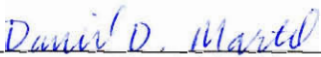
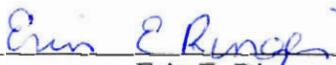


ENTREPRENEURSHIP EDUCATION AT THE ENGINEERING COLLEGE OF
COPENHAGEN

An Interactive Qualifying Project
submitted to the Faculty of
WORCESTER POLYTECHNIC INSTITUTE
in partial fulfillment of the requirements for the
Degree of Bachelor of Science
by



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Acknowledgements

The project group would like to thank the following people for their various contributions to the success of this project. Their support can be credited for any success the project group had completing the study.

At WPI:

- Professor Helen Vassallo and Professor Kent Ljunquist for their advising and countless hours of editing drafts.
- Professor McRae Banks for sharing his knowledge of entrepreneurship, post-secondary education and the merging of the two.
- Associate Director of WPI's Collaborative for Entrepreneurship Initiative Gina Betti for her resourcefulness.
- To the nine students who took time out of their busy schedules to participate in a focus group.

At IHK:

- Export Engineering Department Head and Project Sponsor Knud Holm Hansen for his hospitality, flexibility and willingness to answer all of the group's questions promptly and thoroughly. He also deserves a thank you for supplying an especially wonderful Danish dining experience.
- Export Engineering Department Administrator Agnethe Rald for always being available and responding promptly to all of our requests.
- The following IHK instructors for providing their expert opinions and giving us access to their classes: Ulrik Fønss, Lynn Kahle, Claus Peterssen, Karin Siegumfeldt and Lise Valeur-Jaques.
- To all the students who completed our survey and especially those who took the time to give us interviews.

At Copenhagen Business School:

- Claus Nygaard for an insightful interview and his willingness to contribute to the project group throughout the entirety of their stay.

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Abstract

Because of a unique social structure and culture, the Danes are less likely to participate in entrepreneurial activities despite the economic benefits. Currently, Denmark is seeking to expand its knowledge of successful approaches to entrepreneurship education. This project team presented the Engineering College of Copenhagen with an entrepreneurship program and course recommendations designed to educate students to be entrepreneurs. Many variables have been considered so these suggestions are exclusive to the setting at IHK.

1.0 Introduction

Entrepreneurship, a prevalent and unique aspect of business, is generally defined as the practice of starting and operating a company based on an innovative idea (McRae Banks). While it has been practiced for centuries, it has only recently been dissected and investigated intensely. Perhaps persons in the business world are beginning to realize that when taught effectively, entrepreneurship can harvest benefits beyond the most rich of business soils. With the inception of proper entrepreneurship education, the possibilities for success in entrepreneurship are unlimited.

Cultural differences are reflected in the way groups of people conduct business. The business cultures of America and Denmark present an excellent opportunity to learn of such individuality. On one hand, America has cultivated an individual, innovative approach to business that has become the perfect soil to harvest entrepreneurial spirits. At the same time Danish industry has evolved into a style where community is valued highly. Both countries have had their own share of economic success; however opportunity exists for each culture to take the opportunity to learn from the strengths of the other. Along these lines, the Danish government has been proactive in trying to increase entrepreneurship in Denmark. The resulting political pressure on Danish universities has motivated them to contribute to the transition of society from a 'wage earner culture' to an 'entrepreneurial culture' (Blenker et al. 1). In this endeavor, the project team explored the role of entrepreneurship in each country in hopes that both countries could benefit from such an analysis. By conducting an in-depth study focusing on the business programs at the Engineering College of Copenhagen (IHK), the team has determined that IHK's programs are well positioned to allow for more emphasis on entrepreneurship education.

There are several key areas of research that led the project team to make concrete recommendations for initiatives that could further enhance these programs. Before arrival in

Denmark, preparation work included a broad and thorough study of entrepreneurship education in America. While in Denmark, the group researched the status of IHK's programs that relate to business, management, entrepreneurship, innovation, etc. With comprehensive research done in these two venues, specific and helpful conclusions were made. It has been said that "although generally accepted approaches and paradigms still lack, research on entrepreneurship education is no longer sparse" (Blenker et al. 8). By analyzing the writings on entrepreneurial business, general approaches and factors that are integral to all types of entrepreneurial education programs are presented. Top American colleges and universities were studied in order to gauge how proven programs have achieved their entrepreneurial success. Specific aspects such as program structure, teaching methods and course content were essential to the comparisons made between the two countries. Also, American research and case studies on entrepreneurial education done both in America and Denmark were utilized.

The group conducted interviews with experts in innovative business ownership and entrepreneurship education to gain first-hand accounts of entrepreneurial success in America. The group also had these conversations with experts in Denmark as well as with Danish students to ascertain how these opinions may differ. A thorough understanding of the Danish culture with respect to business and entrepreneurship was necessary for the team to make recommendations to IHK.

It can be seen that cultural differences can have an impact on the business styles of countries. Comparisons of Danish and American entrepreneurial education have been drawn to gain a full understanding of differences in approach. The objective of the project is to make concrete and realistic recommendations to IHK that will further develop its entrepreneurial programs for all majors of study. These options include small and large scale changes such as the addition of a single elective course and the addition of an

entrepreneurship specialization option. Recommendations were made to IHK that can be easily implemented because of the abundance of resources available at the college.

2.0 Background Information

There are certain areas of background information that must be covered before delving into a project with such a high magnitude of research attached. First, a clear description of entrepreneurship must be given, as well as a short history of this form of business. Information on IHK is given, more specifically about the Export Engineering department. Danish culture is mentioned, however an in depth look of this topic as well as the others mentioned in this section will be thoroughly discussed in the Discussion section.

2.1 Entrepreneurship Defined

Entrepreneurship encompasses a broad range of personality characteristics as well as business philosophies and actions. Hanke et al. asserts that “Despite common misconceptions of entrepreneurship, it is a rigorous and highly valued management discipline that is inherently opportunity driven.” (Hanke et al. 4) Because the discipline and theories of entrepreneurship are still being defined, this study defined entrepreneurship as the activity of developing a new invention, theory or enterprise with few resources (Erkkila 7).

The word entrepreneur stems from the French words for “between-taker” or “go-between.” This description originated with Marco Polo who worked to establish trade routes with the Far East (Hisrich and Peters 7). The first person to use the word “entrepreneur” was Richard Cantillon, an eighteenth century economist. At that time the word referred to a person who undertakes the risk and management of a business venture. This was viewed in contrast to a typical capitalist, who owned a business but did not necessarily participate in its daily operation. Although the twentieth century brought declined belief in entrepreneurs’ importance due to the growth of large corporations, there has been a move in the past fifty years for the establishment of entrepreneurial education (Greenleaf).

2.2 Engineering College of Copenhagen

Engineering College of Copenhagen, located in Ballerup, Denmark is the country's largest engineering college. The school is known in Danish as the Ingeniørhøjskolen i København, or IHK. Operating out of one 42,000 m² building, IHK is home to nearly 2300 students, almost 300 of which are international students. IHK offers a variety of Bachelor of Science programs including Civil Engineering, Mechanical Engineering, Production Engineering, Electronics and Computer Engineering, Electrical Power and IT Engineering and Export Engineering. Students can also opt to specialize in a particular area within their field of study. A specialization is comparable to a concentration at Worcester Polytechnic Institute. In order to earn a specialization, students must complete 30 European Credit Transfer System (ECTS) units worth of work. The ECTS is the standard European system by which IHK awards credit for coursework completed. For the scope of this entrepreneurship project, the IHK program of the most interest to the team is Export Engineering.

The Export Engineering Program at IHK can be best described as a course of study which combines elements of business, economics, language, and engineering. As Denmark is a relatively small country that acts as a gateway between Northern and Greater Europe, it is very important for people working in the Danish export industry to have a high level of communication and foreign language skills (Hansen). The curriculum of the Export Engineering program can best be described by quoting the college's own objectives, taken from a report written for the 1998 Women in Engineering Programs and Advocates Network (WEPAN) National Conference in Seattle. According to current department head Knud Holm Hansen, export engineers must be able to:

1. Market technical projects and products in foreign language and cultural settings and to act as consultants.
2. Apply and integrate research results in science, technology, and business and marketing for use in project and product development.

3. Enter into cooperation with people of various educational, linguistic, and cultural backgrounds, in a supervisory capacity and/or as part of a team in connection with interdisciplinary projects.
4. Communicate clearly and to negotiate in both technical and business areas in Danish, English, and at least one other foreign language.
5. Plan, carry out, and enhance technical projects (development, production, etc.) as well as account for the effects which the solution of technical problems may have on the community. These include socio-economic and cultural effects, and the effect of both the external environment and that of the workplace.

The Export Engineering curriculum at IHK is best defined in Figure 2.1, which provides a break-down of the different subjects which are emphasized in the program. Students of each semester are required to complete an interdisciplinary project in addition to their coursework.

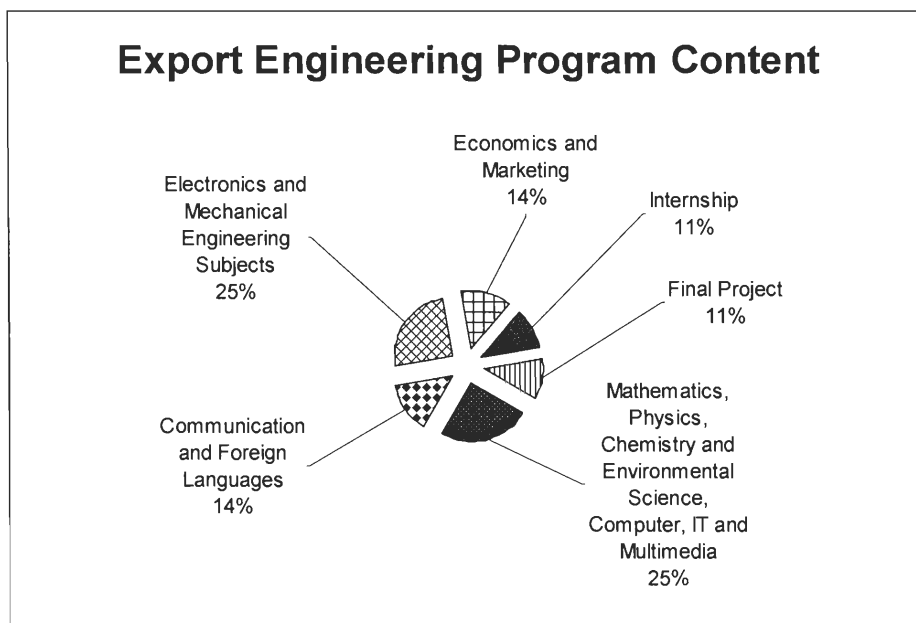


Figure 2.1 - Export Engineering Program Content

The integrated internship specific to Export Engineering requires that a student take part in the average routine of a Danish or foreign company. Students may work on pre-assigned and organized projects, or they may be given many smaller projects or problems to be solved. Most assignments during the traineeship concern market and competitor analysis, sales, product development, and technical documentation (Hansen).

2.3 Danish Culture

Several aspects of Danish culture were integral to the research completed for this report. These aspects include the Danish educational system and the Scandinavian Welfare Model and how they relate to the current state of entrepreneurship in Denmark. Also, there has been recent governmental pressure on educational systems to increase entrepreneurship education through initiatives such as the *Better Education Action Plan* which challenges “Danish education and training [to] match the best in the world” by the year 2010 (10). This study evaluates the influence of these cultural aspects on entrepreneurship education at IHK. These cultural implications of entrepreneurship are evaluated thoroughly by the report.

3.0 Methodology

Numerous methods of research were used to provide a solid basis for recommendations. Published literature provided fundamental knowledge of entrepreneurship and its role in education. Experts in the fields of business, entrepreneurship and post-secondary education provided valuable accounts of first hand experience through formal and informal interviews, information which is not always available published sources. Thorough analyses of the various types of entrepreneurship education programs that have been established world-wide were essential to the project's success. These methods included unobtrusive research such as library and internet research, as well as analyzing the curricula of successful entrepreneurship education programs. Personal methods such as interviews and focus groups helped the project team gather valuable information and opinions.

3.1 Library and Internet Research

The history and current state of entrepreneurship were researched in particular with respect to, but not restricted to, America and Denmark. Specific European countries proved to be relevant to this project such as Ireland, Finland and Sweden.

Library research yielded published texts and journal articles related to entrepreneurship education. The texts were located using WPI's Gordon Library catalog, while journal articles were found using WPI's online databases. In particular, Education Resource Information Center (ERIC), an internet database of published works, was a helpful resource. The journals allowed the team to search for published articles specific to the topic of choice. The team focused on the most recent articles on entrepreneurship education strategies in the United States. Books were found that were written on various styles of entrepreneurship education as well as more general information on becoming a successful entrepreneur.

Internet research led the group to valid information in the conference notes of the Roundtable on Entrepreneurship Education for Engineers (REEE). The REEE is a conference of business, science and engineering faculty. A variety of topics are covered, ranging from how to foster an entrepreneurial spirit to where teachers of entrepreneurship can find the best resources. The conferences bring educators together so that they are able to learn from the ideas and styles of one another, as well as compare philosophies. The REEE materials provided useful insight into what methods of entrepreneurship education may be appropriate for IHK.

Among the most important of resources was information gathered about how domestic and international universities teach entrepreneurship, most of which was found on their websites. In addition, internet research enabled our group to better understand the state of entrepreneurship education in Denmark. Government publications found on the Ministry of Education and the Ministry of Science, Technology and Innovation websites offer important background information as well as long term goals for the project. This research gave the project team a sense of what has been attempted in Denmark up to this point, as well as outlined the goals of the Danish Government in regard to improving entrepreneurship education.

3.2 Curricula Analysis

Curricula analysis conducted by the group was based on the course offerings and programs of American colleges and universities on *Entrepreneur Magazine's* list of the "Top 100 Entrepreneurial Colleges for 2004" and *Forbes Magazine's* list of the "25 Most Entrepreneurial Campuses." The sample of course offerings used were taken from twenty-one of the top schools on these lists based on the publicly recognized success of their entrepreneurship programs/curricula. The sample includes schools from across the United

States of varying sizes and of varying student demographics. Focus was placed on the most successful entrepreneurial education colleges in the United States because the analysis of the top programs and curricula reveals common factors that contributes to the schools' entrepreneurial success.

Each of the schools was first researched online to acquire course offerings and course descriptions, and then contacted using a standardized email to request further course and program information both electronically and by mail (Appendix B). Correspondence was also initiated with professors from fifteen of the schools to request additional course information and also course teaching method information such as copies of course syllabi. Personal contact was also an opportunity to gain resources that may only be accessible through the educators themselves.

Course descriptions and course offerings were compared and contrasted to determine the most popular classes, and which teaching methods are most prominent in course offerings. Also noted was which schools have entrepreneurial programs in addition to course plans and entrepreneurial curricula. Schools without entrepreneurial curricula but with entrepreneurial centers or programs are also found to be successful entrepreneurial education hubs; so information about these programs is important as well.

3.3 Interviews

While published literature does provide valuable information, personal communication with experts in the field gives a valuable perspective on the subject matter. The project group interviewed contacts with academic and business experience that was helpful in shaping a plan for the engineering college. The project team also conducted interviews with business people who have been through business and/or entrepreneurship

education programs. Interviews were also conducted with IHK students for another perspective on entrepreneurship education.

The group has conducted unstructured interviews, with prepared questions based on the role of the person being interviewed. The interviews were informal, resembling more of a conversation with the interviewee, allowing the interviewee to lead the discussion. Specific areas targeted included course content, teaching styles and program philosophies considered most important to the educator (Appendix A).

3.4 Informal Personal Communication

While formal interviews provided valuable information, more informal relationships were helpful. The project team established contacts at WPI who can be considered experts in entrepreneurship education. Some examples of these contacts included the director and associate director of WPI's Collaborative for Entrepreneurship Institute. As questions of all sorts arose, the team was informally directed to these people, who contributed greatly to the success of the project.

3.5 Questionnaires

A questionnaire is a tool that can be used to collect information from individuals who cannot be interviewed (Cunningham, Smith and Pearshall 569). They are generally short questions with simple answers, rather than open ended answers (Doyle). The project team prepared a survey prior to departing for Denmark to discover IHK students' perception of entrepreneurship (Appendix J). The group focused on surveying export engineering students for two reasons. First, all export engineering students are required to speak English, which eliminated the language barrier. Second, export engineering is a field based on international business, so the students take business courses that could be helpful to entrepreneurs. The

group distributed surveys by speaking briefly in an export engineering class and then surveying the students present.

4.0 Results

The results presented below reflect the style of research methods introduced in the Methodology. These results include material from library and internet research, curricula analysis, interviews, informal personal communication and questionnaires.

4.1 Library and Internet Research

The foundation of the project team's research consisted of library and internet research. This research unearthed knowledge on topics ranging from international entrepreneurship education to business practices and principles in Denmark.

The team researched the history of entrepreneurship, as well as descriptions and positive and negative arguments for the field. Using literary and internet sources the team found the necessities of a successful entrepreneurship education program, as well as how the information is best conveyed to the unique personalities of potential entrepreneurs. The key elements that are present in most programs include a strong marketing, accounting and finance foundation, business case study analysis, and business plan writing.

Published literature also provided the team with a great deal of information about Denmark. Many web-based sources provided information about what an entrepreneur should know before starting a business in Denmark, from how to have a venture funded to filing taxes with the government. The team also gathered information on the many parts of Danish culture relevant to the project. These topics include how the Scandinavian Welfare Model and Jante Law generally discourage citizens from pursuing entrepreneurial opportunities.

4.2 Curricula Analysis

Knowledge and understanding of entrepreneurship education is essential for the formulation of project conclusions and recommendations. Accordingly, the project team

analyzed entrepreneurship education programs and curricula worldwide. The project team researched twenty-one schools in the United States and a sampling of universities worldwide, in addition to IHK and other Danish schools that offer entrepreneurship education. The team found the following trends in reputable university-level entrepreneurship education programs and curricula:

- Strong emphasis on business related courses, e.g. Business Management, Finance, Commercial Law, Human Resources Management
- Project-based and problem-based learning
- Business Plan study and writing contests
- Internships, coops, and traineeships.

Although IHK does not presently have an official entrepreneurship program or course, the college has many courses and projects which could supplement an entrepreneurship education program:

- Macro, Business and Marketing economics courses
- Managerial Economics & Basic Accounts Analysis
- Marketing
- Strategic Analysis & Strategic Development
- E-business
- Economic Theory & Economic Developments
- Commercial Law
- Business Concept Innovation semester project
- Communication
- Integrated Project Development semester project
- Project-based and Problem-based learning
- Internships, coops, and traineeships.

4.3 Interviews

The project team conducted interviews with professors, professional entrepreneurs and students.

4.3.1 WPI Professor and Entrepreneur McRae Banks

At Worcester Polytechnic Institute, the head of the Management Department, Professor Banks, was interviewed for his ideas regarding entrepreneurship programming and curricula

at the university. This interviewee's perspective is unique because he is a professional entrepreneur and an educator. Relevant points discussed include the following:

- Personal account of start-up experience and motivation for entrepreneurship.
- Courses:
 - Problem and activity oriented
 - Case Studies
 - Professional Guest Lecturers
 - Variety of teaching styles/approaches
 - Business Plans
 - Generation of Funds
 - Marketing for consumers and for venture funding
- Danish contact at Copenhagen Business School.

4.3.2 Entrepreneur John Esler

Professional entrepreneur John Esler was interviewed for his perspective as a student who attempts entrepreneurship in a professional environment. The following points of discussion contributed to the outcome of the project:

- Personal account of several business start-ups
- Skills for success: confidence, skills and networking from MBA(Babson College)
- Motivation and inspiration of entrepreneurship through academic settings
- Importance of basic knowledge of accounting/finance and computers
- Emphasis on exposure to successful entrepreneurs in the classroom
- Learning tools: web NRs, case studies, business plan contests and the MCFE project
- Distinction between entrepreneurship and business ownership.

4.3.3 CBS Instructor Claus Nygaard

Doctor Claus Nygaard is an Associate Professor of economic sociology at the Copenhagen business school as well as an independent small business consultant. While talking with IHK professors is important, Claus' extensive knowledge of entrepreneurship education in Denmark yielded the following vital information:

- Emphasis on innovation
- Teaching and learning styles in Denmark from an educator's view
- The Four Pillar Approach to entrepreneurship education
- Partnership between university and professionals
- KUBUS model and designers, Anders Bordum and Henrik Herlau
- Further contact information.

4.3.4 IHK Instructor Karin Siegmundfeldt

Karin Siegmundfeldt is an instructor in the Export Engineering department at IHK. The team was able to gauge her opinion on the teaching and learning styles found at IHK, as well as why Danes may not be interested in entrepreneurship.

4.3.5 HIBAT Instructor Hans Jessen Møller

Hans Jessen Møller is a faculty member at the Herning Institute of Business Administration and Technology. An interview was conducted to understand how the school conducts their entrepreneurship education programs. Topics discussed included teaching styles, pedagogical principles, philosophies and activities commonly used in the curriculum.

4.3.6 IHK Students

Informal interviews proved to be the most successful form of communication with IHK students. These meetings served to illustrate the opinions of the student body regarding the project. The students were given opportunities to contribute their own ideas to the program design. Interviews were conducted with Owen Murtagh, an Irish exchange student, Jeppe Skou Petersen and Allan Larsen, both eighth semester Export Engineering students, and Mette Aabye Sørensen, a fourth semester Export Engineering student. They discussed the following useful points:

- Description of Danish teaching styles from an outsider's point of view
- Teaching styles at IHK and recent changes to Export Engineering Department.
- Topics to learn about to be able to start own businesses
- IHK students' lack of entrepreneurial skills and confidence
- Product Development course
- Successful methods used at the Irish university that Owen attends
- Business plan-like project
- Project timelines for Export Engineering courses.
- The Engineering Traineeship
- Business models
- Guest lectures and mentors.
- Danish mentality and the Jante Law
- Entrepreneurship elective for all IHK students.

4.4 Informal Personal Communication

Prearranged interviews provided a great deal of information for this report. However, informal personal communications were also indispensable throughout the researching and writing process. At Worcester Polytechnic Institute the Assistant Director of the Collaborative for Entrepreneurship and Innovation, Gina Betti, helped lead the project team to useful published and internet research. Several IHK faculty and staff members answered impromptu questions for the group, namely Knud Holm Hansen, Agnethe Rald, Eva Sperling, Ulrik Fønss, Claus Petersson, Lise Valeur-Jaques and Lynn Kahle. The information gained from these communications includes the following:

- IHK class schedules and course loads
- Export Engineering department information and class styles
- Professional business contacts
- Student contacts.

4.5 Questionnaires

The project group used a ten question survey to gauge the interest and opinions of IHK students about entrepreneurship. As students completed surveys during class time and the project group collected the surveys before leaving, the response rate was almost one hundred percent. Of over 400 students in the Export Engineering department, 67 participated. The distribution of participants by major is shown in Figure 5.1:

Distribution of Majors of Study



Figure 5.1 – Questionnaire Major Distribution

The distribution of participants by gender and semester is shown in Table 5.1:

Semester	Female	Male	Total
1	7	10	17
2	0	1	1
3	1	0	1
4	4	9	13
5	16	8	24
6	2	3	5
7	0	1	1
8	4	6	10
9	0	1	1
Total	34	39	73

Table 5.1 – Questionnaire Distribution by Gender

Both genders are represented approximately equally and a cross section of graduating classes is present. The list of the questions included in the survey can be found below:

1. What is your gender?
2. What is your field of study?
3. What semester are you?
4. Are you familiar with the term “entrepreneurship”?
5. Do you know anyone who you consider to be an entrepreneur?
6. Have you ever taken any courses related to business or management?
7. Are you interested in taking such courses?
8. Do you view entrepreneurs in a positive way?
9. Do you feel that entrepreneurship education could be beneficial to IHK students?
10. Would you be interested in participating in a focus group?

Table 5.2 shows the results of the survey by question number:

Question 4		Question 5	
Yes	61	Yes	45
No	12	No	28

Question 6		Question 7	
Yes	53	Yes	66
No	20	No	7

Question 8		Question 9	
Yes	72	Yes	66
No	1	No	7

Table 5.2 – Survey Responses by Question

The majority of respondents understand what entrepreneurship is and view it in a positive way. Over half of respondents know someone who they consider to be an entrepreneur. While seventy three percent have taken courses they consider to be related to business or management, over ninety percent of students indicated that they are interested in courses of that type. Finally, nine out of ten students believe that entrepreneurship education would be a positive addition to the IHK curricula.

5.0 Discussion

The team's recommendations to IHK concerning the enhancement of entrepreneurship programs stem from extensive research on a breadth of topics related to entrepreneurship. The foundation of the research is a brief history and description of entrepreneurship as well as the nature and history of Danish culture as it relates to business and education. It is very important that all recommendations exist within the appropriate cultural and social context for Danish students. Literature on entrepreneurship education is presented to explain appropriate and effective styles of teaching entrepreneurship. Also very significant is the analysis of curricula from many post-secondary programs. The programs come from a variety of countries, ranging from the United States, a country familiar with the benefits of entrepreneurship, to countries where entrepreneurship is a developing concept. Lastly, personal communications with American and Danish students, entrepreneurship experts, and professors are used to tailor recommendations for an entrepreneurship program to meet the specific needs at IHK.

5.1 Describing Entrepreneurship

There are several facets that differentiate entrepreneurial thinking from other forms of creative or ambitious philosophy. First, it is necessary for entrepreneurs to think in terms of opportunities rather than problems (Glassman et al. 355). Innovation and enterprising behavior are concepts that are closely associated with entrepreneurship. Simply stated, innovation is the act of introducing something new. It is innovative and opportunistic thinking that separates entrepreneurs from ordinary business men and women. Furthermore, entrepreneurs must be able to assess risk as they assume the risks of their ventures. Combining opportunistic behavior, risk assessment and innovative thinking with business management skills results in what we know entrepreneurship to be.

5.1.1 Enterprising Behavior

Enterprising behavior is a broader concept than entrepreneurship. While entrepreneurship education is aimed at stimulating new venture creation, enterprising behavior is directed toward generating self-reliant and industrious people (Blenker et al. 9). It is said that enterprising behavior includes a more creative and dynamic problem solving method than typical small business management approaches. It has been argued that enterprising behavior can take place in other aspects of life other than new business development. A prerequisite to entrepreneurship, enterprising behavior has been described as the capacity to perceive "...the anomalies of everyday life and use them as a foundation for understanding the world and changing it." (Blenker et al. 10)

5.1.2 Positive and Negative Arguments

Entrepreneurial careers are appealing in a capitalistic society. A survey of American adults shows that the self-employed feel the most satisfied, challenged and proud of their career of working adults. These individuals find their work to be invigorating, energizing and meaningful (Erkkila 54). They have the freedom to be their own supervisors, to create their own work, and to gain significant monetary compensation. Interviews with IHK students showed that these benefits of self-employment are attractive to Danish students.

It is also argued that entrepreneurship is a positive force in a nation's economy by increasing economic growth. The key to this theory is innovation. Developing new products and stimulating investment interest in new ventures work for both the supply and demand of an economy. New capital is beneficial to supply because it expands the capacity for growth and the subsequent new spending benefits the demand side by utilizing the consequent new capacity for spending (Hisrich and Peters 15). According to Hans Jessen Møller, the Danes smaller numbers in comparison with countries such as China and the United States requires

them to creatively serve the demands of consumers. Windmills for wind power, for example, contribute to the Danish economy.

There are some negative arguments against entrepreneurship that are worth mentioning. Some dispute that entrepreneurship is too empowering for single individuals. This argument is particularly relevant in Denmark, where self promotion has a more negative connotation than in the United States. Studies have concluded that Danish culture is seen as “non-conducive to entrepreneurial behavior” (Hancock 147). Despite this natural condition in Danish culture, Denmark has entrepreneurship and there are students who are interested in becoming entrepreneurs if they are given the necessary encouragement.

Two mythologies regarding American entrepreneurship exist: one says that the economy is too saturated for more successful entrepreneurs while the other says that one must have access to vast resources to be successful (Erkkila 82-87). Based on these mythologies, an assumption has risen that those who attempt to be entrepreneurs are only going to be disappointed. Focus group participants at WPI mentioned similar concerns when asked if they would want to pursue an entrepreneurial venture. For example, students worry that starting a business on their own would be difficult because they would not be provided with such benefits as health insurance. Further information on the focus groups conducted by the team is located in the Methodology and Results sections. Danish students discussed similar concerns regarding the risks of new ventures. In particular the students don't feel prepared to obtain the financial resources necessary for business ventures. Based on research, it is evident that there are available resources to ambitious entrepreneurs in the United States and in Denmark, but the lack of confidence illustrated by students reveals a possible explanation for Denmark's lower level of entrepreneurial activity.

5.2 Entrepreneurship Education

Parallel to the growth of entrepreneurship across industrialized nations worldwide lies the need for an increase in the formal education of entrepreneurship. Although more than forty percent of entrepreneurs in the United States do not have any formal education beyond a high school diploma, it is becoming evident that business owners are more likely to be successful sooner if they have business training specific to entrepreneurship (Mohan-Neill, 187). This education can come in many forms depending on the student, school or culture. In a study which researched several European universities, the researchers concluded that “no two places were alike,” supporting the idea that entrepreneurship education must be designed for the purpose and target group (Blenker et al. 4). Ultimately, it is necessary to look at entrepreneurship education programs on a case by case basis, as the settings for each program can affect it greatly.

Essentially, entrepreneurship education relies on the philosophy that particular pedagogical styles can successfully cultivate entrepreneurial and innovative skills in all students to some extent. “Research shows that entrepreneurship skills can be taught to a broad range of students and are applicable in many business and life situations” (Hank et al. 4). Some of the attributes that an entrepreneurship education program is geared to develop are flexibility, creativity, persuasive powers, independence and leadership (Erkkila 16). Necessary skills include business management and economic literacy, and these skills need to be inherent regardless of the cultural setting. The project team found the best programs for IHK based on the cultural setting in Denmark as well as the style of teaching and resources available at the institution. However, other research provided understanding of the universal aspects of a successful entrepreneurship education program.

5.2.1 Entrepreneurship Programs vs. Business Programs

There is much debate as to whether entrepreneurship courses should complement a business program, or if business classes should be included in a predominantly entrepreneurial oriented curriculum. One opinion can be found in a book titled *Entrepreneurship Education*, a collection of articles on various topics regarding the education of entrepreneurship. One such article discusses observations taken at the Swineburn University of Technology located in Melbourne, Australia, and the University of Calgary in Calgary, Canada. The University of Calgary offers an MBA in Enterprise Management, and Swineburn offers a Master's of Enterprise Innovation. In the discussion of the results of studies done at these schools, the authors state their views clearly, saying that students in entrepreneurship programs start companies or initiate ventures at a higher rate than those that take select courses through an MBA program (Gillin, McMullan 72). They also argue that it is more effective and efficient to develop programs outside of business programs as opposed to inside of them, as many disciplines such as engineering, science, language, math, etc. will complement the entrepreneurial education. The Engineering College of Copenhagen is an ideal place for an entrepreneurship program because of the learning environment that already exists. One of the recommendations proposed by the project team has students participating in an entrepreneurship specialization that would complement their engineering education. The resulting Bachelor of Science would then be comprised of the usual technical skills an engineer needs, but would also thoroughly prepare students to start and own their own businesses.

Similarly, the authors of the article believe that the more the students are exposed to entrepreneurial activities, the more likely they are to engage in such activities themselves. The curriculum should highly emphasize business practice, but never neglect the concepts of innovation and enterprise. The importance of business education is imperative to an

entrepreneur, and will be discussed further. However, many in the field believe that students should think about innovation as often as possible. The more a student considers entrepreneurship, the more likely they are to recognize entrepreneurial opportunities. The activities included in the team's recommendations for IHK have been designed to immerse students in entrepreneurial situations as often as possible. Students will be challenged to think as entrepreneurs, allowing their creativity to run freely while remaining grounded with a base of practical skills.

5.2.2 Business Skills

Business and business related classes are so important to an entrepreneurial career that some experts believe it should be the foundation of an entrepreneurial education. Although an entrepreneurial mindset should place a firm emphasis on innovation and creativity, it is imperative that students looking for such a career have the basic skills to own and operate a business. Entrepreneurs McRae Banks and John Esler both emphasized the importance of being able to read and understand cash flow charts, income statements, and balance sheets when starting one's own business. Both men said that although they felt well prepared for their entrepreneurial careers after completing business education programs, neither felt that they were appropriately informed about the financial aspects of entrepreneurship (Appendix A). After all, it is difficult to focus on innovative opportunities if a business owner spends much of his or her attention on managerial details. An innovative spirit cannot be taught; however, financial, social, legal skills, etc. are integral to any entrepreneurial curriculum.

The recommendations given to IHK will be no exception in that they will provide a solid education of business skills specific to entrepreneurship. Many business classes already present in the Export Engineering curriculum teach skills very similar to those that an entrepreneur needs to start and run a business. Also, IHK already employs faculty members who are capable of teaching such classes. Instructors who teach courses such as Business

Economics, Commercial Law, and Marketing Economics could be used to teach similar classes that focus on teaching students to own their own company, or communicate their research. While the recommendations cater to the unique thought process of a budding entrepreneur, they also provide the necessary business skills, especially the many details on starting and owning a business that are not usually included in business classes.

5.2.3 Detecting Entrepreneurial Potential

With regard to the entrepreneurship motivations that are developed naturally early in one's life, one of the roles of the institution may be to identify those students who may harbor self-employment tendencies. While it is difficult to sense immediately if a student is suitable for the entrepreneurial world, professional educators should be able to tell when a student displays high levels of creativity and innovation. Many students may not even realize they possess tremendous entrepreneurial potential, especially in cultures where an entrepreneurial career is not necessarily the most prestigious. It is recommended by some experts that courses in a program geared toward entrepreneurship remain optional, as those who enroll show motivation and potential just by showing interest and participation. One author explains his beliefs about the structure of classes in such a program. "Beyond this," Bertrand Ducheneaut says, "courses specializing in entrepreneurship should structure their contents around two major axes: behavioral and experience acquisition on one hand, importation of knowledge on the other hand" (Ducheneaut 144). In the former, he refers to allowing students to gain entrepreneurial experience through practice, as it may be the best way to teach skills most closely related. The latter refers to business skills previously discussed.

If an institution such as IHK is interested in preparing students to be entrepreneurs, then its instructors should endeavor to detect students who possess entrepreneurial talents. Many times, students will have an innovative idea but not know the proper steps to take to bring their idea into reality. While IHK is not a research institution, there are still chances that

students can form innovative ideas by participating in engineering and design classes. If IHK is going to maintain a thriving entrepreneurship program, then instructors and administration must refer these talented, innovative students to the curriculum that could prepare them for entrepreneurship.

5.2.4 Project and Activity Based Approaches

A project-based or active approach to learning is an ideal model for entrepreneurship education. Entrepreneurship students are not like students in most other disciplines, so it is necessary that schools foster a learning environment that enriches their unique thinking process. In a problem-based learning (PBL) approach at Pennsylvania State University students are encouraged to actively work and utilize faculty for advice, mentorship and answers to questions as opposed to listening to lectures. In this way students can extrapolate learning from other experiences and apply it to the project (Hank et al. 3). With an activity based curriculum, students are forced to learn by doing instead of being told what they should know. Professor Banks noted the importance of problem and activity-based learning approaches, where a variety of teaching methods are used to accommodate a variety of student learning styles. When experiencing a balanced mix of practical application and analysis, a student is very likely to be prepared for the real situations that he or she will encounter upon graduation. The project team's recommendations include learning through detailed and extensive project work since the overwhelming majority of research sources have pointed to project work as the best way for entrepreneurial students to gain knowledge and experience.

Project based and practical teaching methods are two examples of how IHK is more prepared for entrepreneurship education than they realize. The entire Export Engineering curriculum is formed on a project based system, where in eight of nine semesters students are required to complete an extensive project that ties together material taught in classes that

semester. The project team deems a project based course similar to those used by American entrepreneurship programs appropriate as students are already accustomed to this type of curriculum. Many of the activities run in the Export Engineering department's courses are based on practical activities, a trend which is present in almost every single entrepreneurship program that the team researched, domestic or international. IHK Professor Karin Siegumfeldt asserts that an instructor must relate theory and practice or else the material being taught is useless. The team found that most classes taught in the Export Engineering department follow that philosophy. This is especially interesting because the German motto of WPI, "Lehr und Kunst" is translated to be "theory and practice", the pillars of a WPI education.

One project recommendation that was present in numerous sources suggested having students simulate typical entrepreneurial endeavors, more specifically formulating a business idea and setting up all the steps to pursue such a venture. This would challenge the student to think about all aspects of running a business while simultaneously exercising innovation and creativity. Professor Banks mentioned the value of activities such as business plan development, which force students to pay attention to aspects of entrepreneurship such as financing and accounting, which may have been overlooked in lectures or books.

Entrepreneurship Education discusses experiential learning as an educational option. The authors "reason that the logical structure is to employ a single project which would take students from the inception of an idea to initiate a business venture, through the establishment of that venture and into the growth, expansion and diversification of that venture" (Carland 101). The project team agrees that the best way to learn how to set up a business plan is to have students design one from top to bottom, including all details, no matter how insignificant they may seem. This forces students to use the resources around them, as well as seek out other resources, such as experts in professional business practice, if necessary. All

aspects of the activity, including the utilization of resources, would be designed to prepare students for the dynamic world of entrepreneurship.

5.2.5 Professional Experience

More realistic than writing business plans is giving students direct exposure to the environments they will be creating as entrepreneurs. As with programs of all disciplines at schools in the United States, a student studying to be an entrepreneur could benefit greatly from working closely with business people who have had extensive experience in the field of entrepreneurship. Students are commonly offered the opportunity to participate in internships, in which they are temporarily placed in an actual workplace during their education. This allows students to experience first hand exactly what is being taught in the classroom. Entrepreneur John Esler cited an example program currently offered at Babson College which introduces students to entrepreneurship and business management by placing five students at a business and presenting these students with a problem that lies within the business they are assigned. This program, called the MCFE program, is described further in section 5.3.4.

The Engineering College already prepares students for the professional world by using practical activities and experiences in their courses. In multiple classes, instructors invite business men and women to lecture to the students about their experiences related to the course topics being discussed. The project group believes that having experienced entrepreneurs talk to students will give them a clear, realistic lesson. Having business people be a part of an entrepreneurship program was strongly encouraged by both Professor Banks and Hans Møller during interviews. The team also personally contacted some businessmen who already lecture at IHK, and they agreed in principal to be a part of any entrepreneurship programs that the engineering college may implement in the future. Guest lecturers include Jan Hove Sørensen, employed by the PA Consulting Group and Frank Fager, a Carrier Relations Manager at Global Connect. Business people can act as mentors for students while

they complete projects. When interviewing interested students at IHK, many were enthusiastic about the possibility of having someone with experience as an entrepreneur act as a mentor. Many students also mentioned they would not know where to begin if they wanted to start a business, thus students would benefit greatly if they had a chance to talk to those who have already gone through the process. At the Herning Institute of Business Administration and Technology (HIBAT), most instructors have experience in the entrepreneurship field and act more as mentors than professors for students during their project work and activities. If IHK should implement any kind of entrepreneurship education program, it is highly recommended that they use outside experts to share their experiences with entrepreneurs in training.

5.2.6 Community Approach to Entrepreneurship

In *Entrepreneurship Education*, the KUBUS® system was presented and described as “a dynamic process model of leadership used in an entrepreneurial environment” (104). The model was originally developed by Professor Henrik Herlau of the Copenhagen Business School. The system is quite complex, and is only partially explained in the chapter; however, it does provide some thoughts into possible teaching styles of entrepreneurship. The authors describe the model as based on a number of holistic elements such as leadership, team development, networking, market research and project management (Guedalla, et al. 104). This model is one that has the potential to match well with the culture of Denmark. In an article titled *Enterprise Development in Greenlandic Communities*, authors Henrik Herlau and Helge Tetzschner discuss their views about how innovation and entrepreneurship should be developed in countries like Denmark. They discuss how a holistic approach encompassing the ideas of the KUBUS® system could be more attractive to Greenlandic countries, where an emphasis is placed on the entire community as opposed to the individual. This approach

could address some of the difficulties that Danish society has experienced with entrepreneurship and innovation education (Herlau, Tetzschner).

Historically, entrepreneurial endeavors have not seemed attractive to Danes because of the risk involved. In the article, the authors state that “while habit is a major determinant for generating resistance to change, it is not the sole determinant. Thus, even in the absence of strong habits, resistance to change may be present due to other factors. One such factor is perceived risks associated with innovation” (Herlau, Tetzschner). The Danish economy complements Danish culture, and citizens do not feel the need to venture out with innovative or entrepreneurial endeavors. However, business professionals such as Herlau write about the possibilities of entrepreneurship because they believe it could significantly enhance the Danish economy. In the article, which was published on the website of the Danish Polar Center, the authors describe an approach to enterprise which could be attractive to the Danish society. Any programs that IHK implement should include a workshop that explains how entrepreneurship has the potential to benefit the entire Danish community and beyond.

Entrepreneurship, if implemented, has the ability to benefit an entire community. The general strategy proposed by the article aims “to promote sustainable business development”, that is, to use enterprise to make Denmark’s economy competitive world-wide in the long run (Herlau, Tetzschner). They believe the best way to achieve this goal is to take a holistic approach to entrepreneurship, where the entrepreneur should have the entire community and country in mind when tackling innovative projects. The article describes two types of entrepreneurs: the independent entrepreneur and the social entrepreneur. “The independent entrepreneur views the community as a means to attain his goals, whereas the social entrepreneur views development of community as a major goal in itself.” In countries like the United States, many individuals have been successful because they have taken the independent approach to entrepreneurship. However, not often enough do innovators in

business take the entire economy into consideration, something that Denmark has the opportunity to capitalize on. The authors believe that education should focus on developing the social entrepreneur, one “that inspires others to start their own enterprise and approach public authorities and external interested parties as potential supporters.” The team approach to learning and business is one that the Copenhagen Business School has adopted using the KUBUS® template. The holistic idea, described as one that places an emphasis on the interests of the whole, teaches students to work together as a team so that knowledge and experience can be shared to benefit all. The goal is to have many members of the community understand the business ventures that profit the whole. With this support, the amount of risk associated decreases dramatically as the project can be backed by numerous financial and professional institutions. Herlau and Tetzschner believe that this approach to entrepreneurship should be taught partially with the KUBUS® system, which highly promotes a team atmosphere.

5.3 American Entrepreneurship Education

Entrepreneurship education is thriving in American universities, specifically those institutions devoted to the study of business and management and also those that have a focus on technological advances. A testament to entrepreneurship awareness within the United States is *Entrepreneur Magazine*'s rating of the “Top 100 Entrepreneurial Colleges for 2004,” an analysis of nearly 900 American colleges and universities (*Entrepreneur Magazine*). Each college was rated by the magazine, based on many criteria, including course offerings, faculty, research centers, outreach programs, degrees offered, access to funding, etc. These lists served as a logical point of origin to find information on entrepreneurship education in America. As noted by consulting the top colleges on

Entrepreneur Magazine's list, as well as a similar list by *Forbes Magazine*, there are clear patterns of objectives for and methods of enhancing entrepreneurial education.

Entrepreneurship education, although already widespread, remains a popular area of interest and continues to spread to new institutions. The Carolina Entrepreneurship Initiative (CEI) at the University of North Carolina at Chapel Hill released a case statement in December of 2003 which illustrates the attention that is paid to entrepreneurship in American universities. The case statement is a result of the launch of the CEI, a venture “to inspire, teach, and connect students, faculty, and alumni in ways that enable them to transform their ideas into enterprises that create value – commercial, social, artistic, and educational – and are sustainable” (CEI Case Statement). Fostering an “Inspire, Teach, Connect, Create” approach to their goal, the initiative seeks to: “*inspire* students to imagine possibilities, *teach* them how to turn their ideas into reality, *connect* them with mentors and academic experts, and *create* new enterprises, knowledge and attitudes among students, faculty, and staff” (CEI Case Statement). This four step approach to stimulating entrepreneurial growth within the University of North Carolina is a precise, accurate template of what every entrepreneurship program should include. Each step of the plan is imperative to the success of the program, as demonstrated in many entrepreneurship programs and curricula in the United States. This case statement offers IHK a very direct and concise four step approach to organizing an entrepreneurship program or course at the college.

5.3.1 Entrepreneurship Curricula

Although not all American schools have instituted entrepreneurship education curricula and instead opted for entrepreneurship centers, programs, concentrations, and organizations, there is a recognizable pattern in the basic entrepreneurship curriculum used across the nation. University curricula reflect the interdisciplinary nature of entrepreneurship study and often require students to be proficient in areas of business management, finance,

ethics, economics, sociology, marketing, communication, engineering, the natural sciences, and computer science in addition to areas focusing on innovation and creativity. The interdisciplinary nature of entrepreneurship education is very similar to the Export Engineering program at IHK because students are proficient in many areas of engineering and communication as well as business and economics. Other American classes that are emphasized in all entrepreneurial programs focus on the composition of business plans and the acquiring of financial support from endorsers. To create an entrepreneurship program at IHK, the college needs to place more emphasis on these areas of finance and business plan composition. This background education reflects what is referred to as the “teach” and “inspire” aspect of the CEI. For example, Worcester Polytechnic Institute (WPI) offers its students a template for interdisciplinary entrepreneurship education within the institute’s Department of Management as a major called Management Engineering. WPI’s Management Engineering program offers students the ability to “gain depth in management principles while still being able to focus on technical interests.” Students of all majors at WPI also have an option to pursue a degree minor in Entrepreneurship, which requires a sampling of business, management, and entrepreneurship courses. It is clear that this approach is effectively attracting students as seven out of nine focus group participants at WPI have taken a management or business related course. When the team talked to Export Engineering students at IHK the most frequent recommendation was that all engineering students at the college should be given the opportunity to attend an entrepreneurship course regardless of their area of engineering expertise.

At other universities, most entrepreneurship students are not permitted to advance to the actual entrepreneurship classes (i.e., Introduction to Entrepreneurship, Managing a Growing Business, Effective Team Building, Financing the Entrepreneurial Venture, Opportunistic Thinking, etc.) until they have first completed basic business and economics

classes. Although Babson College accelerates its first-year entrepreneurship program with project work, first-year students are concurrently required to complete foundation business and management courses. Export Engineering students at IHK are already taught foundation principles of business and economics and can easily integrate this knowledge into an entrepreneurship program. Non-Export Engineering students may not have access to this basic knowledge, so an introductory entrepreneurship course which covers these basic principles in addition to other entrepreneurship essentials is more appropriate for these students.

When established entrepreneurship curricula are not available, workshops and forums are often organized to teach entrepreneurship education. Assumption College in Worcester, Massachusetts offers a series of seminars called “Entrepreneurship & Small Business Management: A Toolkit for Getting Started and Succeeding in Your Own Business,” which is an accelerated workshop for graduate students seeking an introduction to entrepreneurship (Appendix F). The five week program is designed to encompass all the necessary information required to start one’s own business. Each of the five sessions focuses on a different aspect of entrepreneurship such as determining if entrepreneurship is the right choice, developing and understanding business, financing and marketing plans, understanding accounting, budgeting, marketing, sales and advertising, and other essentials such as recognizing the roles of information technology, human relations, and laws related to business ownership. Denmark has similar programs and classes, but these shorter courses are offered outside of the formal higher education systems and serve as supplementary education.

5.3.2 Teaching Methods

Entrepreneurship classes are often much more than lectures or discussions; some are projects which encourage students to learn by experiencing entrepreneurial situations firsthand. It is important within entrepreneurial curricula that a variety of teaching methods

are used to accommodate the diverse learning styles of students. Professor Banks and Mr. Esler champion activity and project-based learning as invaluable tools to help students apply the skills learned in lectures. The focus on writing business plans, finding financial support, and project work satisfy the CEI's desire to fulfill the "create" and "connect" aspects of their program. When asked during interviews, IHK students also expressed a need for classes which focus on writing business plans and acquiring financial support for business ventures.

5.3.3 Project Work

First-year students at Babson College in Babson Park, Massachusetts are required to participate in a program called the Foundation Management Experience (FME), which is a "year-long immersion into the world of business" (Babson Course Catalog). Babson's FME forces students to learn by experiencing interpersonal communication, innovation, creativity, and business management firsthand. In addition to background coursework in business, economics, and statistics, Babson students will work in teams to create, cultivate, start, manage, and liquidate business. The program will even loan teams up to \$3,000 in start up funds, and all profits are donated to a non-profit organization or charity of the students' choice. Babson College is an effective example of a successful entrepreneurship institution to present to Denmark because interviewee Hans Møller, a Danish entrepreneurship expert, considers surpassing Babson College in the quality of entrepreneurship programs one of his career goals.

5.3.4 Field Experience

Babson College has a prototypical program for total immersion in entrepreneurship education. Second-year graduate MBA Students at Babson are given the opportunity to participate in the Management Consulting Field Experience (MCFE) project, during which students are offered to local businesses and organizations as consultants. The students work in teams to analyze the company in which they are placed and to make recommendations to

the sponsoring company as a means to help solve company problems and to gain experience as business consultants. The MCFE project exposes students to a variety of startup and established companies in an array of fields, including the quickly-expanding area of e-business (Babson College, MCFE). Not unlike Babson's MCFE project, Worcester Polytechnic Institute (WPI) also has a project program which can be considered an educational tool for teaching entrepreneurship. WPI's project program "offers industrial, private, governmental, and non-profit organizations the opportunity to join [the WPI community] in providing a real-world educational experience for future engineers, scientists, and managers... the program provides sponsoring organizations with fresh and creative approaches to problems from university upper-class students with advice from WPI faculty" (WPI Office of Projects Administration). The project team has developed this report for IHK as participants in WPI's project program. IHK already places very strong emphasis on their engineering traineeships and internships and a transition to a more entrepreneurship-oriented field experience exercise is not unrealistic.

5.3.5 Business Plans

Business plan writing is strongly emphasized in most American entrepreneurship curricula. The importance of writing a business plan is to introduce students to the process of starting and owning a business. In this way, students are forced to apply all necessary business skills. Carnegie Mellon University's West Coast Campus in Moffett Field, California encourages students to perfect business-plan writing by presenting students with a Business Plan Competition within their "Innovation & Entrepreneurship" course. Students compete not only for a \$5000 grand prize, but also for their final grade (Appendix D).

Similar to Carnegie Mellon's Business Plan Competition, WPI hosts a larger WPI ALL-OUT Business Plan Challenge, which offers students the opportunity to "prepare a written business plan; to test the validity and perceived value of their business idea against

other business ideas; to earn the right to present before a panel of entrepreneurs and investors; and to compete for up to three cash prizes”, the largest of which is \$50,000 (Collaborative for Entrepreneurship & Innovation, WPI).

Business plan writing has been emphasized by all of the team’s interviewees as an absolutely essential skill to perfect as an entrepreneur. This type of writing is not currently taught at IHK. The institution of an entrepreneurship education program at IHK will require the teaching of business plan writing.

5.3.6 Case Studies

It is becoming popular for entrepreneurship programs in colleges and universities to teach entrepreneurship using case studies, sometimes called “teaching cases.” Babson College’s entrepreneurship curriculum encourages the use of teaching cases written by Babson faculty and alumni. Teaching cases, or case studies, consist of an abstract outlining the problem and/or objective of the study, followed by a brief background of the company or organization, and studies are usually accented with teaching notes and a video of the CEO or other important subject of the study (Appendix C). A particular teaching case was completed based on one of John Esler’s enterprises. Mr. Esler believes that not only do teaching cases help students to learn about entrepreneurship, but they also help the businesses which are being studied by clearly stating any business inconsistencies or other problems to be considered by the business owner.

The Engineering College uses case studies often during courses and this concept is not a new one to the college. A transition to teaching entrepreneurship-centric case studies in the classroom will help IHK to sculpt an entrepreneurial student community. The most popular and complete collection of case studies used by institutions all over the world can be found through Harvard Business School’s collection of cases. The team recommends that in a program, instructors use methods described by instructor Karin Siegmundfeldt. In an

interview, Karin explained that she reviews case studies published by schools like Harvard Business School and Stanford University and then writes her own based on the researched cases and puts them into the context of IHK. She is also in contact with local business people, who will share with her situations present in their companies. She then writes case studies for her students based on these situations, which are tied directly to the cultural and business setting of Denmark.

5.3.7 Web Seminars

A state of the art tool in entrepreneurial education is the web seminar. Web seminars can be paired with teaching cases to present what Babson refers to as a “classroom;” a class where students are able to interact with the subject of a teaching case via the web. One of the most successful web seminar programs, Breeze, is a product by Macromedia (Macromedia, Inc.). Web seminars organized using Breeze software are designed to allow a presenter (in this case a CEO or other entrepreneur) to be transmitted audio-visually to a classroom or other seminar setting. Participants access the seminar through a link and are able to see the video, hear the audio, simultaneously view a PowerPoint presentation (if applicable), and interact with the presenter using a chat room variant or a telephone. Web seminars using Breeze are considered inexpensive and effective. Since IHK is a college which focuses much attention on globalization, especially within the Export Engineering program, web seminars offer the opportunity for entrepreneurs across the world to be transported very economically to Danish classrooms to give guest lectures.

5.3.8 Entrepreneurship Programs

Many of the finest ‘entrepreneurial colleges’ listed in *Forbes* and *Entrepreneur* magazines offer an array of entrepreneurship programs, clubs, and entrepreneurship centers. These centers help to facilitate communication between students, current entrepreneurs, and private investors, offer networking tips, display research resources, and provide information

for students who may be interested in entrepreneurship but who may not know how to proceed toward becoming an entrepreneur. Xavier University's Williams College of Business Entrepreneurial Center is a resource for researching networking opportunities, accessing mentoring and counseling from successful entrepreneurs, locating internship and employment opportunities, applying for scholarships, and acquiring small loans from the university if students submit promising business plans (Xavier University's Williams College of Business). Other entrepreneurship centers such as the MIT Entrepreneurship Center (MIT EC) even go so far as to offer tips on "how to work a room" as a networking skill, and the center also offers listings of other institutions that could be helpful resources for young entrepreneurs (MIT Entrepreneurship Center).

Mentoring is a very common and effective entrepreneurship education tool in America today, especially when combined with entrepreneurship internships and project experience. Babson College fosters the Alumni Mentor Program (AMP), which operates by "pairing an accomplished MBA alumnus with two incoming MBA students who have expressed an interest in their field" as a way to encourage students to learn from an expert on entrepreneurship. Professionals participating in the project are committed to 20-30 hours of interaction with their assigned undergraduates per academic year (Babson College). Babson's AMP not only benefits the undergraduate students who are gaining insight into entrepreneurship, but also benefits the participating alumni by potentially connecting them with new perspectives and inquiries into their own businesses.

At WPI a program called the Collaborative for Entrepreneurship and Innovation acts as the university-wide hub of entrepreneurship. The Collaborative concentrates on the communication and connection aspect of entrepreneurship education by providing students, faculty, and all entrepreneurs alike with "membership organizations, lecture and workshop series, networking venues, and competitions." Perhaps the most well-known CEI program

around campus is the WPI Venture Forum. In addition to the institute's emphasis on communication, the program also offers undergraduate entrepreneurship coursework, and also a series of graduate courses in entrepreneurship and innovation and a variety of independent studies are possible (Collaborative for Entrepreneurship & Innovation, WPI).

WPI's Venture Forum serves "individuals who are seeking to begin their own technology-based businesses; founders, presidents and senior managers of start-up or early-stage companies; senior managers of companies that are restarting or making a transition from one mode of operation to another; and employees leaving large companies due to a reduction in force or to start businesses" (Collaborative for Entrepreneurship & Innovation, WPI). All Venture Forum members are local volunteers from a vast array of career backgrounds as well as WPI alumni, staff, and faculty. Every month a three hour program is held on campus, consisting of a one and a half hour guest speaker and a one and a half hour focus group where solutions and recommendations for actual entrepreneurial case studies are discussed. An entrepreneurship education program at IHK can greatly benefit from the organization of a mentoring or other outreach program. Students will gain confidence and knowledge by talking to entrepreneurs about real-life trials and errors.

5.3.9 A Partnership of Engineering and Entrepreneurship

The REEE documents the mission "to provide a superb engineering education at little or no cost to enterprising students" (REEE). This new educational opportunity would collaborate with Babson College to combine engineering with business and entrepreneurial thinking. The resulting educational institution is known as Olin College of Engineering. The goals of the curriculum developed by the faculty and first year students are as follows:

- Hands-on design projects for each academic year
- An ambitious Capstone senior project that is representative of professional practice
- Work independently, as a member, and as leader of a group
- Presentation before an audience including experts
- International immersion experience
- Substantial constructive contribution to society

- Ability to communicate logically and persuasively in spoken, written, numerical and visual forms
- Self-sufficient individual able to articulate and activate a vision and bring to fruition.

The objective of the new college is to accomplish all of these objectives in an “environment of personal attention and concern” (REEE).

5.4 International Entrepreneurship Education

American methods of entrepreneurship education are helpful in understanding this type of education, particularly because Americans take a significant interest in entrepreneurship and its benefits. However, it is worthwhile to consider some relevant international examples of entrepreneurship education, especially in light of cultural differences between Danes and Americans. It was crucial that this project use the Danes’ unique culture to develop the best possible program for Danish students at IHK. Nations discussed are the Scandinavian countries, the United Kingdom, Ireland, Germany and the Netherlands. As many of these are recently developed programs, some of the vital measures taken to bring about entrepreneurship education have been highlighted.

5.4.1 Scandinavia

Finland is one of many countries that have developed entrepreneurship education programs. Their most recent objective has been to increase “competition between individuals and enterprises in the free market” (Erkkila 139). This has resulted in the development of entrepreneurship education. The lowest attitudes toward entrepreneurship are in the groups who are in the best positions to promote it: teachers, union leaders, government officers and tax authorities (Erkkila 142). In 1995, *The Enterprise Decade Project* was begun by the Ministries of Trade and Industry, Labor and Education as well as the National Board of Education and the Confederation of Finnish Industry and Employers. The main target group of this project is young adults and the goals are centered on improving attitudes and on

promoting entrepreneurship education (Erkkila 147). Halfway through this program in 2000, the study done by Erkkila indicated that the progress made has put education for intrapreneurship into general curricula and that entrepreneurship education belongs at specialized schools (Erkkila 163). An intrapreneur is an individual who takes on the responsibility of developing new products and ventures within an existing corporation. One result of this program has been to decentralize the control of education, allowing local governments and officials more freedom in their choices. Based on these findings, Erkkila concludes that, like in Denmark, enterprise education is promoted by the government in cooperation with other institutions and that a nation developing entrepreneurship education should make conclusions based on analyses of other nations, not just replicate a pre-existing model (Erkkila 191).

A Canadian study of five European universities' development of entrepreneurship education profiles the changes that took place at Finland's University of Joensuu took in the past thirty years. The university changed its budgetary approach to a decentralized system in which money is budgeted to broad areas such as academic departments. In this way divisions of the university are required to be responsible for the spending and generation of revenue. Initially this change was resisted, but support from the Ministry of Education persuaded the faculty to be more positive about the budgetary changes (Oleksiyenko 6).

The character of a university has an effect on the speed and magnitude of change. At the University of Joensuu it was also necessary for more traditional procedures to be overturned for entrepreneurial activity to flourish at this university. Instead of following the government's requirement for faculty to work specified hours, a more flexible system was introduced thereby balancing power between departments and administrators (Oleksiyenko 10; 14).

The Stockholm School of Entrepreneurship (SSES) is a network of four universities located in Stockholm, Sweden. This school is one of several examples wherein change has taken place due to strong external as well as internal pressure. At this educational institution most of the instruction takes place at each of the four participating universities and only a few professors work at SSES. Essentially this institution operates as a sharing of resources and a contact for those faculty members and students who are involved in entrepreneurial activities. The advantage to this approach is that each university involved can accomplish more than it could with its own resources (Blenker et al. 5).

In addition to the administrative elements mentioned, SSES employs experiential methods as one of its primary pedagogical principles. Business people are guest speakers and they evaluate the students' positive contributions in interactive classroom settings. SSES maintains interactive classrooms by limiting their core courses to thirty students (Blenker et al. 5; 11).

Another Swedish university to be considered is Chalmers University of Technology located in Goteburg. An initial stage in the development of this university's entrepreneurship education program incorporated adjustments at the administrative level. A board of directors was appointed for research centers; it is comprised of government and industry representatives who work together to formulate the research programs and assume responsibility for their financing and execution. Interestingly, this university is a case where typical procedures were not followed in order to bring about positive change toward entrepreneurship education. Chalmers University of Technology actually gained status as a foundation, making it a semi-private institution. This enabled the university to appoint personnel and establish new programs without the approval of the ministry. A chair in "Innovative Engineering" was added and he began the Chalmers Innovation Centre. This enhanced the transfer between research and commercialization. In addition, undergraduate

courses with the theme of “Innovation in Practice” have been developed. These examples illustrate the process by which Chalmers University of Technology evolved into an entrepreneurial university (Oleksiyenko 5-11).

The Herning Institute of Business Administration and Technology (HIBAT) in Herning, Denmark employs a unique approach to entrepreneurship education. The structure of HIBAT’s entrepreneurship program is not like that of CBS or IHK because students are hardly exposed to classroom settings or lectures on entrepreneurship theory and practice. Teaching is done by mentors, and lessons are entirely project based. Similar to CBS and IHK, projects at HIBAT are completed in small groups of about five students, but HIBAT’s teamwork practices are exceptional because of the emphasis placed on assembling the perfect project team (Møller).

All students at HIBAT submit to a psychological evaluation of their “Emotional Intelligence.” This test creates a personality profile for each student which maps the student’s strengths and weaknesses concerning areas such as leadership, patience, and ability to start and finish tasks. Students are then arranged into groups based on the results of their emotional intelligence analysis. For example, a student who has difficulty finishing tasks once they are started will be placed in a group with a student who excels in that area, but who may find difficulty beginning tasks. This method of group assembly has proved very successful at HIBAT with a failure rate of less than five percent, and the psychologist who administers these tests is a full-time employee of the institute. Students must see the psychologist at periods throughout their education to track the progress of their emotional intelligence (Møller).

5.4.2 United Kingdom

Three universities located in the United Kingdom that exemplify the process of transformation from traditional universities to entrepreneurial universities are the University

of Warwick, the University of Central England (UCE) and the University of Strathclyde. The Birmingham campus of UCE has an Enterprise Research Development Centre where most entrepreneurship research and learning take place. Bachelor level degrees are offered in the field of Entrepreneurship where a final project consists of either a traditional thesis or a business plan. There is also an “idea laboratory” at UCE where students can research their own ideas (Blenker et al. 5).

In the 1980s, the University of Warwick responded to economic problems by pursuing opportunities to increase its income through innovation. This university took several steps to develop its entrepreneurship education and there are now research centers for many departments, graduate programs and a research fellowship program. The Science Park, for example, opened in 1984, has served to improve the university’s connection with industry (Abbott). These additions to Warwick’s repertoire of offerings increased the university’s interaction with the community and have attracted more international students (Oleksiyenko 10-12).

Scotland’s University of Strathclyde has just appointed the former Scottish Entrepreneur of the year, Ivor Tiefenbrun, as a visiting professor. Known for producing exceptional scientists and engineers, the university moved toward entrepreneurial education by undertaking structural changes that accelerated and increased effectiveness of decision-making by the administration. This was accomplished by giving more power to the University Management Group. Five deans henceforth managed conflicts between academic and managerial concerns. University faculty found motivation to relinquish classical methods in the challenge to become a “useful university.” Universities that use educational research to contribute to commercial industries are considered useful. This university uses Strathclyde’s Institute for Drug Research as a means of transferring research to industry (Oleksiyenko 7).

5.4.3 European Nations

The Irish have a well-known enterprise education program at the National University of Ireland at Maynooth. This program is focused on promoting research at the university rather than business. This is relevant as one of the goals of the Danish government is to better connect research and commercial industry. In particular, the T3 program, envisions the maximization of “the flow of commercially viable research from the university to the industrial area” (NUI, Office of Research & Graduate Studies). The program offers entrepreneurship education, patenting, business start-up and licensing and education is provided in the form of courses, seminars by professionals and a contest for innovative ideas. For patenting ideas the program can aid in filing necessary paperwork; for business start-ups the university can provide on-campus facilities for campus-based companies as well as aid in securing funding. The program offered for research commercialization at NUI Maynooth is a particularly comprehensive program; a program description provided by the school can be found in Appendix G.

Unlike some of the other universities discussed, the University of Rostock is an old university (est. 1419). After the fall of the Berlin Wall, the university’s focus was shifted toward management and market orientation. During this time interest in entrepreneurship materialized. The Institute for Human Resource Development (now known as International Baltic Entrepreneurship Centre) was established as an entity connected to, but largely independent from, the university. Rostocker eXistenzgrunder-Initiative (ROXI) is an organization that is connected to the Institute for Human Resource Development for the purpose of entrepreneurship education and support. As of 2002, the University of Rostock has been considered one of the twenty-five most entrepreneurial universities in Germany (Blenker et al. 5).

The University of Twente is located in the Netherlands and like many of the universities mentioned, it was necessary for this university to adjust its focus to include entrepreneurship in the past thirty years. Since that time the university has been working to become a science and engineering school. In particular five stages took place in the evolution of the University of Twente:

1. Established contact between faculty members and businesses.
2. Industry professionals employed as mentors.
3. Hired faculty members with business backgrounds.
4. New teaching tools were introduced: mentoring, fellowships and projects in the workplace.
5. The natural sciences and the management departments were brought closer for interdisciplinary education (Blenker et al. 4).

5.5 Danish Culture

The foundation of the team's recommendations to IHK concerning the enhancement of entrepreneurship programs stems from extensive research on a breadth of topics regarding entrepreneurship. This foundation consists of a brief history and description of entrepreneurship as well as the nature and history of Danish culture as it relates to business and education. It is very important that all recommendations exist within the appropriate cultural and social context for Danish students. Literature on entrepreneurship education is presented to explain appropriate and effective styles of teaching entrepreneurship. Also very significant is the analysis of curricula from many post-secondary programs. The programs come from a variety of countries, ranging from the United States, a country familiar with the benefits of entrepreneurship, to countries where entrepreneurship is a developing concept. Lastly, personal communications with American and Danish students, entrepreneurship experts, and professors are used to tailor recommendations for an entrepreneurship program to meet the specific needs at IHK.

5.5.1 The Scandinavian Welfare Model

The Scandinavian welfare model is a general term for the manner by which Denmark, Sweden, and Norway organize and finance their social security, health systems, and education. In this Scandinavian model social benefits are the same for every citizen who qualifies without any consideration of employment or family situations. The Scandinavian welfare model is universal because it provides benefits to individuals regardless of marital status. The only areas where previous employment may determine welfare benefits are the areas of unemployment and sickness. Sometimes unemployment benefits require membership in a trade union and payment of contributions; but the Scandinavian welfare model is financed heavily from the State and from general taxation (Ploug).

The State provides a broad variety of services and benefits to the citizens and is able to finance this great cost with a broad array of taxes and a “high tax burden” (Ploug). In addition to the State’s funding, the state is also responsible for the majority of welfare tasks and services provided to citizens rather than these tasks being the responsibility of welfare organizations or churches. Welfare benefits are also distributed in the form of services as opposed to cash benefits. In Denmark, for example, education and the health service are both free (Ploug).

The Scandinavian welfare model operates within a controlled capitalistic society where inequalities in income distribution are kept fairly low (Ploug). Because of the heavy taxation in Denmark, the monetary benefits of becoming an entrepreneur may not seem significant compared to a slightly lower-paying job because the individual will be taxed more at the slightly higher income, making the comfort of living for both nearly equivalent.

However successful the Scandinavian welfare model has been thus far, the system is confronted with the serious problem of awarding too many benefits to too many people, and these benefits being extended for inappropriately long periods of time. This financial burden associated with this problem could be alleviated with increased taxation; however, increased

taxation is not a feasible solution due to already burdensome taxes in Scandinavian countries. As a result Scandinavian countries have accrued high national debt, threatening their welfare systems. The Scandinavian welfare model is also fragmenting into a compartmentalized welfare system which is composed of smaller, supplementary welfare systems. One of these supplementary systems that is present in all Scandinavian countries is a system which is available to those citizens who are active in the labor market. Benefits to these employers and employees include maternity leave compensation, sickness, and pensions. This supplementary system demonstrates a digression from Denmark's emphasis on the value of equality and equal opportunity since not all citizens have access to these supplementary benefits (Ploug). Also, now that these benefits are available to employed individuals, it may be easier in countries like Denmark to work for a company that offers such benefits rather than work for oneself and possibly not collect these benefits. This may deter the prospective entrepreneur if the resultant benefits are not viewed as worth the extra effort.

5.5.2 Current State of Entrepreneurship

Although much of the field research conducted in the completion of this project has been to study the culture of the student body and faculty at IHK, it is important to have a broader understanding of the national Danish culture with respect to entrepreneurship. As previously mentioned, entrepreneurship is not a common business activity in Denmark. At the time of the publication of the 2004 Danish National Report by the Global Entrepreneurship Monitor (GEM) the total entrepreneurial activity in Denmark had fallen by ten percent in a year (Hancock 142). In addition, there has been a negative trend in no less than seven out of nine areas that are considered to have a significant effect on entrepreneurial activity. Some of these areas are financial support, research and development transfer and government programs (Hancock 145).

Despite the negativity of these conclusions, Denmark is ranked eighth of seventeen European countries included in the entrepreneurship monitor. It should not be assumed that Denmark is failing to prosper even though there is less entrepreneurial activity. The activity that the Danes seem to prefer to take part in is intrapreneurship. Interestingly, for the fourth consecutive year the proportion of new business ventures started through intrapreneurship has increased. Second only to Hong Kong for the percent of start-ups through intrapreneurial activity, forty-eight percent of Danish start-ups have been by intrapreneurs (Hancock 143). The GEM report comments that intrapreneurship is an activity that is well suited to Danish culture.

Another aspect of entrepreneurial activity affected by culture is whether it is opportunity or necessity driven. It has been found that opportunity is more likely to cause the development of new businesses than necessity, especially in a developed country such as Denmark. In general, nations with more opportunity entrepreneurship are economically developed, while those with more necessity entrepreneurship are considered developing nations (Hancock 157).

The preconditions for entrepreneurship are related to society's views, skills and knowledge and availability of funding. It is evident that the Danish have both positive and negative conditions for entrepreneurship. A negative condition is the decrease in governmental programs supporting entrepreneurship, while a positive condition is the increase in entrepreneurship education fueled by government initiatives. The project has been completed with this cultural context in mind.

5.5.3 Entrepreneurial Culture at IHK

Keeping in mind the status of entrepreneurship of Denmark, the culture within IHK is a small subset of the national perspective. Six out of seven students who completed the survey for this project understand what entrepreneurship is. This indicates that most IHK

students are somewhat knowledgeable about entrepreneurship despite a less than overwhelming general interest in it in Denmark. Also, two thirds of the students surveyed know someone who they consider to be an entrepreneur. Because most students are at least acquainted with an entrepreneur the argument that the Danes are simply not exposed to entrepreneurship is not supported. The export engineering students surveyed could be more likely to know entrepreneurs as they are studying business and innovation.

5.5.4 Jante Law

The nature of entrepreneurial activity made it imperative that the Jante Law be considered in this project. Although less ubiquitous than it once was, the Jante Law represents an existent leveling principle in Denmark. In general, Danes who become powerful are treated extremely critically by others. This quality of Danish culture was given the title Jante Law by the Danish-Norwegian author Aksel Sandemose. In Sandemose's novel *En Flygtning Krydser Sit Spor*, the Jante Law is comprised of ten rules that govern the interpersonal relationships in the town of Jante. These are:

1. You shall not believe that you *are* somebody.
2. You shall not believe that you are worth as much as *we* are.
3. You shall not believe you are more clever than *us*.
4. You shall not try to fool yourself by thinking that you are better than *us*.
5. You shall not believe you know more than *us*.
6. You shall not believe you are more than *us*.
7. You shall not believe that *you* will be good at anything.
8. You shall not laugh at *us*.
9. You shall not believe that anybody fancies *you*.
10. You shall not believe that you can teach *us* anything (Borish 316).

The positive side of these values is that they discourage arrogance and hubris; however they are also believed to discourage individuality resulting in a common mediocrity. As entrepreneurship is a form of self-promotion, it was vital to consider the Jante Law as it affects Danish culture while designing recommendations for entrepreneurship education at IHK.

The presence of this mentality was confirmed by IHK student Jeppe Skou Petersen. When asked to discuss why Danes might be less likely to participate in entrepreneurial activities, Jeppe explained that Danes feel that they should not try to be more successful. If a Dane attempts a business venture and fails, his attempt will be viewed as a failure in Denmark rather than an ambitious attempt as in the United States. Despite this mentality that individuals should not be more successful than other individuals, ninety-nine percent of IHK students surveyed indicated that they view entrepreneurs in a positive light. This contradiction could be a result of changing views of Danish society toward self promoting activities or it could be an indication of society's understanding of the economical benefits of entrepreneurial activity.

5.5.5 Danish Educational System

The Danes have a unique approach to education that emphasizes freedom of choice. The Danish educational philosophies are relevant to this project as the project team completed the recommendations based on the existing Danish culture. It is not required that children attend public schools, it is only required that they are educated. Parents may decide to teach their children in their home or choose an alternative school. The three fundamental constituents of the learning process are the non-authoritarian method, co-determination, and equality. The non-authoritarian method is a critical attitude toward traditional authority that is manifest in the broad range of educational institutions. The freedom of students to choose their own direction of education is referred to as co-determination. The non-authoritarian and co-determination aspects of Danish education contribute greatly to the development of equality in the education system despite social differences (The Danish Cultural Institute 64).

The mission statement of the Danish education system was adjusted in 1975 to say "the objective is now the all-around development of the individual pupil, and the means to further this end are knowledge, skills, method and powers of expression" (71). The Danish

education system consists of three main branches: the Folkskole, the Gymnasium and higher education institutions such as colleges and universities. The Folkskole is similar to American grade schools and students attend for nine to ten years. After the Folkskole students may apply to attend the Gymnasium, a three year school in which students may take courses specific to their areas of interest. Following Gymnasium students may apply to post-secondary institutions such as IHK. The mechanism that the Danish higher education system operates under is free education for those who are qualified for their desired program. Qualification can be determined through tests and primary education performance (67).

The goals to increase entrepreneurship education as set out by the 2004 Danish Government publication, *Innovation, Entrepreneurship and a Culture of Independence in the Danish Education System* apply to primary education through higher education. In primary schools creativity, initiative and inventiveness should be emphasized; secondary schools will teach independence and knowledge of innovative processes. Higher education programs, such as those at IHK, should work toward a competency in cross-sector, or interdisciplinary, problem solving and preparation of business plans (Ministries of Science, Technology and Innovation and Education 18).

5.5.6 Teaching Styles

The Danish approach to education is evident in teaching styles at universities such as IHK and Copenhagen Business School (CBS). Claus Nygaard, a professor at CBS, discussed Danish teaching styles, in general, as well at CBS. A combination of lecture and discussion style classes is utilized at both CBS and IHK. Group work is also a significant way of learning for Danish students. The project team spoke with several professors at IHK and most of them utilize discussions and group work in order to minimize time lecturing students. The classroom setting is informal in comparison to other countries such as Ireland (Murtagh).

Teachers at IHK are referred to by their first names and feedback from the students dictates the progress of courses (Nygaard).

The Four Pillar Approach is a method of teaching entrepreneurship that is utilized at CBS. The four pillars are accounting, finance, organization and marketing. In addition to these four concepts the emphasis of entrepreneurial education is on innovation (Nygaard). As such, all of these concepts are integrated into the recommendations made by the project team.

5.6 Entrepreneurship in Denmark

Starting, owning and operating a business in Denmark is similar to doing so in the United States; however certain business policies set forth by the government make entrepreneurial activities less attractive to Danes. It is possible that the high tax levels in Denmark prevent many innovators from pursuing new business opportunities by associating risk with entrepreneurship. For this reason, much of the entrepreneurial activity in Denmark, as noted previously, comes in the form of intrapreneurship, where there is not much financial consequence on the individual should the venture fail. There are, however, many resources available in Denmark that make it easier for innovative ideas to become successful business ventures.

The project team feels that if an entrepreneurship program is going to exist at IHK, then it should teach a student everything he or she needs to know to start their own business. While the foundation of such a program exists in business skills, there is a lot of information specific to Denmark that students will need to acquire sooner rather than later in the career. For example, entrepreneurs need to know how to file for taxes to the government, a tedious task that can be made much easier if a student is familiar with the process before they engage in an enterprising career.

5.6.1 Taxation

Relative to the personal income tax in Denmark, the taxes imposed on Danish companies are not extreme. They are however, significant enough to make starting a business more of a risky venture than in the United States. Denmark's Ministry of Taxation is in charge of imposing all taxes in the country, including personal and commercial taxes. Many of the business taxes are common world-wide; however the burden in Denmark is much greater. The largest of these taxes is the corporate income tax, which mandates that 28 percent of a company's profits be collected by the government. (This was reduced from 30 percent in January 2005.) There is also a Value Added Tax (VAT) present in Denmark, as with all countries part of the European Union. The tax is based on the value of goods and services at each stage of its production. For example, a business owner will purchase raw materials for a certain price, make it into a product and then sell it to another company or consumer. The business owner then must pay 25 percent of what they profited from the exchange. Ultimately, the final consumer bears the brunt of the Value Added Tax, but it affects all business owners who buy and sell goods and services. In addition, the state imposes a land, property and building tax on businesses. The amount of this tax depends largely on the location of the business. For example, a business in Copenhagen where land and building space is in high demand will pay much higher taxes for their property than a business outside of the city. A very detailed and complete description of all the taxation programs run by the government can be found on the Ministry of Taxations website at www.skat.dk.

The businesses that are subject to corporate taxation are public limited liability companies, private limited liability companies, branch offices, corporate societies and associations as well as all other entities with any tax liability. There are many ways a company can save money through tax deductions. The government supports research and

development programs, and upon approval, these programs, as well as equipment, used to complete projects can be filed as tax deductible. The government offers many incentives to businesses in many areas, including research and development, which will be discussed shortly. Other expenses that are tax deductible include computer software, pension schemes, royalties, interest, inter-company transactions and insurance premiums. Although applying for tax deductions can be a tedious and time-consuming process, the government's programs have the potential to benefit all types of business (Copenhagen Capacity).

5.6.2 Incentives

The government, as well as many private business organizations, offer many incentives to starting and operating a business in Denmark. This offers motivation for business people in Denmark to pursue their entrepreneurial ideas. Students should be informed of these incentives early in a program, as it may motivate them to open a business pertaining to a certain product or service. Many of these incentives are pushed towards companies making advances in life science and technology, especially research and development in these areas. In 2002 a two-year pilot program was started by the Ministry of Taxation that aimed to benefit private companies which are collaborating with public research institutions. The program has been extended until the year 2006, and allows for the private company to deduct 150 percent of its research and development project-related payments made to the public organization. In addition, small and medium-sized companies can deduct 150 percent of wage expenses that are related to these collaborative projects. There are other more specific incentives offered that can be very useful for saving money upon starting and operating a business. The Industrial PhD Programme run by the government allows for a company to obtain a grant should they employ a person with a PhD education. If a company is capable of supporting a three-year research and development project, 50 percent of the salary (for up to three years) of the PhD employee can be paid by

the government. The company can also cover professional expenses such as conferences, courses and travel (Copenhagen Capacity).

5.6.3 Business Financing

The task of funding a business is daunting no matter what the location or setting of the start-up. While it is not always easy to find the proper amount of financing needed to turn an idea into reality, there are a significant number of investors in Denmark ready to support new business ventures. The Danish Growth Fund, also known as Vækstfonden, is a good example of an investment company ready to support entrepreneurs. The state-backed investment company has an investment capital of EUR 300 million, and typically funds high risk projects that other investors shy away from. The company is broken down into five investment divisions. The first, Technology Ventures, help fund innovative start-up companies in the fields of software, communications, components, energy, industrial and environmental technologies. The second, Life Sciences Ventures, supports industries in the early stages such as biopharmaceuticals, biotechnology, medical devices, diagnostics, nutraceuticals and agro-biotechnology. Third is the Mezzanine Loan division, which provides borrowing capability while minimizing the dilution associated with equity capital. The fourth, titled Funds of Funds, focuses on funding small and medium sized enterprises (those with 250 employees or less) to help strengthen and improve legitimacy in the venture community in Denmark. Finally, there is Loan Guarantee, better known as Vækstkaution. The idea of Loan Guarantee is to make it easier for small and medium sized businesses to get funding for innovative and development projects. In addition, companies that participate in EUREKA projects, which are projects where companies collaborate with other members of the European Union and beyond, are eligible for funding from Vækstfonden.

Another source of possible funding is the European Union's Sixth Programme for Research and Technological Development. The program has a budget of EUR 13 billion and supports enterprise in the following areas:

- Biotechnology, genomics and life sciences
- Information society technologies
- Nanotechnology, research and development of multifunctional materials and new production processes
- Aeronautics and space
- Food quality and safety
- Sustainable development, environmental research and ecosystems
- Citizens and governance in the knowledge based economy.

The EU also runs a program called the Regional Structural Fund which, in short, supports activities improving employment situations that secure equal success to the labor market across Denmark. Even more specific programs exist that are just as supportive. In terms of support in the food sector, the Danish Innovation Law can grant 40-50 percent funding for projects in the fishing and agriculture industries. In what seems to be a trend in Scandinavia, the project must benefit the entire society in some way where it is located. The Ministry of Science, Technology and Innovation helps to fund ventures that are in a pre-project phase. Usually given as capital to start-up companies in the Greater Copenhagen area, up to DKK 750,000 can be granted to a company looking to fund a venture in its earliest stages. The services of the Public Employment Service are available to most businesses, including those recently organized. Services offered include searching for potential employees with specific qualifications, developing training programs to obtain specific qualifications and employee training. Most of the services they offer are paid for by the government and The Public Employment Office will even subsidize when companies hire unemployed persons (Copenhagen Capacity).

5.6.4 Venture Capital

Despite shifting focus in the past few years, the Danish venture capital market has remained a consistent resource for entrepreneurs in Denmark. Funding is more likely to be

given to the more established companies because of the status of the global economy.

Nonetheless, the funding exists and is available for all types of enterprises.

As of January 2005, there were a total of 59 investors in the Danish Venture Capital market, up from 39 in 1999, but down from 68 in 2002. This includes venture funds, corporate venture companies and private incubators. The amount of total capital under management in 2004 was DKK 16.1 billion, a change from the 15.4 billion in 2003. This however, does not include the amount of capital available for future ventures, which was DKK 5.7 billion in 2003. The trend over the last few years in Denmark is that there are fewer but larger investors and investments. Because of the global economic market in the recent years, investors have been much more likely to make a follow up investment as opposed to an initial investment, described as a venture fund's first investment in a company. Financing institutions want to see proof of the legitimacy and high probability of success of a company before investing, a trend which has been occurring world-wide. Approximately 30 percent of all venture capital investments are initial investments, while 70 percent are follow-up investments. The top four investment sectors (with percentages of the total venture capital market invested) are life sciences (49 percent), ITC and other electronics (25 percent), industrial (11 percent) and consumer related services (8 percent). Copenhagen has proven to be the hot spot in Denmark for venture capital activity with 60 percent of all investments going to companies based in Greater Copenhagen, and 90 percent of all funding coming from institutions located in Greater Copenhagen. The incubators are purposely placed in innovative environments close to universities and can provide office space, lab facilities and equipment. Copenhagen Capacity has compiled a complete list of all 59 firms involved in venture capital funding in Denmark. The information provided for each firm includes contact information, industry focus, minimum investment amount, number of investments and which part of a venture project they are most likely to fund (Copenhagen Capacity).

Students should know not only where, but also how to get funding for their business endeavor. An entrepreneur needs to sell his or her idea to a funding source in order to get financial backing for his or her product or support. When asked what the most important parts of an entrepreneurship education are, Professor Banks highlighted two topics. First, there should be accounting and financing material taught on how an entrepreneur can generate funding for their project, and second, there should be an emphasis placed on how to sell a product or service to a company or funding source. It is for this reason that the project team included specific lessons and activities in their recommendations that would help students be prepared to market their innovative ideas.

5.6.5 Complete Business Support

Similar to Public Employment Service listed above, there are a number of firms in Denmark that offer support to new and growing business other than financial support. Danes looking to start their own enterprise can benefit greatly from the services offered by institutions such as “Connect Denmark”. This organization will be highlighted here as they offer a wide variety of professional services that can help turn an innovative idea into a successful business. Students in an entrepreneurship curriculum program should be educated on how such companies can assist them in all sorts of tasks as an entrepreneur. Whether it be finding real estate where a business could be located or help with filing taxes, these companies can provide support of all kinds to a business owner or potential entrepreneur.

Connect Denmark describes themselves as “a non-profit organization that aims to help entrepreneurs fulfill their business ideas” (Connect Denmark). They believe that entrepreneurs may lack the professional advice, funding and network to turn their ideas into reality. This organization is sponsored by Danish companies such as Ernst and Young, Novo Nordisk and Vækstfonden. Their goal is to connect entrepreneurs with the proper financial and business development resources and vice versa in order to create high growth companies,

mainly in technology related fields. They accomplish this through a number of services, most of which are free of charge.

Connect Denmark runs springboards and pre-springboards, which allow for entrepreneurs to present their business plans to a panel of business professionals for critique. In a pre-springboard, the entrepreneur usually presents an executive summary of their business plan. The plan is analyzed by the Connect team of professionals and suggestions are given on ways to improve. This can form the foundation of a detailed business plan, which is presented in a springboard. Experts interviewed in the field of entrepreneurship have said that writing a precise and well thought out business plan is an imperative part of starting a business or new venture. The entrepreneurs are advised and coached until their business plans are flawless, raising the chances of forming a successful venture.

Connect Denmark currently has publications available to the public that can aid business owners in the start-up process. There are three publications which cover three of the most important areas of entrepreneurship. One of the articles is titled “How to Make a Business Plan”, and it gives an important description of how to write a business plan that entrepreneurs can use as a guide when creating plans of their own. The more precise and attractive a business plan is, the more likely it is that the business will receive capital for their venture. The second is titled “Presentation Techniques for Those Searching for Capital.” Obviously finding capital funding sources is essential to starting a business venture, and this publication explains the most important parts of presenting a business plan to convince an institution to grant funding. The third article is titled “How to Succeed in Sales and Marketing – Advice for Start-Up Companies.” It is easy to overlook the importance of a thorough marketing plan when starting a new venture. While these publications give a general overview of the topics they discuss, they lay important framework for the knowledge

an entrepreneur needs to create a solid business. These resources can be found on Connect Denmark's website at www.connectdenmark.com.

Another source dedicated to helping new businesses is "Copenhagen Capacity". They describe themselves as "the official organization assisting companies interested in setting up or investing in Copenhagen." They provide a number of resources (also free of charge) to potential businesses as well as specific information on doing business in Denmark including information on the tax system, how to register a business and how to acquire funding for a venture. The organization is dedicated mostly to helping those interested in setting up a business in and around Copenhagen, but many of their services can be used no matter what the location. Their website lays out all of the services which they provide, and some are highlighted here:

- General investigation – here detailed information is given on doing business in Denmark, and more specifically Copenhagen, is given, from labor statistics to available infrastructure.
- Analysis – this stage helps businesses addresses their specific needs such as defining the scope of the business project and networking owners with potential business partners, venture capital firms, real estate agents, etc.
- Ongoing support – assists companies in retaining success, expanding on activities attractive to region, creating a Scandinavian corporate structure and etc.

Copenhagen Capacity, like Connect Denmark, is an excellent resource that can make the process of starting a business venture seem more attractive to Danes (Copenhagen Capacity). It is also recommended that representatives from these business services conduct guest lectures as well as work directly with students as mentors for support during their project work.

5.6.6 Government Initiatives

At this time Danish higher education at IHK does not specialize in entrepreneurial thinking. Since IHK is a technical and engineering school these students are more in the habit of solving problems than seeking opportunities for personal advancement, a barrier to the existence of entrepreneurship.

Spurred by international education reforms aimed at developing entrepreneurial education, the Danish Ministry of Education produced *A Coherent Educational Strategy on Entrepreneurship*. This document laid out a four to five year study for the sake of determining which pedagogic methods and teaching approaches would most successfully cultivate entrepreneurs. This study is divided into three separate but related cultural spheres:

1. The entrepreneurial culture that covers occupational and educational background.
2. The innovation culture which is comprised of co-operation, problem-solving, compilation of information, methods for self-learning and project management.
3. The independence culture which refers to broader personality qualities such as initiative, readiness to take risks, decision making and flexibility (Danish White Paper).

At the time of the *Global Entrepreneurship Monitor's* Danish National Report in 2001 the study just cited became less of a priority and Denmark was below the average global level for participation in entrepreneurial activities (Hancock and Bager 17). In June of 2002, the Danish government renewed its efforts to improve entrepreneurial education in Denmark. At this time, the *Better Education Action Plan* was laid out with the goal that "Danish education and training must match the best in the world" (10). One of the primary goals of this initiative was to educate the talented Danish youth to become entrepreneurs and create a positive attitude toward innovation and entrepreneurship. The action plan states that the focus in higher education, such as at institutions like IHK, would be to teach students to apply research results to business purposes. This focus also includes improved interaction between business and educational institutions. Lastly, universities should develop new entrepreneurial education courses and place greater emphasis on research.

The action plan suggests several areas in which universities could improve their programs. The first is a reform of the content of degree programs. There should be specific identities for each program and a logical progression from the Bachelor's to the Master's program. A second goal is for teaching to be based on research and to develop a method of

evaluating how successfully research is integrated into teaching. Further, a reevaluation of admission requirements for university programs is called for. Lastly, the action plan suggests cooperation between specific fields of study (The Danish Government 53-56).

Following up the action plan was a government publication entitled *Innovation, Entrepreneurship and a Culture of Independence*. This publication summarizes the specific ways the government plans to go about improving entrepreneurial education in Denmark. The three goals are to ensure that students develop professionalism necessary to be successful in the business world, to encourage students to develop initiative, drive and independence and to teach students about business and innovation (Ministries of Science, Technology and Innovation and of Education 8).

This publication offers several specific methods to integrate entrepreneurship into higher level education programs. To begin with, each program should determine a competence target for innovation and entrepreneurship by which to evaluate students' competence in these areas. In addition, Solution Camps are in development wherein economics and engineering students can solve problems posed by Danish companies. It is also shown that faculty should be educated as to how they can integrate innovative philosophies into their teaching methods. Lastly, a catalogue of education and programming ideas for entrepreneurship and innovation is suggested (Ministries of Science, Technology and Innovation and of Education 14).

6.0 Recommendations and Conclusions

Based on thoughtful consideration of all research conducted, the project team developed two recommendations for the execution of entrepreneurship education at IHK. The first recommendation is a 10 ECTS elective course on introductory entrepreneurship theory. This course is designed to be implemented with relative ease and is meant for students who might be interested in entrepreneurship, but whose education focus is elsewhere. In addition, a 30 ECTS specialization in entrepreneurship is recommended. This program would require more resources to be put into place, but should be seen as an ultimate goal while the elective course is meant for more immediate results.

6.1 Elective Course Recommendation

This ten ECTS elective course is designed so that new faculty would not be needed. Many of the faculty members in the Export Engineering department are already knowledgeable in the areas to be covered in this course. Professionals have been contacted and are interested in guest lecturing in order to supplement the knowledge already available within the IHK faculty. Table 6.1 shows the course outline by week.

Introduction to Entrepreneurship & Innovation for Engineers		
Week	Topics	Project
1	Theory and background	
	Individual vs Community Oriented Entrepreneurship	
2	Innovation	Form Project Groups
	Commercial viability for products and inventions	
3	Case Studies	Choose Topic
		Meet with Mentor
4	Danish Policies and Laws	
	Taxation Laws	
	Company Registration and Tax Form Procedure	
5	Licensing and Patenting Laws and Procedures	
6	Case Studies	
7	Venture Capital and Funding	
8	Marketing a Product/Service for Funding	
9	Venture Idea Presentations	
10	Business Plan Writing	
	Business Plan Analysis	
11	Marketing a Product/Service	
12	Accounting	
13	Human Resources/Management	
14	Presentations	
15	Project Completion	
16	Project Completion	
17	EXAMS	
18	EXAMS	
19	EXAMS	

Table 6.1 - Elective Course Outline

Concurrent to the lecture topics listed, will be a project that will require students to formulate a business plan from conception to execution. At the conclusion of the semester students should have completed a business plan that could gain them funding in a competitive market. For the project, teams of students will be assigned professional entrepreneurs as mentors who will be in continuous communication with project teams throughout the completion of their business plans. During the ninth week of the semester

students should briefly present the ideas they have developed for their business ventures. Presentations of the entire business plans will take place during the final weeks of the semester. The business plans cover ideas, commercial viability, funding, production, marketing and management. In addition, the teams must show how their business ventures are beneficial to the community.

IHK already has a knowledgeable staff for this course. Two possible guest lecturers are listed; both have already expressed an interest in participating in entrepreneurship education at IHK. Listed below are the recommended staff for the different topics to be covered:

Topic	Instructor
Theory and background	Guest Lecture
Individual vs Community Oriented Entrepreneurship	Guest Lecture
Innovation	Fønss and/or Siegumfeldt
Commercial viability for products and inventions	Jeppe Jessen (Risø National Labortory)
Danish Policies and Laws	Clausen
Taxation Laws	"
Company Registration and Tax Form Procedure	"
Licensing and Patenting Laws and Procedures	"
Venture Capital and Funding	Hansen
Marketing a Product/Service for Funding	Hansen and/or Wilke
Business Plan Writing	Guest Lecture
Business Plan Analysis	Jan Hove Sørensen (PA Consulting)
Marketing a Product/Service	Hansen and/or Wilke
Accounting	Kruger
Human Resources/Management	Guest Lecture

Table 6.2 - Possible Course Instructors by Topic

The objectives for this course are as follows. Students should be able to:

1. Understand the positive aspects of community oriented entrepreneurship
2. Seek and utilize opportunities
3. Have confidence in their entrepreneurial abilities
4. Assess the commercial viability of a product or service
5. Understand national laws and regulations for businesses and intellectual property

6. Market ideas for funding and venture capital
7. Market products and services to consumers
8. Prioritize the many responsibilities of being an entrepreneur
9. Manage financial and personnel sectors of a business
10. Prepare a complete business plan.

The mechanisms by which these objectives will be reached are as follows:

1. Personal contact with experienced entrepreneurs
2. Lectures, discussions and activities
3. Business plan project.
4. Case studies of actual entrepreneurial ventures.
5. Guest lectures and team teaching.

Students' success will be evaluated by the following methods:

1. Student feedback
2. Mentor and professional guests' feedback
3. Peer review
4. Instructor and mentor assessment of business plans and presentations
5. Final oral exam.

6.2 Entrepreneurship Specialization Recommendation

A specialization in entrepreneurship could be taken on by students in the sixth, seventh or eighth semester. It is designed to consist of 15 credits of Project Unit and 15 credits of coursework on: Foundations of Entrepreneurship, Law and Finance for Entrepreneurs and Marketing for Innovation. The distribution of topics within each of these three five-credit courses is:

Foundations of Entrepreneurship
Theory and Background Individual vs. Community Oriented Entrepreneurship Innovation Business Plans Incentives Human Resources/Management
Law and Finance for Entrepreneurs
Accounting Venture Capital and Funding Licensing and Patenting Laws and Procedures Company Registration and Tax Form Procedure Taxation Laws
Marketing for Innovation
Commercial viability for products and inventions Marketing a Product/Service for Funding Marketing a Product/Service to Consumers

Table 6.3 - Specialization Topics by Course

Teaching styles for these courses should resemble the styles outlined for the elective course. These styles, of course, include discussions, lectures, professional guest speakers, case studies, business plans and small presentations. Recommendations for possible instructors mimic those presented in Table 6.2 above. As these are entire courses devoted to the topics mentioned, the material will be taught in more depth than in the elective course.

The Project Unit will encompass all of the disciplines of entrepreneurship covered in the three courses in the specialization. The project will be completed in teams which will be formed based upon the results of a psychological emotional intelligence test. The tests will be done on the students in the first few weeks of the semester and teams of four to five

students will be formed. Team members' strengths and weaknesses will complement one another.

The basis of the project is for students to develop a venture idea that has been provided by a company. These companies often have venture ideas that they do not have the resources to explore. Students will begin the project with the ultimate goal of presenting their business plans to the interested company. Ideally, the business plans should be constructed to the point that teams could realistically pursue the business ventures. As in the elective course, students will have access to a professional entrepreneur for mentoring throughout the project.

There are several objectives for the completion of the specialization. Students should be able to:

1. Understand the positive aspects of community oriented entrepreneurship
2. Seek and utilize opportunities
3. Have confidence in their entrepreneurial abilities
4. Assess the commercial viability of a product or service
5. Understand national laws and regulations for businesses and intellectual property
6. Market ideas for funding and venture capital
7. Market products and services to consumers
8. Prioritize the many responsibilities of being an entrepreneur
9. Manage financial and personnel sectors of a business
10. Prepare a complete business plan
11. Effectively utilize networking to further their interests.

The mechanisms by which these objectives will be reached are as follows:

1. Personal contact with experienced entrepreneurs
2. Lectures, discussions and activities
3. Business plan project.
4. Case studies of actual entrepreneurial ventures
5. Guest lectures and team teaching.

Students' success will be evaluated by the following methods:

1. Student feedback
2. Mentor and professional guests' feedback
3. Peer review
4. Instructor and mentor assessment of business plans and presentations
5. Final exams in courses.

6.3 Conclusions

The project team has drawn several conclusions about the state of entrepreneurship in Denmark and entrepreneurship education at IHK from the analysis of background and qualitative research. The first and most broad conclusion that can be made is that the Danish culture, while not as naturally conducive to entrepreneurship as American culture, is working to promote entrepreneurship. This conclusion is based on several aspects of the research such as the Danish government initiatives, the entrepreneurship education programs currently in place in universities, and the availability of aid to incipient businesses. The Danes are actively working to overcome cultural barriers such as the Jante Law in order to increase their entrepreneurial activity.

A number of additional conclusions have been drawn about IHK and its culture. The project team discovered that although Knud Holm Hansen asserts that IHK does not have entrepreneurship at IHK, many of the necessary elements are already present in the school's curricula. Many courses offered in the Export Engineering department and courses in which students develop products are applicable to entrepreneurship education. In addition, many of the successful methods of learning entrepreneurship that are utilized in the United States and in Europe are already in use at IHK. Project work, discussions, professional guest speakers and business plans are already significant components of IHK's programs.

While IHK has many necessary elements of entrepreneurship education many students and faculty indicate that more entrepreneurship specific programs would be well received. It can be concluded that, at the very least, all engineering students should have access to introductory entrepreneurship education and that many of the students desire to be entrepreneurs. The research shows that IHK and its students would benefit from specific entrepreneurship education programs. An increased number of students will be attracted to the university and more students will have the confidence to pursue their innovative ideas if

entrepreneurship education is offered. Henceforth, the most important education IHK can give its students is to help them gain confidence in their abilities to be entrepreneurs.

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8.0 Appendices

The appendices presented here are materials that not necessary to include in the main text, but are important to complement the body of the report

8.1 Appendix A – Interview Notes

8.1.1 WPI Professor McRae Banks

Interviewed by: Daniel Martel, Erin Ringer

16 February 2004

Professor Banks has been involved in numerous entrepreneurial endeavors. He has taught entrepreneurship classes and has been educated to be prepared for an entrepreneurial career. He attended Virginia Polytechnic Institute where he received a Bachelor's Degree in History and a Master's Degree in African History. Years later he went back to Virginia Tech for a Doctorate in Public Administration and Policy. He chose the program because it was an interdisciplinary program, where 25-30 percent of coursework was done in the business school. About a third of work was done in the public administration program, which was required. The remaining courses were taken in a variety of topics such as economics, political science, and industrial engineering. He also was required to get a doctoral minor in accounting. Courses were focused around strategic management.

In high school Professor Banks worked for a gentleman who started his own retail sporting goods business. That was his first exposure to starting a business. He said that "it was interesting getting in on the ground floor of a start-up and the types of things one has to do to get a business off the ground. It was a wonderful experience to be engaged with someone who was trying to start a business."

In college he was strapped for money so he entered in a program that gave short term employment opportunities to undergraduates. He started doing some yard work and was well liked so other people started asking for my services. Soon he started doing all sorts of work for many people and got so many jobs he had to turn some people down. Eventually he learned that "the secret in that business is not doing the work yourself but getting people who can do the work for you and that you do the business development, which is to find more clients, hire more people to do the work and so on."

Professor Banks then discussed his motivation to participate in entrepreneurial activities. He mentioned that he was willing to do what was necessary to succeed. Nothing in particular led to the entrepreneurial attitude. An entrepreneur has to understand the market and create a product or service that's going to be attractive to that market. It's important to do something that is different and creative. Do something new and different and get the idea out there, make it attractive. He couldn't point to a specific class or professor, it was more about being aware of what was surrounding him and jumping on opportunities.

Once he got into academia and teaching entrepreneurship, his knowledge deepened considerably. That taught him to look back on his early experience and saw why this worked or this is why it didn't work. "By studying some of this stuff I was able to learn why it did succeed."

Professor Banks talked about what skills he gained that made him a successful entrepreneur, as well as looking back, things he wished he had known. Back in 1960's and 1970's everyone wanted to work for large companies. He was ashamed in telling people he had his own business. "I wish that at the time I had more interactions with other small

business people and I would have known that that was the path to follow, not the big business path. I wish that as an undergraduate or even as a graduate student...that I'd had a stronger background in accounting especially so that I could have easily understood income statements and balance sheets and how to get the information out of those that would help me make decisions in my business. That, I think, is still a key failing of a lot of people in business that they don't understand the financials, and it's something that I don't think most entrepreneurship programs, most business programs do a good job of educating students on. I wish I had done more of that."

At the same time that shaped his decision to get that doctoral minor in accounting. It was really interesting that later on, when he was teaching the students in this small business consulting course because they were required to do a financial analysis of any business of which they were consulting and to develop proforma statements (projection of what financial picture is going to look like in future). We would sit down with accounting majors and financial outlooks didn't make sense. Basically students are more perceptive as business students than accounting majors. Students didn't understand how making small changes, especially financial, affected the entire business."

The teaching styles of these courses should be problem oriented and activity oriented. Students should do lots of problems but case studies, exercises and activities should complement them. The case studies should be a variety of elements already included in the classes. An instructor should provide a mix of teaching styles to accommodate the variety of learning styles that students have.

The project team asked Professor Banks to describe how he would approach our project if he was given the task. He said that he would do everything possible to engage the students in all material. He would create a project where students would be required to formulate an idea and develop it in to a product. Basically students go through all of the steps required to set up a business of their own. It is also very important to bring outside experts in to give advice to the students. They should almost serve as mentors so that the students could learn about their experiences as entrepreneurs. Entrepreneurs could tell about what made them successful as what barriers they faced. WPI's entrepreneurship program is geared towards engineering students, so it could be used as a reference for the engineering college in Copenhagen. However there are two things that he would change about the program: 1.) There should be an entrepreneurship accounting and financing course where students can also learn how to generate funding for their endeavor and 2.) students should be taught more of how to sell their product or idea. This does not necessarily mean an emphasis should be placed on marketing, but students should be more comfortable with selling their idea to a company as that is where success lies.

8.1.2 Entrepreneur John Esler

Interviewed by: Eileen Kelly, Daniel Martel, Erin Ringer
16 February 2004

John Esler attended the State University of New York at Albany for his undergraduate education. He received a bachelor's degree in business in 1985. He later achieved an MBA from Babson College in 1997. During the twelve years between his undergraduate and graduate education, John participated in a variety of business ventures. The most lucrative of which was his ownership of Subway sandwich shops. Combined the franchises were worth upwards of one million dollars. After attending Babson College John set up Patio Rooms of America; the four locations of this business have a combined worth of about fifty million

dollars. John attributes this increase in success to the confidence, skills and networking he gained at Babson College.

John can trace his interest in entrepreneurship to a particular experience when he was seventeen. At this time, he sold hats a race track and this business grew and expanded during his undergraduate education. It was at this time that he decided he wanted to be a business man; when describing this venture John said “that was a defining and inspiring event in my life.”

When asked whether he believes if it is possible to motivate people to be entrepreneurs through schooling John said that “It’s extremely important to be motivated through academic settings. That’s why every business school in America is looking to be teaching entrepreneurship. The more exposure you have...” the more motivation and inspiration. Based on these thoughts the team discussed with John which college subjects are the most helpful in the work world. John emphasized the importance of the ability to operate computers and to use and understand income and cash flow statements. He describes the income statements, cash flow statements and balance sheets as the “nuts and bolts” of running business. He further mentions that exposure to successful entrepreneurs in the classroom and as resources after graduation is vital to entrepreneurship education. He also brought up presentation skills as helpful in professional settings. The intangible aspects of entrepreneurship education are “confidence, connections and relationships” while the tangible aspects are “how to raise capital, income and marketing.”

Mr. Elser also discussed many education approaches that he knows are successful in entrepreneurship education. These include case studies of professionals/businesses, web learning and the MCFE project. Babson College uses the case study method to educate students through real life accounts of specific entrepreneurship activities or start-up companies. There have been four case studies written about Patio Rooms of America. The internet is a very useful tool in entrepreneurship education. Through the use of “web NR’s” an organization can host a presentation that can be viewed by accessing a particular link on the internet. Questions can be asked of the speaker through chat rooms or by telephone. This is an easy and inexpensive way to expose students to entrepreneurs. John suggested this method for bringing entrepreneurs to the Danish students. In addition, online libraries can be created to store these presentations so that students can access them at a later time. The MCFE Project is a project based learning method used at Babson College wherein five students complete a project for a sponsoring company. Mr. Elser pointed out that this approach is beneficial for students and companies. Alumni can benefit by staying involved with universities by gaining valuable employees and contacts. Business people are flattered if a case study is written on their activities.

An additional educational suggestion John made is to have alumni judge in a business plan contest. This is a way to keep alumni involved and teach students about entrepreneurship.

He also made the point that “Entrepreneurship is not just starting your own business.” Out of approximately 250 MBA students in his graduating class only two started their own company. All entrepreneurs need on the job training and all companies should be looking for employees who have an entrepreneurial mindset. These types of thinkers can make a company more entrepreneurial through unconventional thinking and innovative ideas.

When the Scandinavian welfare model was brought up John pointed out that entrepreneurship is often inspired by recession and unemployment. Perhaps the economy in Denmark’s is not currently conducive to this type of action.

A final topic of discussion was the Small Business Association and its purpose in reducing the risk of banks by guaranteeing loans for entrepreneurs.

8.1.3 IHK Instructor Karin Siegumfeldt

Interviewed by Daniel Martel

19 April 2005

Karin Siegumfeldt is an instructor at the Engineering College of Copenhagen in the Export Engineering Department. At the time of the interview, she was teaching a class titled “International Marketing and Economics.” She also teaches a class called “Supply Team Management” at Aalborg University. The interview was unstructured as the interviewer wanted a couple of topics covered, but did not have any specific questions prepared. There were two main topics covered: case studies, as well as the teaching and learning styles at IHK.

Karin was asked to explain how she obtains the business case studies she uses for her classes. She said that sometimes she will use those provided by the text books she uses for her classes, and sometimes she gets them from universities in Denmark that are able to write them since they have research programs. Mostly, however, she gets case studies from IHK having contact with companies in Denmark. Numerous representatives from different companies typically come to IHK to act as guest lecturers for a course. When instructors talk to these companies, they can get an idea of a problem or situation at a company. Instructors such as her will then write a case study based on the situation that is relevant to the course being taught and present it to the students. This is the most common way to produce a case study for classes at IHK. In her class the students must analyze the cases and then present their findings to the class.

In order to keep students interested in the material being taught, Karin said, the instructor must relate theory and practice or else the course is useless. It is necessary that the material presented be put in a real life context so that students are prepared to use it immediately upon graduation. Students must also be prompted to participate in the class discussion and activities. On entrepreneurship, Karin said that many people are discouraged from starting their own business because they are not educated on the details of accounting and paperwork, etc. She thought that a program at IHK that includes how to deal with the mundane details of business ownership would be very beneficial. She also thinks that an entrepreneurship education would be useful if it followed the typical course structure at IHK, where the material is taught for ten weeks and then the students must engage in a rigorous and thorough project for the remaining of the semester.

8.1.4 HIBAT Instructor Hans Jessen Møller

Interviewed by: Eileen Kelly, Daniel Martel, Erin Ringer

27 April 2005

Hans Jessen Møller is a faculty member at the Herning Institute of Business Administration and Technology (HIBAT) in Herning, Denmark. He was interviewed because HIBAT is known as the institution in Denmark that is best at preparing students to become entrepreneurs.

Most of the discussion was centered on HIBAT’s approach to entrepreneurship education, as the team wanted to get an idea of the philosophies and pedagogical principles in place. Most instructors teach for the assignment, so the activities are practical and useful. He spent a lot of time talking about how it was most important for students to work in teams to complete their assignments. Students should realize that they have certain skills, whether these skills are accounting or mechanical engineering. Students need to be able to know how to pick a team for their entrepreneurship endeavor to cover all disciplines needed to run an

enterprise. He said that business was much like a football team, where different members have separate strengths, but when the right players are put together, a winning team can be formed. With all of the teamwork that is done at HIBAT and in the professional world of an entrepreneur, proper social and psychological skills are imperative. Entrepreneurs must be able to interact with all sorts of people on a regular basis. In general, entrepreneurs don't necessarily have to do all the work themselves if they know how to recruit the proper people with the correct skills to complement their ambition.

HIBAT does an excellent job bringing real life situations and practical applications to their entrepreneurship education. Students should learn by working with the subject in its pure form instead of reading it in a book. Theories are always taught around a project or assignment so students can immediately apply the material instead of just memorizing it. Students are also required to study abroad sometime during their education in order to get even more practical experience.

In terms of a business background, all students are required to learn fundamentals such as financing, budgeting, marketing accounting, etc. Of these, the most important is marketing. Hans spoke often about how a student should have marketing skills related to consumer behavior. Before students go forward with an idea, they need to know it is something that consumers will invest in. Entrepreneurs should also be able to track the consumer market so they can base their innovation on what consumers are demanding. The school also places a heavy emphasis on language and production, and they take pride in the fact that the three disciplines are closely intertwined.

In terms of business support, he believes that the instructors who act as mentors should teach about business regulations, taxes, etc., but it should not be part of the curriculum. Hans believes that there are enough sources where students can find this information themselves. Entrepreneurs and business people from companies should act as advisors and mentors for the students as they complete their projects.

8.1.5 CBS Instructor Doctor Claus Nygaard

Interviewed by: Eileen Kelly, Daniel Martel, Erin Ringer
7 April 2005

Claus Nygaard has a Master of Science in Strategy & Strategic Development and a PhD in Business Administration. He is currently an Associate Professor in economic sociology at the Department of Organization and Industrial Sociology at the Copenhagen Business School. Claus is also a small business consultant outside of his work at the business school.

When asked about what areas his department emphasizes he speaks of innovation as a key area. The Copenhagen Business School also links practice and education. An entrepreneurial division of the school in Jutland is the link between the school and companies. Claus discussed how CBS is attempting to institute a masters degree program in innovation and is currently awaiting the approval of the Ministry of Education.

Other topics discussed included the learning and teaching styles in Denmark. Claus pointed out that schooling in Denmark is held in informal settings wherein the teachers and professors are considered to be equals to their students. Professors teach based on the initiatives of the students and the focus is on learning instead of teaching. Danish schooling is categorized by discussions, meetings and group work. About sixty percent of CBS courses are taught in traditional lecture styles while forty percent are more loose discussion style courses. An example of the use of a case study in a business would be to present the students

with a problem a company is experiencing and ask them to come up with possible solutions in one or two hours of class.

Dr. Nygaard also discussed his opinion regarding what skills are necessary to be an entrepreneur. Copenhagen Business School received the 2004 award for the “Entrepreneurship University of the Year” in Denmark. CBS uses a four-pillar approach. The four pillars are: accounting, finance, organization and marketing. These four pillars are considered to be the business foundation of an entrepreneurial education.

CBS utilizes professionals as mentors in a partnership between education and industry. Companies pay to be partners with the school in exchange for having students to project work for the companies. In addition the companies might find new employees through their partnership with the school. In exchange for these benefits the companies are asked to present information to the students a few times each year. In a human resource management masters program a company mentor meets with a group of students two to three times each semester.

When discussing the depth of business programs for entrepreneurs, Dr. Nygaard emphasized that these programs should be broad. Individuals do not need to specialize in a particular area as long as they are familiar with all of the aspects of running a business.

Finally, he explained a project being done by partners Anders Bordum and Henrik Herlau. Henrik uses a KUBUS model in which students utilize the Internet in courses to discuss topics related to the course. Often, the subject of a subsequent class will have been determined by the nature of the students’ comments prior to that day. Team teaching is also a useful concept because the students get the most complete perspective of a topic.

8.1.6 IHK Student Allan Larsen

Interviewed by: Eileen Kelly, Daniel Martel and Erin Ringer

19 April 2005

Allan Larsen explained that his interest in entrepreneurship comes from his father who is an entrepreneur. His father is a Dane who enjoys working in his own interest. Allan is an eighth semester Export Engineering student.

When asked to discuss classes at IHK he explained that the emphasis is on the practical because it is an engineering college. Classes are often discussion style and students complete many problem solving type projects. In addition, he explained that the Export Engineering Department recently changed its semester style to its current style of 10 weeks class, 5 weeks project work and then exams on theory.

Like most people we talked to, Allan believes he should know the basics of mathematics, economics and computer technology to attempt an entrepreneurial endeavor. The most helpful class he has taken at IHK is a product development course offered by the Mechanical Engineering Department.

When the project team brought up the idea of offering an elective introductory course in entrepreneurship, Allan stated that students of all engineering disciplines should take such a course. In this way they would be at least familiar with business terms and procedures should they ever find themselves in a business situation or want to profit from an innovative idea. Despite not being required to take as many language courses as export engineers, Allan asserted that other engineering students could be successful in a course taught in English, as any export engineering course would be.

Allan was positive about the ideas of guest lecturers and mentors in entrepreneurship courses. He pointed out that “seminar weeks” take place in IHK courses already, but that these could be more geared at entrepreneurship. The team also asked him if he thought IHK

students would dislike completing a project concurrently with coursework instead of separately. He explained that an ongoing project is a good idea because students tend to lose track of large projects that they aren't actively working on throughout a course.

8.1.7 IHK Student Jeppe Skou Petersen

Interviewed by: Eileen Kelly, Daniel Martel and Erin Ringer
15 April 2005

Initially Eileen explained to Jeppe, an Eighth Semester Export Engineering student, the goals of our project and how his thoughts and ideas are helpful to us. Jeppe discussed typical courses and projects done at IHK. He explained that many projects required are interdisciplinary and that most students complete a project like a business plan. This project includes profit projections and market forecasts. Professionals come in and critique projects for feasibility.

When asked what information and skills Jeppe thought he would need to start his own business he mentioned funding, patenting and sustainable marketing. These skills he was best introduced to by the "business models" he saw on his Engineering Traineeship. He pointed out that IHK does not teach "business models" and that his traineeship was rather unique so most students would not encounter them on their traineeships. These models would be very helpful in preparing students to be entrepreneurs, in his opinion. They included industry and market analysis.

With respect to his undergraduate education at IHK, Jeppe indicated that he felt he wasn't learning nearly enough to start his own venture. Many of the practicalities of starting a business are not addressed at IHK, such as where you apply for funding. The students are also not confident in their ability. In contrast, Jeppe indicated that entrepreneurship education is indeed important for engineering students. Many of the engineering students at IHK (outside of the Export Engineering department) are ignorant of basic business skills such as marketing.

IHK already has external professionals visit for guest lectures and so guest lectures geared at teaching entrepreneurship would be well received and useful. Entrepreneurs as mentors to students are also a helpful idea. He commented that they would be useful in guiding students as to where to focus their energy and how to prioritize when writing an in-depth business plan.

Jeppe discussed the Danish mentality with relevance to entrepreneurship. The Jante Law is still a force in Danish society. Due to this law the Danes should not try to be more successful. At the same time, if they try and fail, people won't say, "he tried," they will say, "he failed."

8.1.8 IHK Student Mette Aabye Sørensen

Interviewed by: Eileen Kelly, Daniel Martel and Erin Ringer
26 April 2005

Mette is a fourth semester Export Engineering student who is very interested in entrepreneurship. She envisions being her own boss within a small group of people in a start up. At first there would be little income but being her own boss would be worth the efforts. Lectures, small groups for projects and discussions are the primary elements of IHK's class structure. She feels that to start her own business she would need to learn more about "legislation," economics and finance. IHK courses have offered some knowledge about

economics and accounting. A product development course is particularly helpful because the students are required to consider how they would produce and sell their product.

When asked if entrepreneurship education is important for all engineering students, Mette gave her opinion that it is only necessary if you desire to start your own company. Many people are satisfied to work within an existing company.

Real world experiences would be the most helpful to aspiring entrepreneurs. Guest lecturers and professional mentors would be a positive addition to IHK's programs. Mette pointed out that many teachers have been teaching for years or decades and are not in touch with the business world in their every day lives.

8.1.9 IHK Student Owen Murtagh

Interviewed by: Eileen Kelly, Daniel Martel and Erin Ringer
15 April 2005

An international student studying for one year at IHK, Owen Murtagh, is completing a thesis that compares state agencies that support entrepreneurship in Ireland and Denmark. He comes to Denmark from Oundalk Institute for Technology. Owen compared the teaching styles of Ireland and Denmark and pointed out that the Danish classes are very relaxed. Instead of reading an assignment, groups of students are assigned a certain section of a chapter to present on. In this way students absorb more material than if they simply read a chapter from a textbook.

In order to start a business, Owen would want to know the basics of running a business such as accounting, marketing, how to secure funding and understanding how long it can take to profit. Of the courses he has taken in two semesters at IHK, there was very little that would prepare him for a new business venture. Although he took marketing, this marketing class focuses on exports rather than new venture marketing. Overall he did not feel that his undergraduate education made him feel prepared to start a business.

Owen believes that entrepreneurship education is important not only for engineering students but for all undergraduate education. In the case of engineers it is important for them to have entrepreneurial knowledge so that they don't lose the opportunity to benefit from their innovative ideas. At the university he attends in Ireland all first year students are required to take a course in entrepreneurship.

Finally, Owen discussed ideas the project team will recommend to IHK. The university already has professionals visit their classes. In the cross culture marketing course business men and woman from large companies speak to students during "seminar weeks." These discussions are not geared at entrepreneurship, but similar seminars could be arranged. In addition, Owen explained that the idea of having mentors for the students in entrepreneurship courses is a good one because it is successful at the university he attends in Ireland.

8.2 Appendix B – List of American College / University Programs Researched

Assumption College
Babson College
Carnegie Mellon University
Clark University
Columbia University
DePaul University
Louisiana State University
Massachusetts Institute of Technology
Northeastern University
Ohio State University
Penn State University
Rensselaer Polytechnic Institute
Syracuse University
University of Arizona
University of Indiana
University of Iowa
University of Maryland at College Park
University of North Carolina at Chapel Hill
University of Notre Dame
Xavier University
Worcester Polytechnic Institute

8.3 Appendix C – Babson College Case Study: John Esler's *Patio Rooms of America*

Patio Rooms of America

Babson Professor William Bygrave, Case Director
Dan D'Heilly, Case Writer

Arthur M. Blank Center for Entrepreneurship
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Abstract:

Six months after becoming the Boston area dealer for the manufacturer of BetterLiving Patio Rooms, the founder, John Esler, is anxious to expand his territorial rights. Convinced that his product is highly marketable and that he has the management aptitude to rapidly grow the business beyond the Boston area, John is frustrated by the manufacturer's rejection of his request to enlarge his territory.

Patio rooms are highly desired home additions, particularly in areas that are "bug infested" such as the Northeast. Demand for this product is increasing as aging baby-boomers spend more time at home and have the income to support home improvement projects. However, the manufacturer of these pre-constructed patio rooms has a hard earned reputation for producing quality products and is reluctant to jeopardize this reputation by expanding too quickly with dealers who are still new to the industry.

Location of the company: Northboro, Massachusetts

Years spanned by the case: 1997 through 1998

Industry segments: Construction

Stage of the company: Start-up

Age of the entrepreneurs: Mid 30's

Key Words: Entrepreneurship, construction, dealer, marketing, baby-boomers

Video

A 35-minute video is available for this case. One of the principals from the case, John Esler, answers questions in a Babson class. Please place video orders through the Arthur M. Blank Center for Entrepreneurship.

Teaching Notes

A case teaching package, written by Bill Bygrave, is available for this case and will be included with a complimentary copy of any or all of the cases. The teaching package includes strategies for case presentation, key concepts, solutions to the assignment questions in the case, and suggestions for the most effective ways to work this case into a course.

Please order this case through
European Case Clearing House (ECCH)



For more information, please contact:
Gail Daniels, Blank Center Teaching Case Manager at danielsg@babson.edu

Babson College
Babson Park, MA 02457
Phone: 781-235-1200

8.4 Appendix D – Program Description: Carnegie Mellon University

Carnegie Mellon WEST COAST CAMPUS
Course: Innovation and Entrepreneurship
January 2005

Syllabus

The next five pages outline the session descriptions, reading suggestions and assignments for the 16 week course. The course was designed to incorporate material from 'Technology Ventures: From Idea to Enterprise' and other free media (e.g. videos and slidedecks) from the Stanford Technology Ventures Program Educators' Corner.

The chapters in the textbook assigned as reading do not always map directly to each session's material. Students finish most reading and preparatory material in the first half of the course as the second half of the course is mostly dedicated to the team project.

The **Opportunity Analysis Project** is a twelve-week long team project where students investigate an entrepreneurial opportunity, keeping in mind the distinctions between an 'idea' and an 'opportunity'. Teams analyze, thoroughly illustrate and document a pressing market need that has the potential to be solved with a high-technology product or service.

This course introduces the fundamentals of 'technology entrepreneurship', a recent global phenomenon that has driven vital changes in society by empowering individuals to seek opportunity in technological and business solutions when presented with what others see as insurmountable problems. Technology entrepreneurship, whether in a start-up or established company, is a spirited approach to business leadership that involves Identifying high-potential, technology-intensive commercial opportunities, gathering resources such as talent and capital, and managing rapid growth and significant risks using principled decision-making skills.

Through a collection of case studies, lectures, guest speakers, workshops and projects that cover high-growth ventures in information technology, electronics and other industries, this course provides the student with the tools necessary to successfully identify a true business opportunity, and to start and grow a technology enterprise.

We will cover material organized in five modules over the sixteen weeks:

- A. The Entrepreneurial Perspective
- B. Opportunity Recognition & Evaluation
- C. Gathering Resources
- D. Managing Ventures
- E. Entrepreneurship and You

With this material we will build on seven critical skills for entrepreneurial leaders

Creativity and Opportunity Evaluation
Real-time strategy and decision making
Comfort with change and chaos
Teamwork
Evangelism, selling, negotiation and motivation through influence and persuasion
Oral and written communication
Basics of start-up finance and accounting

8.5 Appendix E– Program Description: University of North Carolina

Carolina Entrepreneurial Initiative

Taking Entrepreneurship at Carolina to New Heights

A profound act of entrepreneurship established the nation's first public university at Chapel Hill in the late 1700s. Over the following 200-plus years, that same spirit created one of the world's premier universities and a model for innovation in teaching, research, service, business incubation and societal advancement.

In the 1890s, research conducted in UNC's chemistry department by an undergraduate (William Rand Kenan Jr.), an alumnus (John Motley Morehead III) and their professor (Francis Preston Venable) led to the discovery of calcium carbide and to the eventual formation of the Union Carbide Co.

In the 1950s, Carolina joined with North Carolina State and Duke universities to create Research Triangle Park – a center of innovation to help North Carolina diversify its economy from traditional staples, like textiles and tobacco.

As we begin the 21st century, we find Carolina alumni, faculty and students catalyzing and growing some of the nation's most prominent business and nonprofit enterprises.

Yet for all its innovation and the successes of its students, faculty and alumni, powerful forces have converged to create new challenges and opportunities for the University's role in society. Mounting expectations for the University's direct participation in stimulating state and local economic development and calls for fresh, sustainable approaches to alleviate social ills are prompting UNC's faculty and leaders to rethink both their roles and their approaches to meet pressing external needs.

Consider the impact Carolina could have if it instilled in all of its students the knowledge and skills to transform their ideas into successful enterprises, whether a viable jobs-producing business or a nonprofit that meets a community need. How might we help our chemists, historians and artists turn their ideas into tangible ventures that benefit the greatest number of people? How far could we extend the University's reach and impact if faculty and administrators applied the principles of entrepreneurship to the delivery and sustainability of higher education?

UNC stands again on the brink of discovery and innovation – seeking to create a culture and climate of entrepreneurship among faculty, staff and students that will help them achieve their goals – commercial, social, artistic and educational – and create a truly entrepreneurial university.

“Higher education can play a critical role in preparing our increasingly diverse society for the new world economy, but only if it transforms itself into a more nimble, entrepreneurial and catalytic agent for change.”

Dr. James H. Johnson Jr.
William Rand Kenan Jr.,
Distinguished Professor of
Entrepreneurship
University Day Remarks
October 12, 2004

The Opportunity for Impact

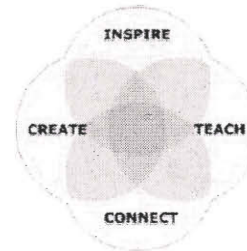
UNC has embarked on a bold new endeavor – the Carolina Entrepreneurial Initiative (CEI) – to ignite and focus the creative energy and entrepreneurial spirit of UNC’s students, faculty and alumni.

CEI aims to inspire, teach and connect students, faculty and alumni in ways that enable them to transform their ideas into enterprises that create value – commercial, social, artistic and educational – and are sustainable.

Through the CEI, the University seeks to enhance the educational experience to help students, faculty and administrators become more innovative, more open to risk, more results-oriented and more tangibly connected to business and society. In this way, the University community can have greater impact on the state, nation and world.

CEI is unique in both its vision and scope in that it:

- Defines entrepreneurship broadly to include not only commercial but also societal, artistic and educational enterprises and activities.
- Combines theory and practical experience in every program and activity through partnerships between academics and entrepreneurs.
- Focuses on the entire University community with initiatives aimed at impacting teaching and learning campus-wide.



If successful, UNC can expect significant impact through:

- Students who have the knowledge and skills to approach life entrepreneurially, who are capable of developing innovative, sustainable approaches to societal challenges and commercial ventures.
 - Faculty armed with new ways to support their creativity and academic ventures, enhance their teaching and the student experience, and deliver entrepreneurial knowledge and skills to students.
 - A University community that leads the way in higher education by pioneering new, entrepreneurial models for teaching, thought leadership and service to the state, nation and world.
- The Carolina Entrepreneurial Initiative seeks to:
- Inspire students to imagine possibilities.
 - Teach them how to turn their ideas into reality.
 - Connect them with mentors and academic experts with real-world experience.
 - Create new enterprises, knowledge and attitudes among students, faculty, and staff.

The Assets to Succeed

UNC’s recent ranking as the nation’s No. 1 entrepreneurial campus (Forbes.com and *The Princeton Review*, October 2004) affirms the University’s capabilities and potential for achieving these ambitious goals. The University brings significant assets to the Carolina Entrepreneurial Initiative.

Entrepreneurial Programs -- The University offers a wide array of entrepreneurial programs and activities for undergraduates, graduates, alumni and business people through the College of Arts and Sciences and the Kenan-Flagler Business School, with its Center for Entrepreneurial Studies. Among them:

- A minor in entrepreneurship for undergraduates in the liberal arts, a concentration for undergraduates in business, and a major/concentration in entrepreneurship for MBA students enrolled in the business school.
- Internships, practica and mentoring programs that connect students with businesses and nonprofits to exchange knowledge, expertise and experience for mutual gain.
- Student clubs focused on entrepreneurship, technology, entrepreneurial law and venture capital creation that host a wide range of events, speakers, competitions and service projects.
- The nation's premier entrepreneurship competition, the Venture Capital Investment Competition™, linking students, entrepreneurs and venture capitalists in competitions focused on real-world ventures.

Foundation Seed Funding – In 2004, UNC was one of eight universities selected nationwide by The Ewing Marion Kauffman Foundation for a multi-million-dollar grant establishing entrepreneurship education and entrepreneurial activities across the entire campus. UNC is using its grant to create the CEI with that purpose in mind.

Connected Leadership – The Kenan-Flagler Business School's Frank Hawkins Kenan Institute of Private Enterprise, which directs the CEI, has fostered innovation and collaboration among academia, government, business and civil society worldwide for nearly 20 years. Its longstanding ties to the entrepreneurial community ensure ready access to the real-world experiences needed to guarantee the CEI's success.

Faculty and Alumni Participation – Faculty from across the University create and direct CEI programs, including an undergraduate minor, first year seminars, research opportunities and faculty fellowships offered through the College of Arts and Sciences. A new University Entrepreneur in Residence brings to CEI the knowledge, experience and passion of a successful entrepreneur. He collaborates with faculty, administrators, students and alumni to advance this new venture.

Further, the CEI offers practitioners and scholars in every field of endeavor the opportunity to pair discovery with practical experience to create knowledge and enterprises of value. The initiative offers a wide and growing list of programs for students, faculty, staff and alumni:

- A minor in entrepreneurship offered by the Department of Economics gives non-business students basic content and tools to transform their ideas into viable enterprises.
- First Year Seminars in Entrepreneurship for UNC freshmen provide intensive interaction with faculty and a project-based format to delve deeply into selected entrepreneurship topics.
- Undergraduate research stipends allow students to move beyond discovery through projects that produce products and services with real and lasting value.

- Faculty fellowships provide semester-long leaves for professors to pursue entrepreneurship research, course development and entrepreneurial projects.
- The Carolina Seminar in Entrepreneurship provides a forum for faculty across UNC to explore the place of entrepreneurship in higher education today.
- Research seminars bring national scholars to UNC to discuss their latest research related to entrepreneurship across all disciplines.
- The Launch Program helps faculty and staff develop business plans and acquire the skills they need to launch new ventures of all kinds.
- The Carolina Challenge offers teams of UNC faculty, staff and students the chance to compete for prize money while gaining help developing their commercial and social ideas and their entrepreneurial skills.
- The CEI Speaker Series provides the entire University community access to successful entrepreneurs and scholars to inspire and advise their entrepreneurial endeavors.
- An Innovations Fund awards annual grants to faculty who develop new CEI programs.
- An evaluation program continuously monitors results and impact to ensure CEI remains relevant and effective.

Innovative Community – UNC's proximity and close ties to the world-renowned Research Triangle Park offers students and faculty opportunities to immerse themselves in one of the world's hotbeds of innovation.

Private Investment: The Key to Enterprise Creation

Successful enterprises require investment from those with the vision and passion to create them. UNC envisions a new type of educational enterprise – one with a permanent foundation of faculty expertise, educational opportunities for students, and engagement with the wider entrepreneurial community.

Private investment is critical to transform the *idea* of an entrepreneurial university into a real and viable *enterprise*.

Join in the experience by providing your support as we take entrepreneurship at Carolina to new heights.

Funding Opportunities

UNC seeks private support in four critical areas to expand the culture of entrepreneurship across campus.

Student Support – Students today face a world of change. Those who learn to manage change, risk and new ideas can shape the world for the better. UNC seeks to expand programs and activities within and outside the University that offer students practical experiences to help them become entrepreneurial and innovative in their endeavors. Opportunities for support include:

- **Undergraduate and Graduate Research** – funding to cover the costs of student travel and other expenses related to research for entrepreneurial projects.
- **Internships and Mentorships** – funding to enable students to spend several weeks during the summer in experiential learning working with established entrepreneurs.
- **First Year Seminars** – funding to create new faculty positions that allow the College to expand first year seminars, which introduce students to the intellectual life of the University and focus on how senior faculty pose problems, discover truths, resolve controversies and evaluate knowledge.

Faculty Support – A creative, entrepreneurial faculty is the heart of the entrepreneurial university. UNC seeks to support thought leadership and innovation among its faculty. Fellowships and grants empower professors to examine and expand CEI programs and the impact of entrepreneurial behavior on their teaching, research and discipline. Opportunities for support include:

- **Professorships and Fellowships** – funding for new faculty and fellowships for outstanding current faculty who further the mission of the CEI.
- **Teaching and Research** — funding for course development awards and course endowments, and for grants to cover costs of scholarly research in entrepreneurship.
- **Entrepreneurs in Residence** – funding for residencies by commercial, social, artistic and educational entrepreneurs who work closely with students, faculty and staff involved in CEI programs.

Strategic Investments and Program Development – UNC embraces its mission to provide service to the state and the world beyond. That includes its role and responsibility in creating jobs, new businesses and a prosperous future for North Carolina. UNC also seeks to support economic and community development by helping its students and faculty transform their discoveries and ideas into enterprises that have societal value and are sustainable. These initiatives will necessarily require CEI programming to change and grow as new needs are identified and innovative ideas to meet those needs are developed. Funding opportunities include:

- **Enterprise Venturing** — funding to enable faculty and students to turn entrepreneurial ideas into sustainable enterprises.
- **Program Innovation** — funding to enable the University to leverage the creativity of its students and faculty, and pursue new initiatives that invigorate and strengthen entrepreneurship at Carolina.
- **International Experiences** – funding for students, faculty and staff to pursue entrepreneurial experiences outside of the United States.
- **Carolina Challenge** – funding for the University's annual entrepreneurial business plan competition. The student-led competition, open to all students, faculty and

staff, provides guidance, tactical support and tangible incentives to help them develop plans for enterprises with commercial and social value.

- **CEI Speaker Series** – funding to bring to UNC leading practitioners and scholars to interact with faculty, staff and students.

For information on funding opportunities for the Carolina Entrepreneurial Initiative, contact:

The Arts and Sciences Foundation
Campus Box 6115
134 East Franklin Street
Chapel Hill, NC 27599-6115
(919) 962-0108

Kenan-Flagler Business School
Office of Alumni Relations and
Development
Campus Box 3490
McColl Building
Chapel Hill, NC 27599-3490
(919) 962-9252

8.6 Appendix F – Program Description: Assumption College

Entrepreneurship & Small Business Management:

A Toolkit for Getting Started and Succeeding in Your Own Business

Thinking about starting your own business? Maximize your chances for success at Assumption College, and learn from an expert in business matters!

This affordable five-session workshop is just what you need. You'll learn what it takes to start a small business and be an entrepreneur. You will also learn how to create a business plan, how to find the money you need to get started, how to determine your staffing needs and understand your obligations as an employer, and how to market your business to reach your audience.

Seminar Topics:

Session I: So You Want to Have Your Own Business?

- Is it Right For You?
- When is a Good Time to Begin?
- Which Organizational Structure is Best?
- Start Your Own? Acquire an Existing Business? Opt for a Franchise?
- Getting Started!

Session II: Planning, Planning, Planning

- The Business Plan
- The Finance Plan
- The Marketing Plan
- Total Quality Management

Session III: Money Matters

- Budgeting
- Accounting Systems and Controls
- Funding Sources
- Expenses, Costs, Taxes

Session IV: Getting the Word Out

- Marketing
- Selling
- Advertising
- Promoting

Session V: Essentials to Remember

- Legal Considerations
- Human Relations/Personnel Management
- Information Technology
- Business Ethics & Social Responsibility

What Students Are Saying About *Entrepreneurship & Small Business Management*:

"...a helpful tool to get started. I was given what I needed to begin building a foundation with the hope to start my own business."

"Excellent presentation, well prepared and professional."

"I don't think anyone felt their dreams were too small to go after. The course inspired me to continue my effort toward small business ownership."

Instructor:

Mark L. Love, CPA, MBA, has over thirty years combined experience as a small business owner, partner, and corporate executive in the capacity of a financial manager, certified public accountant, teacher, advisor, and entrepreneur.



Course Information:

Entrepreneurship & Small Business Management (5 sessions)

Dates: Wednesdays, 1/26/05 - 2/23/05
Time: 6:00 - 9:00 pm
Tuition: \$275 - \$5 registration fee

Registration Information:

By Phone: 508.767.7364 *
By Fax: 508.767.7053 *
In Person: La Maison Française, M205
By Mail: Corporate Education Center
Assumption College
500 Salisbury Street
Worcester, MA 01609

* MasterCard, Visa, & Discover

Confirmation of Registration:

Upon receipt of your registration, we will provide directions to the campus, parking information, campus map, and classroom assignment.

Certificates & CEUs:

Registered students who attend all of the seminar sessions will receive a certificate of completion and 1.5 Continuing Education Units (CEUs).

Refunds:

A full refund is available for students who notify the Corporate Education Center at least 48 hours prior to the start of the seminar of their wish to withdraw. No refund is available after that time.

www.assumption.edu/ce

8.7 Appendix G – Program Description: National University of Ireland, Maynooth



National University of Ireland Maynooth Office of Research & Graduate Studies

T3 is a new research innovation initiative

Through the programme, research ideas developed at the university will draw from the essential commercial, government and industrial inputs that are required for the commercialisation of research ideas.

The **T3** programme, through the NUI Maynooth Campus Enterprise Board and the Research & Graduate Studies Office, will provide advice and assistance in bringing commercially viable research to fruition.

The NUI Maynooth Campus Enterprise Board is comprised of representatives from government funding agencies, commercial investors and industry. These three crucial elements - government agencies, investors and industry - working in cooperation with NUI Maynooth, provide the inspiration and foundation for **T3**.

T3's Vision

To maximise the flow of commercially viable research from the university to the industrial arena

T3's Goals & Objectives

- To create an entrepreneurial culture on campus
- To maximise the commercial potential of university research
- To convert that potential into products and services

T3 guarantees

- Rapid response
- Rigorous follow-up
- Arranged packages
- Complete confidentiality

Target Areas

- Bioinformatics
- Disease prevention & treatment
- Electronics

T3 provides the NUI Maynooth Researcher with Entrepreneurship support

- Entrepreneurship courses
- Seminars presented by industry and investors

- A presidential prize for the best innovative ideas

Help with patenting

- Regular approvals by patent committee
- Minimum delay for research publications
- Assistance with filing
- Assistance with sourcing licensees

Help with business start-ups

- Assistance in securing funding
- Organising relevant documentation
- Providing negotiated rates with solicitors and accountants
- Use of university facilities for campus-based companies

Facilitating the licensing process

- Assistance with locating industrial partners
- Assistance with negotiating industrial contracts
- Preparing documentation, such as licensing, IP and confidentiality agreements

T3 provides industry with

- Help with identifying research partners
- Ensuring cooperation and collaboration
- Ensuring adherence to agreed time frames
- Securing realistic terms

T3 provides commercial investors with

- University start-ups with secure commercial licenses
- Integrated commercial/technical teams
- Ideas with strong market potential
- Minimal bureaucracy

T3 provides government agencies with

- Productive use of public funds
- Accountability in the use of funds
- Economic returns for public investments
- Regional growth potential

For further information on T3

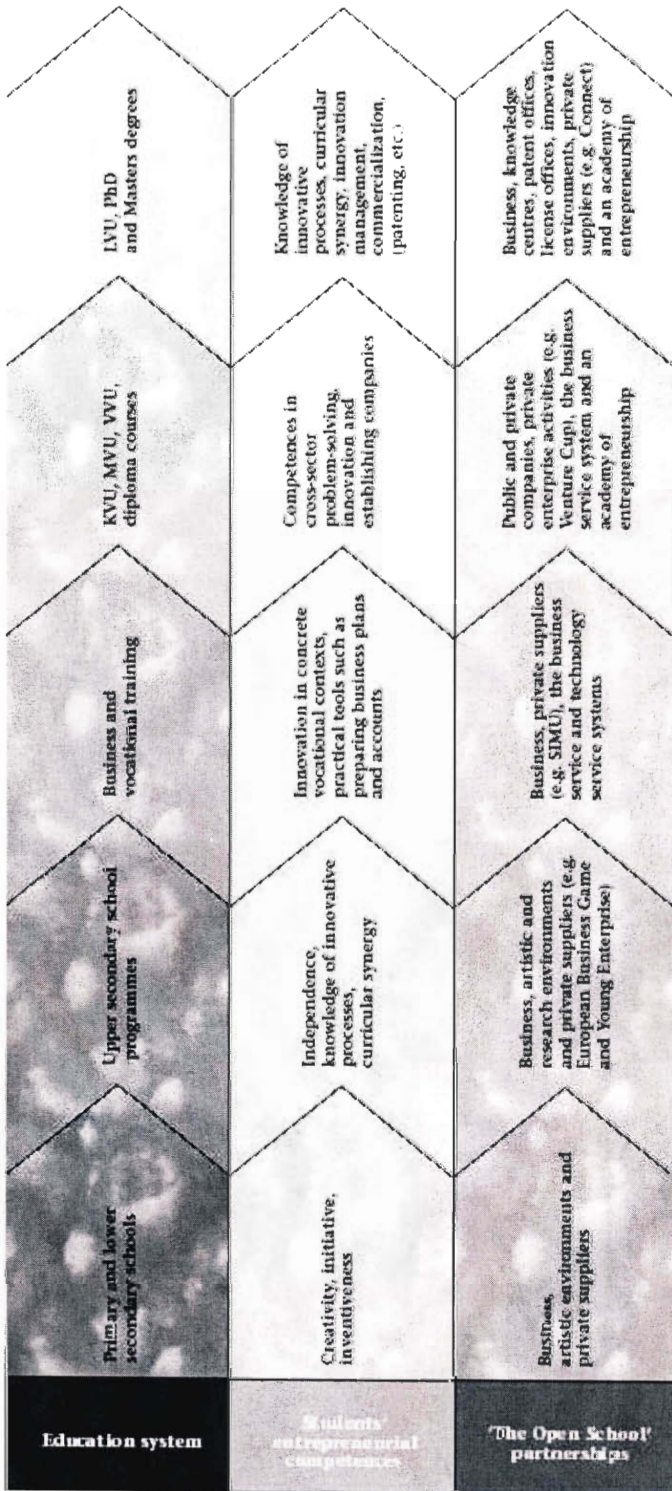
www.may.ie/research
Technology Transfer Office
Tel: +353 1 708 6018
Fax: + 353 1 708 3559

8.8 Appendix H – The Six Common Goals for *The Enterprise Decade Project* in Finland

1. To further enhance a positive attitude toward entrepreneurship.
2. To commit education to promote entrepreneurship.
3. To improve the rewards for entrepreneurship in the society.
4. To raise more active and enterprising generations in the future.
5. To coordinate existing programs and to help them to become more effective.
6. To fight unemployment with entrepreneurship.

(Erkkila 147)

8.9 Appendix I – The Entrepreneurship Chain, Danish Action Plan for Entrepreneurship



8.10 Appendix J – Questionnaire Distributed to IHK Students

Entrepreneurship Survey

11. What is your gender?
12. What is your field of study?
13. What semester are you?
14. Are you familiar with the term “entrepreneurship”?
15. Do you know anyone who you consider to be an entrepreneur?
16. Have you ever taken any courses related to business or management?
If yes, please list courses:
17. Are you interested in taking such courses?
18. Do you view entrepreneurs in a positive way?
19. Do you feel that entrepreneurship education could be beneficial to IHK students?
20. Would you be interested in participating in a focus group?

Please give your email address or contact information: