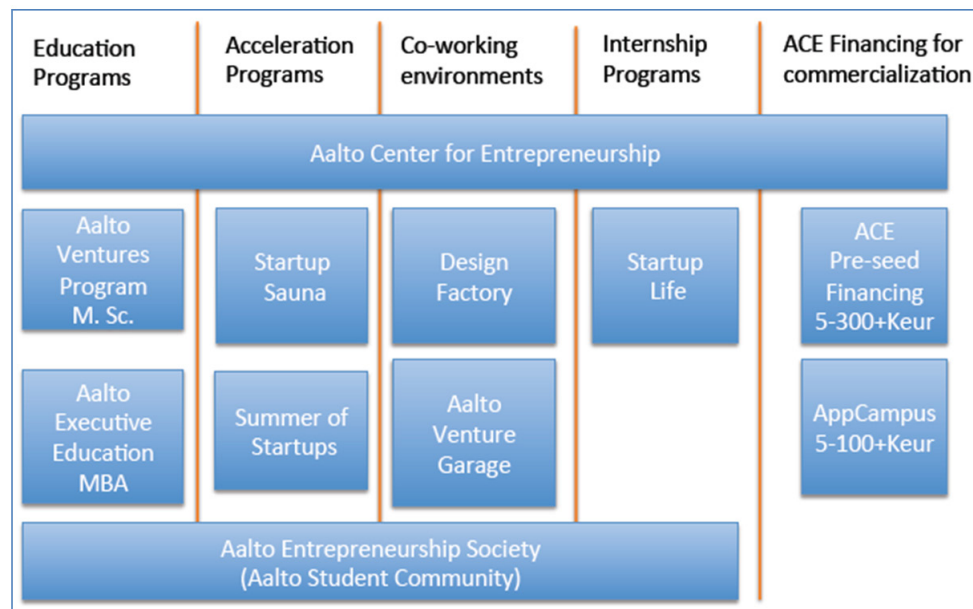
Aalto University (AU) was designed to be the world's first 'innovation university' for the cross-discipline collaboration of faculties, researchers, and students of Finland's leading universities of technology, art & design, and economics. Established in 2010, AU is a newly created university merging three Finnish universities: Helsinki School of Economics, University of Art and Design in Helsinki, and Helsinki University of Technology. The combination of three universities opens up new possibilities for strong multi-disciplinary education and research.

Since the establishment, there is a determined effort to focus on innovation-based entrepreneurship. As AU moves forward, it will be better positioned to transform research ideas into competitive commercial technologies and innovative startups and growth companies.

³⁵ www.skagafjordur.is

³⁶ www.egaa.gym.dk

³⁷ www.aalto.fi

Figure 12: The main entrepreneurial organizations within Aalto

Source: Cardwell & Louko 2012

According to the interviewee, AU integrates to a much closer extent technology transfer, startup acceleration, and entrepreneurship teaching and research compared to most other universities. These are embedded primarily in the Aalto Center for Entrepreneurship³⁸, Aalto Venture Garage³⁹, Aalto Ventures Program⁴⁰, and Aalto Entrepreneurship Society⁴¹. AU also provides platform where teachers, students and business sectors could meet and share information, in particular, at Aalto Venture Garage and Aalto Design Factory. Since establishment of Aalto in 2010, Growth Entrepreneurship has become one of the main priorities of the newly formed university. See figure 12 (above) for the main entrepreneurial organizations within Aalto – Aalto University Growth Entrepreneurship.

In terms of corporate collaboration to stimulate growth entrepreneurship, Nokia and Microsoft have chosen AU to co-develop the world's leading mobile application development ecosystem. This so-called 'Appcampus' is a pilot program for creating application development hubs.

One interesting event is the 'Fail Day' celebrated by Aalto Entrepreneurship Society on October 13 every year. The initiative grew out of the risk aversion in the Finnish mentality that prevents many startups from being born. The aim of the event is to send out the message that there are many lessons to be learned from a failure on the road to success.

³⁸ www.ace.aalto.fi

³⁹ www.aaltovg.com

⁴⁰ www.avp.aalto.fi

⁴¹ www.aaltoes.com

6.1.11 Events – Aarhus Startup Weekend (ASW), Denmark⁴²

The distinguished part of ASW is the model of the annual competition connecting various stakeholders, such as students, entrepreneurs, educational institutions, companies and government organizations, for a weekend (54 hours) where they stimulate their creativity, test ideas and business models, and work out prototypes. This would generate innovative ideas for the competition and provide a platform for marketing the ideas for further funding.

Starting with open pitches on the 1st day, attendees in all the participating cities will phone in the most promising concepts with teams focusing on customer development, idea validation and creating a viable product. By the 3rd day the teams demonstrate their prototypes and receive valuable feedback from a panel of experts, and go for the competition.

After the first success in November 2011, the ASW will be held again on 16th to 18th of November 2012 with the focus on building web or mobile applications. Aarhus is one of the 50 cities around the world hosting Startup Weekend. At Nordic level, only other participant in this global event is Trondheim, Norway.

According to the interviewees in Denmark, 'ASW invites all kinds of organizations, companies and education institutions. So it's the whole Denmark that will participate in this week', and 'This year for sure there could be 5000 people. It is really a good idea to make this big event where people will be inspired and provoked by what other people do ... they have like 1,000 good ideas in this big house where they can do lots of new, innovative things'.

6.1.12 Research centre – Nordic Institute for Studies in Innovation, Research and Education (NIFU), Norway⁴³

According to the interviewee, NIFU is appointed by the Ministry to continuously follow up and evaluate the implementation of entrepreneurship strategy and the Action Plan (national strategy). For example, NIFU evaluates the NOK 2 million annual funding (since 2006) provided by the Directorate of Education and Training to the university colleges and universities with teacher education programmes (Action Plan 2009, 26). NIFU also works on development of study programmes and new teaching methods in entrepreneurship and innovation.

Funded by Norwegian Research Council, NIFU is an independent social science research institute, organized as a non-profit foundation. Its aim is to be a leading European research organization for studies of innovation, research and education at all levels,

⁴² <http://aarhus.startupweekend.org>

⁴³ www.nifu.no

and it collects, analyses and disseminates national statistics and indicators for R&D and innovation.

6.1.13 Entrepreneurship education in creative industries – Norwegian Design Council⁴⁴

Since 2005, The Norwegian Design Council (NTC) has been working systematically to put its strategy 'Design for all' on the map of Norway. 'Design for all', also known as universal design and inclusive design, means developing products and environments that are accessible and suitable for the widest possible audience irrespective of age, ability, or ethnic or social background. A product that has been designed for all will satisfy the seven principles of universal design, for example, equal usability, flexibility, and being simple and intuitive.

Throughout the years, NTC has been helping Norwegian enterprises and public institutions to become more innovative by using design-driven methods. To meet this, NTC:

1. has initiated the 'Design-driven Innovation Programme' to increase the innovation rate in Norwegian enterprises. It offers financial support to projects that glean new knowledge and experience about the practice of design-driven innovation methods,
2. has developed a webpage about 'Design for all' including methods, practical tools, resources, videos and takeaways that benefit both business and designers,
3. arranges seminars, exhibitions and events, such as cross-company education program in design management,
4. acknowledges innovative solutions by giving awards, such as 'Award for Design Excellence' and 'Young Talent Award', and
5. has published reports and books for inspiring and motivating design managers and designers.

⁴⁴ www.norskdesign.no

6.2 Best practices from previous reports

The following best practices have been brought up in certain previous reports and might have been discussed before. However, this does not mean that they no longer would be best practices. In fact, five of them were also mentioned in our interviews; YES Center, JA-YE, The Enterprise Society, MTEE and The Danish Foundation for Entrepreneurship.

The purpose of this section is to provide supplementary information, in particular, to the point 6.2.3, since no good practices on this were brought up in the interviews. In addition, we distinguish our approach from the previous reports by aiming at providing at least one example for each category in figure 9.

6.2.1 Entrepreneurship in higher education, especially within non-business studies, 2008

In this report, only examples regarding two higher educational institutions from Nordic countries were mentioned. They were University of Turku, Finland, and Norwegian University of Science and Technology, Norway (see appendix 5, Summary of Best Practices by European Commission, 2008).

6.2.2 Best practices for the Nordic Entrepreneurship Conference, October 2011

At the Nordic Entrepreneurship Conference on 27th and 28th of October 2011 at Helsinki, nine examples of entrepreneurship education were brought up for discussion. Seven of these were from Finland, one from Denmark and one from Sweden (see appendix 6, Summary of Best Practices at Nordic Entrepreneurship Conference 2011).

6.2.3 Mapping of teachers' preparation for entrepreneurship education, 2011

In the area of initial teacher education, nineteen good practices from ten European countries were mapped out and presented for inspiration. Three of them were Finland, three from Sweden, and four from Norway (see appendix 7, Summary of Good Practices of Initial Teacher Education by GHK2011a).

6.3 Conclusions

This section aims at reflecting the study and discussing which factors inhibit or promote good practices. Based on the aforementioned fifteen good practices, the following conclusions are presented.

6.3.1 No project alone is capable to constitute a good practice

A project or practice is not capable to establish itself as a good practice without external assistance and promotion. Not only financial support is a key issue, but also the leverage by cooperating and networking with other organizations and institutions, and by receiving help from the local and regional government. The cooperation enhances knowledge transfer and cost-saving, thus providing the involved parties opportunity to focus more on their special area. For example 'Measurement Tool for Entrepreneurship Education' (MTEE) has YES as its marketing arm and YVI as its contents support.

Therefore, educational institutions or entrepreneurship service organizations should be motivated to work with each others both at the national and the Nordic level.

6.3.2 Good practices require effective communication and promotion strategy

It appears that there is a lack of systematic knowledge transfer in promoting good practices. Even if we did find websites that provide good practices, the academics or school administrators may not actively carry out this type of search, or might be reluctant to change. In such cases the good practices will not be shared. In order to stimulate learning, remove inertia and increase media exposure, more proactive measures may be needed, such as periodically conducting Nordic or international seminars where organizations or institutions are invited to present their innovative projects, curriculum, teaching methods and research.

6.3.3 Business collaboration demands careful planning

Typical for many good practices is to engage the business sector. In order to enhance the cooperation and improve the process; the local community, universities and entrepreneurial centers play an important role, for instance, in matching schools and companies. The increasing concern for corporate social responsibility also results in higher number of companies willing to fulfill their social obligations while pursuing their economic interests.

Collaboration with business sector is a two-way process. It is equally important that entrepreneurs have a role in schools, and teachers and students 'shadow' entrepreneurs in companies. Various activities can be carried out, such as lectures of entrepreneurs,

mentoring, company panels, internships, placements and secondments, company visits, joint projects and so on. However, simply having exchange programmes is not sufficient enough to promote entrepreneurship. It is crucial to deliberately match and select partners, followed by evaluation of the performance, in order to see whether mutual goals are fulfilled.

6.3.4 Funding issues

Lack of funding is a common problem to practitioners and more funding would be needed to improve the content or take the good practices of entrepreneurship education to the next level.

7. Possible areas for further discussion

7.1 Business engagement

Greater mobility and exchange of experience is needed not only between universities, but also academia and the business world (Wilson 2008, p.13). Collaboration with business sector is a key to promote entrepreneurship education. However, the collaboration should ideally meet both objectives of schools and companies. According to DG Enterprise (2010, 50), the use of secondments of teachers into business is a valuable means of developing teachers' competences in entrepreneurship education. Yet, there are few teacher-to-companies programmes systematically organized by Nordic countries. The promotion of corporate social responsibility (CSR) is crucial to motivate the business participation; however, there might be challenges to make this attractive to SMEs where resources are limited and CSR might not be a prime concern.

7.2 Collaboration between stakeholders

Collaboration between stakeholders in entrepreneurship education takes various forms. In the Nordic countries, examples include:

- School-to-school (S2S): for example, the cooperation between university and high school in Norway (University of Bergen and Nordahl Grieg videregående skole) to inspire young people to study sciences,
- School-to-entrepreneurship service organization (S2E): for example, Snilleblixarna collaborates with JA-YE Sweden for the primary programs it provides. Moreover, JA-YE Sweden is Snilleblix actor in two places in Sweden, Kalmar and Umeå,
- Entrepreneurship service organization-to-entrepreneurship service organization (E2E): for example, the collaboration between MTEE, YES and YVI in Finland.

- School-to-entrepreneurship service organization-to-business (S2E2B): for example, a project called 'Dialog with enterprises' collaborated by Egå gymnasium, Århus Statsgymnasium, Skive Gymnasium og HF ⁴⁵og Lemvig Gymnasium, konsulentfirmaet SBK and a number of business companies.

However, there is much room for improvement in the collaboration at the Nordic level.

7.3 A Nordic platform for good practices

Each Nordic country has their own platforms or channels to exhibit good practices. When looking at a 'Nordic model in entrepreneurship education' (see chapter 4.6.1), the Nordic countries share some common features that would enable them to build up even a Nordic platform for sharing and updating good practices.

The question that follows, however, would be to find an organization that would be in charge of the platform and selecting, qualifying and updating the good practices displayed there. Moreover, the criteria of selecting good practices need to be addressed. For example, in the study of Varblane et al (2008, 205), selection of good practices is based on how the specialized units which coordinate teaching and research of entrepreneurship are designed; the best examples of curricula; and the level of internationalization offered in the programmes.

7.4 The examination system

As discussed before, the traditional examination system is not able to capture the achievement of pupils or students in entrepreneurship education, resulting in a need for adjusting the system so it would accommodate these needs. Some Nordic countries have put this on their agenda already, and exchange of ideas and insight on the Nordic level might be beneficial.

7.5 Effective communication strategy

Not all the Nordic countries have formulated a communication strategy to promote entrepreneurship education. An effective communication strategy is an important

⁴⁵ <https://www.egaa-gym.dk/undervisningen/dialog-med-erhvervslivet/>

tool to take the stakeholders on board, involve them in the discussion on the aims and results, and to promote collaboration and sharing good practices.

7.6 Train the trainers programme

Based on the interviews and the desk study, the dimension of 'teacher education and training' is generally not developed enough, especially in the area of continuing professional development, and there were no good practices mentioned by the interviewees in relation to teacher education and training. Wilson (2008, 11) also argues that Europe needs to invest in the training and development of entrepreneurship professors and researchers, and training and education should also be provided to entrepreneurs and practitioners to become effective educators. Hoffmann et al (2008, 153) also point out the approach in the USA that guest teachers with practical experience go through some kind of education prior to their involvement in coaching.

It is important that teachers will be supported throughout their careers, in their initial education and their continuing professional development, for teaching entrepreneurial skills. The subject is discussed in the European Commission report 'Enabling Teachers as a Critical Success Factor'⁴⁶. With reference to this report, one of the ideas for collaboration at the Nordic level might be a panel including policy makers, practitioners, communities and companies to review the progress and give recommendations for further improvement.

7.7 Performance evaluation

The evaluation of students' learning and teachers' practices are both crucial. Assessment and evaluation of performance and results is usually required for further funding of projects and programmes and policy makers also use the results for follow-up and revising the relevant strategies. Some of the Nordic countries perform reasonably well in this regard. For example in Finland, MTEE tool is used as a self-evaluation system for teachers, and as a guide of development for authorities. However, further discussion on evaluation and relevant indicators to measure impact and results of entrepreneurship education would be useful both at the national and the Nordic level.

⁴⁶ DG Enterprise (2011), Entrepreneurship Education: Enabling Teachers as a Critical Success Factor, http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/teacher_education_for_entrepreneurship_final_report_en.pdf (Budapest Agenda p.53-56)

8. Appendices

Appendix 1: Material of desk study

Reports published by the European Commission:

DG Enterprise (2006), The Oslo Agenda for Entrepreneurship Education in Europe, http://ec.europa.eu/enterprise/policies/sme/files/support_measures/training_education/doc/oslo_agenda_final_en.pdf

European Commission (2008), Entrepreneurship in higher education, especially within non-business studies, http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/higher-education/index_en.htm

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European Commission (2009), Entrepreneurship in Vocational Education and Training, Final report of the Expert Group, http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/vocational/index_en.htm

DG Enterprise (2010), Towards Greater Cooperation and Coherence in Entrepreneurship Education: Report and Evaluation of the Pilot Action High Level Reflection Panels on Entrepreneurship Education initiated by DG Enterprise and Industry and DG Education and Culture, http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/reflection-panels/files/entr_education_panel_en.pdf

DG Enterprise (2011), Entrepreneurship Education: Enabling Teachers as a Critical Success Factor, http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/teacher_education_for_entrepreneurship_final_report_en.pdf (Budapest Agenda p.53-56)

Eurydice (2012), Entrepreneurship Education at School in Europe – National Strategies, Curricula and Learning Outcomes, http://eacea.ec.europa.eu/education/eurydice/documents/thematic_reports/135EN.pdf

European Commission (2012), Effects and impact of entrepreneurship programmes in higher education, http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/effects_impact_high_edu_final_report_en.pdf

GHK (2011a) Mapping of teachers' preparation for entrepreneurship education, http://ec.europa.eu/education/more-information/doc/2011/mapping_en.pdf

GHK (2011b), Study on Support to Indicators on Entrepreneurship Education, http://ec.europa.eu/education/more-information/doc/2011/entrepreneurship_en.pdf

Reports published by Nordic Council of Ministers

Nordic Entrepreneurship Conference 27-28 October 2011, Helsinki. Best Practices for the Nordic Entrepreneurship Project 2011-2013, <http://www.tem.fi/index.phtml?l=en&s=4691>

The Nordic Entrepreneurship Monitor 2010, <http://www.foranet.dk/policy--research-en/entrepreneurship/nordic-entrepreneurship-monitor.aspx>

Reports published by OECD

Hoffmann, Anders., Vibholt, Niels May and Larsen, Morten (2008). Benchmarking Entrepreneurship Education across USA, Canadian and Danish Universities. . In Entrepreneurship and Higher Education, edited by Jonathan Potter, Local Economic and Employment Development (LEED): OECD Publishing. http://www.oecd-ilibrary.org/education/entrepreneurship-and-higher-education/benchmarking-entrepreneurship-education-across-us-canadian-and-danish-universities_9789264044104-8-en

Varblane, Urmas., Mets, Tõnis and Formica, Piero (2008). Developments in the Teaching of Entrepreneurship in European Transition Economies. Entrepreneurship Education in Europe. In Entrepreneurship and Higher Education, edited by Jonathan Potter, Local Economic and Employment Development (LEED): OECD Publishing. http://www.keepeek.com/Digital-Asset-Management/oecd/education/entrepreneurship-and-higher-education/developments-in-the-teaching-of-entrepreneurship-in-european-transition-economies_9789264044104-10-en

Wilson, Karen (2008). Entrepreneurship Education in Europe. In Entrepreneurship and Higher Education, edited by Jonathan Potter, Local Economic and Employment Development (LEED): OECD Publishing. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1392369

Reports published by Finland

Education and Research 2011-2016. A development plan. Reports of the Ministry of Education and Culture, <http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2012/liitteet/okm03.pdf?lang=en>

Development Strategy for Entrepreneurship in the Creative Industries Sector for 2015, http://www.server003.b14cms.dk/users/kreanord.org/www/sites/default/files/rapport/24507_creative_industries_str_finland.pdf

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The ERIBA Model (2008). The Knowledge Foundation, <http://www.kks.se/om/Lists/Publikationer/DispForm.aspx?ID=158>

Strategy for entrepreneurship in the field of education, <http://www.sweden.gov.se/content/1/c6/12/99/99/e6e61481.pdf>

Reports published by Denmark

Evaluation of the Danish Foundation for Entrepreneurship – Young Enterprise By NIRÁS A/S (May 2012)

FORA (2008), Survey of Entrepreneurship in Higher Education in Europe, http://www.foranet.dk/media/4764/entr_final_191108.pdf

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EUREKA! Om Innovasjon I UH-sektorens kunnskapskretsløp. The Norwegian Association of Higher Education Institutions. (To be published on spring 2013)

Reports published by Iceland

Education, Creativity and Entrepreneurship in an Era of Global Change (2009): programme for the Icelandic Presidency of the Nordic Council of Ministers in research, culture and education, <http://eng.menntamalaraduneyti.is/publications>

Education and Training (2010). Policy-making for Lifelong Learning. The Development of Education Policy in Iceland in the context of Europe. http://eng.menntamalaraduneyti.is/media/MRN-pdf-namskrar/ET_2010_Iceland_-_English_translation.pdf

Svanborg R. Jónsdóttir (2007). Analysis of Entrepreneurship Education in Vocational Education and Training in Iceland, <http://www.lme.is/Apps/WebObjects/LME.woa/swdocument/23/Fyrirmyndarverkefni+-+Analysis+of+Entrepreneurship.pdf?download=false>

Appendix 2: Online research and date

Organization	Website	Country	Date of Access
The Ministry of Education & Research	www.regjeringen.no/en/dep/kd.html	Norway	07 Mar 2012
Entreprenörskapsutveckling	www.entre-gavleborg.com	Sweden	23 Mar 2012
The Ministry of Children & Education	www.eng.uvm.dk	Denmark	11 Apr 2012
The Ministry of Education & Research	www.skolverket.se	Sweden	12 Apr 2012
The Ministry of Education	www.minedu.fi	Finland	13 Apr 2012
Stockholm School of Entrepreneurship	www.sses.se	Sweden	11 May 2012
FundedByMe	www.fundedbyme.com	Sweden	12 May 2012
Kauffman Foundation	www.kauffman.org	USA	12 May 2012
Pioneer Award	www.pionerprisen.dk	Denmark	15 May 2012
YES Entrepreneurship Education Center	www.yes-keskus.fi	Finland	16 May 2012
Lappeenranta University of Technology	www.lut.fi	Finland	18 May 2012
Snilleblixtarna	www.snilleblixtarna.se	Sweden	21 May 2012
Nordplus	www.nordplusonlin.org	Norway	24 May 2012
The Ministry of Education, Science & Culture	http://eng.menntamalaraduneyti.is	Iceland	29 May 2012
Young Enterprise Finland	www.nuoriyrittajyys.fi	Finland	30 May 2012
Young Enterprise Norway	www.ue.no	Norway	30 May 2012
Young Enterprise Sweden	www.ungforetagsamhet.se	Sweden	30 May 2012
Young Enterprise Denmark	www.ffe-ye.dk	Denmark	31 May 2012
Young Enterprise Iceland	www.ungirfrumkvodlar.is	Iceland	31 May 2012
Fonden for Entreprenørskab	www.ffe-ye.dk	Denmark	02 Jun 2012
Aalto University	www.aalto.fi	Finland	04 Jun 2012
Hellerup Skole	www.hellerupskole.dk	Denmark	05 Jun 2012
Oslo and Akershus University College of Applied Sciences	www.hoia.no	Norway	05 Jun 2012
Economic Information Office	www.tat.fi	Finland	07 Jun 2012
The Norwegian Directorate for Education and Training	www.udir.no	Norway	07 Jun 2012
The Entrepreneurial Student Competition	www.nkg.is/nkg-in-english/	Iceland	09 Jun 2012
Innovation Centre Iceland	www.nmi.is/english	Iceland	11 Jun 2012
Grunnskólinn austan Vatna	www.skagafjordur.is	Iceland	11 Jun 2012
Framhaldsskólinn á Húsavík	www.fsh.is	Iceland	11 Jun 2012
Egaa Gymnasium	www.egaa-gym.dk	Denmark	12 Jun 2012
Aarhus Startup Weekend	http://aarhus.startupweekend.org	Denmark	12 Jun 2012
NIFU	www.nifu.no	Norway	13 Jun 2012
Norwegian Design Council	www.norskdesign.no	Norway	13 Jun 2012
Ambassadors for Women Entrepreneurship	www.ambassadorer.se	Sweden	25 Jun 2012

Appendix 3: List of interviewees at policy and practitioner level

List of interviews by policy and practitioner level				Interviewed	
	Title	Organization	Email address	Date	Method
Policy Level					
Finland					
F1	Jussi Pihkala	Ministry of Education & Culture	Jussi.pihkala@minedu.fi	17.07.2012	Email
Denmark					
DK1	Charlotte Romlund Hansen	Ministeriet for Børn og Undervisning	Charlotte.Romlund.Hansen@udst.dk	08.05.2012	Personal
DK2	Søren Boutrup	Erhvervsstyrelsen (Business Authority)	sorbou@erst.dk	08.05.2012	Personal
Norway					
NO1	Mette Mo Jakobsen	Universitets- og høskolerådet, Kunnskapsdepartementet	mmj@uhr.no	23.05.2012	Personal
Sweden					
SE1	Peter Skoglöf	Skolverket (Swedish National Agency for Education)	peter.skoglof@skolverket.se	10.05.2012	Personal
SE2	Thomas Furusten	Högskolverket (Swedish National Agency for Higher Education)	Thomas.Furusten@hsv.se	30.05.2012	Email
SE3	Maria Wilenius	The Ministry of Education and Research	maria.wilenius@education.ministry.se	27.06.2012	Email
Iceland					
IS1	Arnór Guðmundsson	Dept of Education, The Ministry of Education, Science & Culture	arnor.gudmundsson@mrn.is	07.06.2012	Skype
IS2	Sigurjón Myrdal	Dept of Education, The Ministry of Education, Science & Culture	sigurjon.myrdal@mrn.is	07.06.2012	Skype
IS3	Kristrún Ísaksdóttir	Dept of Education, The Ministry of Education, Science & Culture	kristrun.isaksdottir@mrn.is	07.06.2012	Skype
Practitioner Level					
Sweden					
SE4	Marie Sundström	Stockholm School of Entrepreneurship	marie.sundstrom@sses.se	10.05.2012	Personal
SE5	Anna-Karin Cardell	SNILLEX/TARNA	info@snillebixtarna.se	12.06.2012	Email
SE6	Magnus Engelbäck	Young Enterprise Sweden	magnus.engelback@ungforetagsamhet.se	12.06.2012	Email
Finland					
F2	Virpi Utriainen	JA-YE	virpi@nuorivirtaivys.fi	14.06.2012	Email
F2	Virpi Utriainen	YES Entrepreneurship Education Center	virpi@nuorivirtaivys.fi	15.06.2012	Email
F3	Elena Ruskovaara	Lappeenranta University of Technology	Elena.ruskovaara@lut.fi	08.06.2012	Skype
F4	William Cardwell	Aalto University	communications@aalto.fi	18.06.2012	Email
F5	Tomi Alakoski	Economic Information Office	tomi.alakoski@tat.fi	25.06.2012	Email
Iceland					
IS4	Gunnar Jonatansson	Young Enterprise Iceland	gunnar@ungirfurmkvodlar.is	12.06.2012	Email
IS5	Jón Hilmarsson	Grunnskólinn austan Vatna	jon@gsh.is	14.06.2012	Email
IS6	Svanborg R. Jónsdóttir	Arts and Creative work, University of Iceland	svanjons@hi.is	07.07.2012	Email
Norway					
NO2	Kristin Willoch Haugen	Young Enterprise Norway	kristin.w.haugen@ue.no	13.06.2012	Email
Denmark					
DK3	Christian Vintergaard	Young Enterprise Denmark	christian@fe-ve.dk	06.06.2012	Email
DK4	Jørn West Larsen	Hellerup Skole	jve@gentofte.dk	08.06.2012	Email
DK5	Lise Hansen	Egaa Gymnasium	www.egaa-gym.dk	25.06.2012	Email

Appendix 4: Cross ministerial involvement in the Nordic countries

<i>Country/ (Total)</i>	Ministries/other bodies
<i>Finland (18)</i>	The Ministry of Education and Culture
	The Ministry of Employment and the Economy
	The National Board of Education
	The Central Chamber of Commerce
	Confederation of Finnish Enterprises
	Federation of Finnish Enterprises
	Confederation of Agricultural Producers
	Association of Finnish Local and Regional Authorities
	Trade Union of Education in Finland
	Economic Information Office
	Finnish 4H Federation
	Centre for School Clubs
	Junior Achievement - Young Enterprise Finland
	Finnish Enterprise Agency
	Junior Chambers of Commerce
	University of Oulu/Kajaani Department of Teacher Education
	University of Turku/teacher training school
	Lappeenranta University of Technology
<i>Denmark (4)</i>	The Ministry of Children and Education
	The Ministry of Science, Innovation and Higher Education
	The Ministry of Business and Growth
	The Ministry of Culture
<i>Norway (3)</i>	The Ministry of Education and Research
	The Ministry of Local Government and Regional Development
	The Ministry of Trade and Industry
<i>Sweden (2)</i>	The Ministry of Education
	The Ministry of Enterprise, Energy and Communication
<i>Iceland (2)</i>	The Ministry of Education, Science and Culture
	The Ministry of Industry

Appendix 5: Summary of best practices by European Commission 2008

Summary of best practices by European Commission 2008			
Entrepreneurship in Higher Education, Especially with Non-Business Studies			
Country	Project/Dept name	Managed by	Website
France	The Entrepreneurship House	Grenoble Universities	www.entrepreneuriat-grenoble.org
Poland	Dynamic Entrepreneurship	Leon Kozminski Academy of Entrepreneurship & Management	www.cies.lk.edu.pl
Austria	Innovation Lab	Johannes Kepler University Linz	www.iug.jku.at
Germany	The Entrepreneurship University	Technical University of Munich	www.tum.de
Finland	Practice Enterprise Project	Turku University of Applied Sciences	www.turkuamk.fi
UK	Entrepreneurship in the Creative Industries	Hunter Centre, University of Strathclyde	www.strath.ac.uk/huntercentre
Ireland	Social Entrepreneurship & the Student	Public Institute of Technology	www.dit.ie
Norway	School of Entrepreneurship	Norwegian University of Science & Technology	www.ntnu.no
Spain	Enterprise Initiative Centre	Autonomous University of Madrid	www.ciade.org
Portugal	Entrepreneurship & Innovation Master Course	University of Porto	http://paginas.fe.up.pt/miete

Source: Entrepreneurship in Higher Education, Especially with Non-Business Studies 2008

Appendix 6: Summary of best practices at Nordic Entrepreneurship Conference 2011

Best practices for the Nordic Entrepreneurship Project 2011 - 2013				
Nordic Entrepreneurship Conference 27-28 October 2011, Helsinki				
Country	Project name / managed by	Aimed at	Duration	Website
Finland	HOPE European Social Fund & the Finnish National Board of Education	The vocational college teaching staff in the upper secondary level	2008-2012	www.hope.fi
Finland	Growth Entrepreneurship The Development Agency of Valkeakoski Region	Teachers in upper levels of comprehensive schools, vocational institutions, upper secondary schools and polytechnics	2008-2011	www.vaskke.fi/kasvu/virtta/iwvteen
Finland	YES entrepreneurship center network	Practical support for teaching personnel from pre-primary education to higher education		www.yes-keskus.fi
Finland	JA YE Path of Entrepreneurship education	To provide young people in primary & secondary schools and early university with high-quality education programmes		www.nv-vritvs.fi
Finland	YVI, The Virtual Learning Environment for Entrepreneurship Education	To develop both basic and vocational teacher education through virtual learning environment		www.yvi.fi
Finland	Enterprise Society Economic Information Office	5 - 6th grade students		www.yrityskyla.fi
Finland	Measurement Tool for Entrepreneurship Education Lappeenranta University of Technology	Providing performance measuring indicators and a related manual for entrepreneurial education in primary, secondary and vocational schools	2008-2012	www.lut.fi/entre
Denmark	Foundation of Entrepreneurship	A foundation to integrate entrepreneurship in the entire educational system		www.ffe-ye.dk
Sweden	Ambassador's for women's entrepreneurship Swedish Agency for Economical & Regional Growth	To make women's business more visible and to be role models for entrepreneurship		www.ambassaorer.se

Appendix 7: Summary of good practices of initial teacher education by GHK 2011a

<i>Country</i>	<i>Institution</i>
Finland	University of Jyväskylä
	University of Oulu, Kajaani Teacher Education Unit
Norway	University of Turku
	University of Nordland in Bodø
	Oslo University College
	Hedmark University College
	Sogn og Fjordane University College
Sweden	Kristianstad University
	Gävle University College
	Umeå University – Umeå School of Education
Austria	Pedagogical College Vienna
Belgium – Flanders	International University College Leuven – Leuven Educational College
	Provincial College Limburg
	Artesis College Antwerp
Croatia	University of Pula
Hungary	Corvinus University of Budapest
The Netherlands	Avans University of Applied Sciences
	HAN University of Applied Sciences
Portugal	University of Coimbra, Faculty of Psychology and Educational Sciences & Faculty of Economics
	University of Madeira
UK – Scotland	University of Strathclyde – School of Education

Source: Mapping of Teachers' Preparation for Entrepreneurship Education



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Entrepreneurship education in the Nordic countries

- strategy implementation and good practices

Entrepreneurship education has a key role in shaping the mindsets of young people, enhancing entrepreneurial capabilities, and providing lifelong learning that can also be used in other areas than the business world alone. Whether the performance of entrepreneurship education is superior or not, depends mostly on the underlying strategy and how effectively it is implemented. As the baby-boom generation is about to retire, we need a good education system to disseminate entrepreneurial knowledge and skills.

The study was conducted during the period of March and August 2012. It was based on an analysis of reports and material of European Commission and OECD, and of the ministries, government organizations and educational institutions in the Nordic countries. In addition, a number of interviews and surveys were carried out.

Since the aim of the study is to facilitate discussion in the Nordic countries in this area, and possibly even generate ideas for joint-Nordic projects in entrepreneurship education, we firstly look at the initiatives and measures as well as the development and status of the strategy implementation in each Nordic country.

Followed by this, the main obstacles of implementation are listed, as identified in the interviews. In total of fifteen good practices and projects are brought up in different categories based on the recommendations or references of the interviewees. Finally, the factors inhibiting or promoting good practices are identified, followed by areas for possible further discussion or research.

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