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Entrepreneurship Education Among Students in Higher Education

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Abstract

Encouraging the enterprise spirit is a key to creating jobs and improving competitiveness and economic growth throughout Europe. This is particularly important among students in higher educational institutes such as in universities and polytechnics preparing young people to contribute to the development of a knowledge-based society. The study reported in this paper is a part of the first ware of a 14 country International Survey on Collegiate Entrepreneurship (ISCE) respectively GUESSS (Global University Entrepreneurial Spirit Students' Survey) conducted in 2006. The main results of the Finnish study (N = 1,566) are presented and further discussed in the entrepreneurship education policy context. It appeared that in spite of well developed entrepreneurship policy and the National Curriculum recognising and advocating entrepreneurship education and training throughout the educational system, the progress toward a more entrepreneurial society has been only modest over the past 15-20 years and the figures describing entrepreneurial intentions and activities in Finland are below international averages. The good news is, however, that the ISCE/GUESSS study demonstrates entrepreneurial potential among university and polytechnic students to be clearly higher than the proportion of current entrepreneurial population in Finland. This challenges education and teaching in institutes of higher learning to maintain the positive trend.

Keywords

Entrepreneurship education, ISCE, GUESSS, entrepreneurial intention, entrepreneurial activity, hurdles, obstacles, business start-up

Introduction

Entrepreneurship and entrepreneurship training and education have become topics that have encouraged an increasing number of researchers to explore them from various perspectives and with various aims in mind. An emerging key question in studies conducted in this area is what specifically makes a person, region or society, entrepreneurial, or what type of specific conditions need to drive or restrain the development of entrepreneurial potential and activities.

There is a good number of dimensions to the development of entrepreneurship education at university and polytechnic level such as drawing up new course descriptions or revising the mix of course subject portfolio in a smaller or larger scale. It is obvious, however, that development should call for much more than just taking a look at the specific course content. This is due to the exogenous conditions for the role of the institutes of higher learning in the so called knowledge economy, and in particular how to interpret these conditions and upcoming contextual challenges for the future of entrepreneurship teaching and education, and how to evaluate their impact on internal structures and processes (Blenker et al., 2006).

Education has also considered as a lever for entrepreneurship culture. In former times the "entrepreneurship culture" was probably able to unfold in a more natural way, as Blenker et al. have noted (2006). This is because one generation taking over from the previous one in farming and artisan trades meant that those who started their own businesses often had a relevant trade or commercial background, and not least, often had fathers who were self-employed businessmen. The decrease in the number of firms and the increase in the number of youngsters enrolling in higher education have led to more and more voices, both in the education system in general and in particular at hird level education, demanding contact with the "society it is part of" to be re-established. The Green paper – Entrepreneurship in Europe (2003) looking into this issue formulates the challenge as follows:

"How can education support the development of awareness and skills necessary for developing an entrepreneurial mindset and skills (entrepreneurship training as a part of a school's curriculum, getting entrepreneurs into the classroom, apprenticeships

for students to work with experienced entrepreneurs, more entrepreneurial training in universities, more MBA programmes, matching entrepreneurial training with public research programmes)?"

The answers and recommendations welcoming further discussion are:

"As already discussed in the main part of this opinion, an entrepreneurial mindset cannot be taught, but can be stimulated. Currently, too few younger people consider starting and running their own business as a realistic and appealing career option. More young people need to be exposed to the concept of entrepreneurship from an early age. There is also needs to be greater concentration on entrepreneurship in teaching later in the education process. This should ¨be cross-cut traditional academic disciplines rather than merely circumscribed to business studies. The potential for people to become entrepreneurs later in life should also be encouraged."

There is an interesting recommendation in this paper to look into whether the traditional university set-up in itself constitutes a barrier, as the quote above advocates developments towards inter-disciplinarity beyond the general business subjects. It is also pointed out that teaching entrepreneurship belongs in the portfolio of life-long learning. Furthermore,
the remark recommends that teaching entrepreneurship should be extended to other disciplines than business subjects and business schools. Statements to this effect have been made very clearly by Alan Gibb (2002), who noted on the same basis that entrepreneurship education is most effectively placed in centres that do not have too strong formalised ties with business schools and that in general education in this field is best left without too much formalisation.

This challenge should be targeted to educational institutes in general, and higher education in particular. The main reason for this is simply that a good number of new ideas, technologies, and therefore products and services tend to emerge within innovative context such as in polytechnics and universities. As a result, a strand of research has developed under the umbrella of 'Academic Entrepreneurship', which explicitly aims to examine the significance, processes, structures, as well as motivations, of starting up a new venture (Shane, 2004). The thing is, however, that the US seems to be clearly ahead of their European counterparts in this particular field.

Shane gives a good number of reasons why for example university spin-offs matter although they still are rare entities and they are also small in comparison to the level of other entrepreneurial activity taking place at universities. Nonetheless, university spin-offs are quite important and valuable in at least five ways (Shane, 2004): they enhance local economic development; they are useful for commercialising university technologies; they help universities with their missions of research and teaching; they are disproportionately high performing companies; and they tend to generate more

income for universities than licensing to established companies.

From educational point of view, university spin-offs can help universities in their primary missions of scholarly teaching and research. This can be accomplished in three fundamental ways: by providing financial support for university research, by enhancing to attract and retain faculty and by facilitating the training of students. Interaction with university spin-offs helps faculty with knowledge about starting enterprises that is useful in educating students for a world in which entrepreneurial activity is becoming increasingly common among scientifically trained people.

In particular, spin-off companies may help faculty and staff to learn about commercial uses of new technology, rather than just scholarly uses for academic inventions. A majority of students are more likely to work in the private sector than to become university teachers or researchers, making academic researchers cognizant of the commercial uses for new technology is important in training students to understand the practical value of research (Etzkowitz, 2003). This plays a special role in many fields of engineering and science where assigning students to work on more commercial aspects of technology development offers them career opportunities that they otherwise would not have.

The International Survey of Collegiate Entrepreneurship Project (ISCE/GUESSS)

Entrepreneurship has been examined from various perspectives by an increasing number of scholars with various aims in mind. In addition to growing number of theoretical and conceptual studies, there is also an ever increasing amount of empirical studies dealing with a wide diversity of topics. One of the key questions has been what specifically makes a person, region or economy entrepreneurial. Thus, it is natural that educational institutes have been challenged to explore their impact on the development of more enterprising and entrepreneurial generation.

This question has been targeted to educational institutions in general and to higher education in particular. The simple reason is that new knowledge creation has become a competitive factor and new ideas, technologies, and therefore products and services emerge predominantly within innovative context.

A good number of research involve valuable individual studies. The disadvantage of such research has been, however, that it does not allow much for comparison, due to wide variety of research questions and methods used. It is for this reason that the 'International Survey on Collegiate Entrepreneurship (ISCE/GUESSS) research project was established.

ISCE/GUESSS is a joint international research project covering 14 countries in

various parts of the world (Appendix 1). The first objective of this study conducted for the third time in 2006 was to make a comparison of the entrepreneurial potential of students at international level. The second, middle to long term objective of the ISCE/ GUESSS project is to make a comparison at regular intervals of changes in relation to entrepreneurial potential on the one hand, as well as the general conditions at universities on the other, which is why the survey is aimed to be aspects of entrepreneurship can be examined in a more in-depth manner, thereby creating opportunities for further development (Fueglistaller et al., 2006)

Appendix 1

Countries involved in the ISCE/GUESSS 2006 Study

Country	Institute	Partner
Switzerland	Swiss Research Institute of Small Business and Entrepreneurship at the University of St. Gallen	Prof. Dr. Urs Fueglistaller
Germany	KfW-Endowed Chair for Entrepreneurship at European Business Schools (ebs)	Prof. Dr. Heinz Klandt
Austria	Institut für Unternehmensgründung und Unternehmensentwicklung an der Johannes Keppler Universität Linz	Prof. Dr. Norbert Kailer
France	UPR Stratégie et Organisation, EM Lyon	Prof. Dr. Alain Fayoll
Belgium	Vlerick Leuven Gent Management School, Gent	Prof. Dr. Hans Crijns
Liechtenstein	Swiss Research Institute of Small Business and Entrepreneurship at the University of St. Gallen (KMU-HSG)	Prof. Dr. Urs Fueglistaller
Ireland	Department of Management and Marketing, University of Limerick	Dr. Naomi Birdthistle
Finland	Tampere University of Technology, Industrial Management	Prof. Dr. Asko Miettinen
Norway	Department of Strategy and Management, Norwegian School of Economics and Business Administration	Prof. Dr. Tor Aase Johannessen
Hungary	University of Pecs, Faculty of Business and Economics	Ass. Prof. Lazlo Szerb
New Zealand	University of Otago/Department of Marketing	Dr. Jürgen Gnoth
Australia	Murdoch University/Murdoch Business School	Prof. Dr. Brian Gibson
South Africa	North-West University	Prof. Dr. Deon J. De Klerk
Singapore	Lee Kong China School of Business, Singapore Management University	Prof. Dr. Wee-Liang Tan

Research problem

Entrepreneurship is a way of thinking and acting, a way of considering that emphasises opportunities over threats and organising against opportunities. The opportunity identification process is an intentional process and, therefore, entrepreneurial intentions merit our attention. Equally important, they offer a tool to better explain and predict entrepreneurial action.

In the psychological literature, intentions have proven to be the best predictor of planned behaviour so far, particularly when that behaviour is rare, hard to observe, or involves unpredictable time lags. In most cases, new ventures emerge over time and involve considerable planning efforts (Bird, 1988).

This study explores the relationship between entrepreneurial intentions (Krueger et al., 2000) and activities and participation in entrepreneurship training given by third level educational institutes (polytechnics and universities) in Finland. Some international comparisons are done as well to position the current situation among third level students in terms of entrepreneurial intentions and activities. The possible moderating effects of some background variables are further investigated with the special reference to entrepreneurship education and training.

Sample and methodology

A standardised questionnaire was developed (University of St. Gallen and European Business School) and tested. This questionnaire covered the following determinants of entrepreneurship:

- microsocial environment, such as culture, family background, educational institute (university or polytechnic)
- personality construct: the Big 5 (neuroticism, openness to experience, extraversion, consciousness and agreeableness, and locus of control)
- self-assessed skills and competences

Furthermore, the questionnaire included items concerning motives and obstacles toward entrepreneurship, general professional expectations, entrepreneurial intentions and activities of students, and steps in creating a business. The questionnaire was originally designed in German and then translated into English. A double translation was employed when it was translated into Finnish. An online-version of the questionnaire was then sent to the sample.

The sample of the ISCE/GUESSS 2006 consists of 37,412 questionnaires for analysis. However, for this paper only data from Finland (n = 1,566) will be studied. In addition

to a quantitative description of the sample the qualitative characteristics matter. Thus, in the Finnish sample (being close to those characteristics in most other participating countries) the following observation can be made: study year (average) 2.48, undergraduate level 79.4 per cent and graduate level 20.2 per cent (remaining 0.4 per cent in doctoral programmes), average age 25.5 years, full-time students 85.8 per cent and females 51.7 per cent (male 48.3 per cent). Most of the respondents were business or engineering students (93.1 per cent).

About one third of the universities and one fifth of the polytechnics in the country participated in this study:

- Tampere University of Technology
- University of Tampere
- University of Vaasa
- University of Kuopio
- Lappeenranta University of Technology
- University of Oulu
- Helia Polytechnic
- Tampere Polytechnic
- South Karelia Polytechnic
- Savonia Polytechnic
- Kymi Polytechnic

Results

The results reveal that the relationship between entrepreneurial intentions and participation in entrepreneurship courses was weaker than expected. The correlation between personality factors and entrepreneurial intentions was clearly higher. Anyway, the effect of personality factors seemed to be different on intentions for male and female students. For women more extreme qualities, such as very extrovert nature, were needed for them to influence the formation of intentions. For male students this was not the case. Conscientiousness and compatibility did not correlate with the entrepreneurial intentions. Locus of control and work motives were predictors of intentions but both work actually as better predictors for male students than female ones also in this study (noted also by Hansemark, 2003).

The varying effect of different factors on entrepreneurial intentions between genders was demonstrated in this study. Entrepreneurship training was not a moderating factor to explain this relationship. At more general level, the results showed that female students were less interested in entrepreneurship compared to their male counterparts. The proportion of female entrepreneurs in Finland has been about one third. However, both female and male respondents were more interested in entrepreneurship in comparison to the amount of entrepreneurs in Finland at the moment. This trend was also confirmed

by the rapidly increased number of start-ups in 2006 in relation to several previous years.

Entrepreneurial activities and intentions of students and businesses established by them

Entrepreneurial potential of the students was evaluated by an index consisting of nine items covering the issue of what steps each student has taken to start-up a business. The index takes into account how many students have already established a business and those who had not done so. For potential business founders, it was also taken into account whether or not they had already taken any specific steps to realise their plans. The scores varied from 1 (for non-founders) to 10 for students who had previously established their own business) making the following categories: non-entrepreneurs, potential entrepreneurs, very potential entrepreneurs and acting entrepreneurs. The index was developed in such a way that 100 per cent equals to the maximum number of points that could be achieved.

This transformation was administrated to allow international comparisons. Fueglistaller et al. call this index 'entrepreneurial Power'. In the case of the Finnish students the index gives the figure 37.1 which ranked fourth after Ireland, Singapore and Liechtenstein, but is above the international average (33.5). The figures represent the entrepreneurial potential of the students.

Because of the unequal distribution of study disciplines across all countries, the index for all students undertaking business related studies was calculated. The figure (37.5) indicates that students undertaking business-related studies show about the same level of entrepreneurial potential in the case of Finnish students. As to all ISCE/GUESSS countries, students undertaking business-related studies showed a slightly higher level of entrepreneurial potential (36.4 vs. 35.5.; Fueglistaller et al., 2006). Furthermore, There was a significant difference between students undertaking business-related studies and those who did not. In this context, the percentage of students undertaking business-related studies is higher than for those who undertake other studies. When students who undertake business-related studies are taken into account on their own, the percentage of students who established a business increased by 0.4 % to 1.6 % for each country, 1 %% in the case of Finland. Z

Another analysis was conducted for the Finnish students (N = 1.566) indicated the following results:

- non-entrepreneurs 24.6 per cent
- potential entrepreneurs 60.0 per cent

- very potential entrepreneurs 11.0 per cent
- entrepreneurs 4.3 per cent

By adding the two highest groups one can notice that 15.3 per cent are most potential entrepreneurs (males: 18.9 per cent; females 12.0 per cent). According to the latest GEM report (Minniti et al., 2006), the entrepreneurial activity of males in Finland was 19.6 per cent, and that of females 9.1 per cent, respectively. Thus, the results of ISCE/GUESSS and GEM give the same scale although in the case of Finnish female students the figure is somewhat higher.

Compared to other ISCE/GUESSS study students, Finland scores fourth in terms of students who already found a business. A quarter (24.6 per cent) who have never thought about it is very close to the ISCE/GUESSS average (22.3 per cent). Looking at the background of students already running their businesses indicates that in the case of Finnish students the enterprise was founded 5.2 years earlier (on average), the number of employees was currently 1.8 (number of founders: 1.6) and the average age of the founders 29.1 years which is clearly above the mean age of all students in the sample (25.5 years). The same notion is valid in the case of all other ISCE/GUESSS countries as well, leading to the conclusion that such businesses were either established very early on during their studies, or that students did so prior to commencing their studies. Typically, more than a half of the students included persons from their immediate circle of friends or acquaintances, followed by one third of persons from their own university or polytechnic.

The proportion of students who were labelled to be potential entrepreneurs was rather high as indicated above. In order to identify how serious these students were, a series of questions were asked in relation to potential steps that could lead to start-up a business (such as gathering information or taking other preparatory activities). The figure showed that 30.8 per cent of Finnish students had not yet carried out any specific steps in order to establishing a business. However, this figure was considerably lower than the international average in ISCE/GUESSS countries (47.2 per cent). In terms of the time frame for establishing a business, a vast majority of Finnish students (58.9 per cent) don't know yet, while some 30 per cent (29.8) plans to do it immediately after graduation. Compared to other ISCE/GUESSS countries, the Finnish students demonstrated the highest level of uncertainty in this respect.

Main obstacles to start up a business

The process of starting-up a venture may face several hurdles. The students were asked what type of obstacles they might encounter, and to rate those on a scale ranging from 6 (= very significant obstacle) to 1 (= very insignificant obstacle). The results demonstrate that five most difficult expected or experienced obstacles out of a list of 15 were as follows (Finnish students):

- lack of the right business idea (4.62)
- own financial risk (4.36)
- lack of equity (4.31)
- lack of courage (4.18)
- lack of contacts to clients (3.97)

These results are very close to those in the whole ISCE/GUESSS sample, although the order is slightly different with 'own financial risk' having the highest ranking (4.51) followed by 'lack of equity' (4.46), 'lack of the right business idea' (4.21), 'lack of debt capital' (4.18) and 'lack of contact to clients/customers' (3.98). Through a factor analysis, three factors were identified: '*economic conditions', 'financial resources',* and *'personal engagement'*. The first area deals with an estimation of the economic conditions, which involves the perceived environment in which the business was, or would have been, set up. The financial view provides an estimate of resources available. The third factor has to do with the person who decides to start-up a business and serves as a reference to point for the entrepreneurial potential and the ability to manage risk. A more detailed analysis of the Finnish data show, however, that the more entrepreneurial the person is (in terms of actions or intentions) the less obstacles he/she tends to see.

Conditions at universities and polytechnics

Students were asked to assess their university or polytechnic in terms of entrepreneurial environment. A scale ranging from 1 (very bad) to 6 (very good) was employed. The average revealed that that the entrepreneurial environment was rated as 'rather good' (4.07 for Finland and 4.06 as an international average). At the same time, however, there is no relevant correlation between perceived entrepreneurial environment and entrepreneurial potential.

Students were also asked about the entrepreneurship-related courses available at their universities and polytechnics. A conductive environment means that many students attend such courses. The number of students who believe that no entrepreneurship-related courses are offered was 8.7 per cent of the respondents coming from all study fields and 5.6 per cent among students coming from economic related study fields, respectively. These figures are close to the ISCE/GUESSS average (8.3 and 7.1.).

Offering entrepreneurship-related courses by universities and polytechnics does not mean, however, that they are attended by many students. The percentage of those students who have not attended any entrepreneurship related courses even though such courses are available at their educational institute was 47.3 among students from all study fields and 41.8 among students of economic related study fields. This is lower than international average (71.4 and 58.9).

A further question concerned activities students would like to see offered by their

universities and polytechnics, as well as any other sources of support, which would offer them a better chance to start up their own business during their studies or immediately after graduation. The figures show that most students would like to see coaching courses and seminars and lectures on the topic of starting up a business followed by business plan seminars:

- general seminars and lectures on the topic of starting up a business 59.1 %
- coaching 55.7 %
- business plan seminars 45.1 %
- seed financing by the university – polytechnic 40.4 %
- contact point for general questions regarding starting up a business 39.6 %
- get-together and discussions with other young entrepreneurs (e.g. clubs) 39.6 %
- symposia, start-up days, contact platforms 26.9 %
- business game – starting up a business 24.7 %
- incubators (service centres for early start-ups) 18.7 %

These findings fit rather well in the objectives of entrepreneurship education at the level of tertiary education according to which entrepreneurship teaching will provide the students with specific training on how to start a business, including the capacity of drafting a real business plan and the skills associated with methods of identifying and assessing business opportunities. Also, it will encourage and support embryonic business ideas (for instance by means of providing special loans, business facilities, mentorship, etc.) – so that well-researched projects can be put into practice and finally reach the market.

Discussion and conclusion

Stevenson and Lundström (2001) state in their recent book that the Netherlands, Finland and the UK are the most advanced entrepreneurship policy at present. By this they mean a comprehensive, national policy approach that embraces entrepreneurship culture, the development of nascent entrepreneurs, facilitation of the start-up process and improvement of the performance and productivity of existing SMEs. Promotional campaigns, *entrepreneurship education*, mentoring programmes, start-up financing and reduction of barriers to entry are all included in the policy framework. In addition to these activities, governments have set quantifiable objectives for increasing the number of new firms or the business start-up rate. This type of a entrepreneurship policy is named a holistic one as opposed to SME Policy 'Extension', 'Niche' Entrepreneurship

Policy or New Firm Creation Policy (Stevenson and Lundstöm, 2001).

Paradoxically, however, this appreciated policy is not seen in terms of entrepreneurial activity in Finland, but she ranks below the GEM and Eurobarometer average in this respect. As to students in higher education in the ISCE/GUESSS study, Finland is somewhat better positioned, although the start-up rates are relatively low, and, according to available statistics, the age of entrepreneurs is higher than in many other countries. Official statistics show that the start-up rates in Finland are relatively low and the age of entrepreneurs is relatively high. Only around 15 per cent of entrepreneurs are younger than 36 (Heinonen et al., 2006). At the same time, attitudes towards entrepreneurship among young individuals is positive.

In general, Finland has long experience in the field of entrepreneurship education. The first projects were started as early as in the 1980s and were developed further during the 1990s. It has, however, been very characteristic of Finnish entrepreneurship policy that, instead of consistent education policy, there have been separate regional projects run by different organisations (Lundstöm, 2005). Most likely this has been the case because entrepreneurship education has not been long included in the National Curriculum for schools. The Finnish school system has also been criticised for giving too narrow picture of employment opportunities. The possibility of being self-employed has not been suggested as an equal and decent choice of career.

Entrepreneurship education has now been included in the National Curriculum for all levels from primary school to university and continuing education. It was aimed to put in action step by step during the years 2004-2006 but has progressed slower than expected. There is a recent evaluation study showing that only one third of educational institutions have taken this challenge seriously and taken real steps to implement the plan.

The basic idea in this plan is that, through the whole school system, entrepreneurial values and attitudes should be created, while an increasing focus on entrepreneurship-related knowledge will be provided in secondary school and further on. In vocational schools and at university level, there should be also education concerning entrepreneurial and managerial skills. With this approach, entrepreneurship education will have a very broad perspective and also include parents, teachers and the surrounding society. For the time being, it rather seems that parents in general (a vast majority of whom are employees) do not encourage their children to become entrepreneurs. It also seems that in many cases young individuals, in comparison with older people, may be more afraid of failure, i.e. they are more risk averse. To change this type of attitude will probably take many years and challenge constantly to curriculum of entrepreneurship training in educational institutes such as polytechnics and universities.

The aims to improve entrepreneurship education and training have been incorporated

into the Ministry's of Education *Action and Economic Plan 2005-2008.* This includes entrepreneurship education and knowledge-based entrepreneurship, entrepreneurship projects in general, entrepreneurship projects in teachers' in-service training and development projects. The *Development Plan for Education and Research 2003-2008* notes that the bases of entrepreneurship are being created through favourable attitudes. This is why interaction between education and working life aim to be promoted, teachers' and guidance counsellors' knowledge about entrepreneurship should be improved and teaching content and methods developed further concerning training and education.

For many reasons, there are few accurate evaluations concerning the effects of measures taken in the area of entrepreneurship education. So far in Finland and in other Nordic countries as well, there is a large number of different projects but rather few examples of nationwide programmes that could be evaluated. The most common way to try to measure effects has been to carry out surveys concerning attitudes to entrepreneurship among young individuals such as students (Lundström, 2005). One of the problems is, however, that it is not easy to allocate resources enough to conduct proper evaluation studies, although this should be budgeted in all projects and development plans.

The results from this ISCE/GUESSS study demonstrate only modest success in promoting entrepreneurial intentions and activities among students in universities and polytechnics. The good news is, however, that all relevant indicators are above the current entrepreneurial population in the country. Hopefully this will need to a more entrepreneurial society and stronger entrepreneurship community in the near future.

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Founding Intentions: A Gender Perspective

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Abstract

In contradiction to previous research, which concentrates almost exclusively on entrepreneurs during their professional activity, this study concentrates on an earlier point in time and that is before the working life begins. Therefore, the micro-social environment (family background) and specific cognitions (fostering and hindering perceptions) towards self-employment, that influence the professional choice, are

examined in this study. Attention is also given to gender similarities or differences and to catching a glimpse of entrepreneurial related variables as they occur over time. To examine those aspects two surveys were conducted between winter term 2006/2007 and winter term 2007/2008 at the University of Erlangen-Nuremberg in Germany. Only small differences could be found between the two genders in motives for becoming self-employed The results indicate that women perceive hindering factors more problematic than their male counterparts. However, only within the perception of hindering factors especially the cohort analysis shows that the two genders differ in many aspects. Within the regression analysis the factor "risk of failure" is a stable and dominant hurdle throughout the years for men and women equally.We could also show that the self-employment of the parents does have an influence on the founding intention of the children.

Keywords
Youth entrepreneurship, motives, hurdles, obstacles, family background, gender, longitudinal study

Introduction

Whereas in the recent past entrepreneurship education is flourishing (Hisrich, 2006), the global entrepreneurship monitor reports that youth entrepreneurship has not enjoyed similar growth. For example, in 2006 the percentage of start-ups founded by young people sunk in comparison to 2005. Youth entrepreneurship still remains only a minor part of entrepreneurship research and most of literature on the topic focuses on entrepreneurs after the commencement of their business activities, that is during the start-up or the later phases of corporate development. Potential entrepreneurs and the pre-start-up phase seem to be neglected or, at least, they have not attracted the corresponding attention yet. This can also be shown from the fact that there are several models which deal with the corporate life cycle, but it is quite surprising that most of the models begin with the start-up phase and go on to the early development phase, but very few include the pre-start-up phase as a separate stage of the corporate development.

Understanding the consequences of intentions and particularly actions, requires that the antecedents of intention are understood (Krueger et al., 2000). Following Bagozzi et al. (1989), intentions are the best predictors for planned behaviour. Hence, "understanding and predicting new venture initiation requires research using theory-driven models that adequately reflect the complex perception-based processes underlying intentional, planned behaviours such as new venture initiation." (Krueger & Carsrud, 1993, p. 315). The most common approach in this area comes from Ajzen (1991) and is developed in the context of social psychology. Ajzen's theory identifies three general antecedents of intention: attitude towards behaviour, subjective norms and perceived feasibility. In this study, special attention is paid to motives,

perceived hurdles and family background as antecedents of the founding intention of students. Intention, however, is not activity; therefore, results from several surveys will be presented, in order to see if the intention has become activity and to track down possible changes over time. Further, all of these aspects will be researched under the gender lense, as former scientific literature has found several differences among males and females in the field of entrepreneurship. In general scholars like Fischer et al. (1993) have suggested the use of feminism approaches as theoretical background. They argue that the perspectives of liberal and social feminism can help in understanding the nature and implication of issues related to gender in the context of entrepreneurship. Hence, the social feminism perspective (rooted from social learning theory to psychoanalysis) will be used as theoretical background for this paper. It argues that men and women are fundamentally the same, but differ in their points of view due to different experiences from the earliest moments of life (Fischer et al., 1993). However, scientists continue to debate whether gender differences truly exist and, if yes, in which areas and to what extent.

According to the global entrepreneurship monitor (Sternberg et al., 2004) and the KfW Start-up Monitor 2005 (Hofmann et al., 2005), in Germany fewer women than men are interested in founding their own company (only 29%), although women represent half of the employed population. Over the last twenty years, academics and economic organisations have demonstrated a growing interest in women entrepreneurs, especially in the United States and Canada where the number of women that owned businesses has been rising. Female entrepreneurship is now considered to be an important sources of growth, employment, and innovation. In the United States, women-owned businesses are the fastest growing sector of all new ventures (Becker-Blease & Sohl, 2007). However, very little is known about women entrepreneurs (Orhan, 2001) and less is known about potential female entrepreneurs and above all female students.

Literature Review

Gender

In the past twenty years, the field of female entrepreneurship, and in extension, gender similarities or differences in the founding behaviour have attracted a lot of attention (e.g. Walker & Joyner, 1999; Mueller, 2004; Birley, 1989), even if the focus was mainly placed upon existing instead of potential entrepreneurs.

A literature review conducted by Brush in 1992 revealed that male and female entrepreneurs have more similarities than differences in individual characteristics. For example Goffee and Scase (1985) found similarities among males and females in the following motives: avoiding low paid occupation, escaping supervision and the constraint of subservient roles. As far as venture performance is concerned, Kalleberg

and Leicht (1991) found that businesses founded by women were not more likely to go bankrupt or to be less successful. In the literature, however, some gender-related differences could be found as well. According to the global entrepreneurship monitor executive report of 2007 (Bosma et al., 2008), men, in general, are more active in entrepreneurship than women. Furthermore, female and male entrepreneurs differ with respect to their personal and business profile (Hisrich & O'Brien, 1982; Fischer et al., 1993; Chaganti & Parasuraman, 1996; Carter et al., 1997; Verheul, 2003), the fear of failure is more dominant to women as to men (Sternberg et al., 2004) and women are more likely to stress personal expectancies while men are more likely to stress economic expectancies during the start-up process of a firm (Ljunggren & Kolvereid, 1996).

Studies on potential entrepreneurs that have taken into consideration among other factors also the gender factor include the following: Wang and Wong's study (2004) on university undergraduate students in Singapore, Matthew's and Moser's study (1996) on business graduates in the US, Singh and DeNoble's study on students from a state university in the US, Kourilsky's and Walstad's study (1998) on high school students in the US. The results of these studies are presented in the following sections.

Business foundation intention

A very common way to describe the development of a company is the use of corporate life cycles, which vary from two stages (Dodge et al., 1994) to ten stages (Adizes, 1999). Most of these models begin with the start-up phase and go on to the early development phase. The very early phases of the business foundation process, especially the opportunity recognition process, are often neglected. Hence, the pre-start-up phase has not attracted the necessary attention yet, as particularly in this phase, factors like personal intentions, motivation and family background etc. play the most important role in the final employment status choice. In this context, research shows that the intention to start a company is central to entrepreneurship (Bird, 1988; Krueger, 1993). Discovering founding intentions is important, because the opportunity identification process is clearly an intentional process and it is a central element within entrepreneurship education in order to explain and predict entrepreneurial activities (Krueger et al., 2000). Krueger et al. (2000) argue further that promoting entrepreneurial intentions means to promote public perceptions of feasibility and desirability. Moreover, Ljunggren and Kolvereid (1996) state that researching the reasons for gender differences in entrepreneurial intentions will support the understanding of the lower entrepreneurial activity of women compared to men.

Within the plethora of research on entrepreneurship, there is not enough research conducted on entrepreneurial intention among students yet. In addition, little is

known about gender-specific differences in the pre-start-up phase (Mueller, 2004; Ljunggren & Kolvereid, 1996). This is surprising, as e.g. 16% of boys and girls between the age of 15 and 20 in e.g. Germany state that they want to found their own business in future (IDW, 2008). Wang and Wong (2004) concentrated on the level and the determinants of interest in entrepreneurship among university students in Singapore and have found among others that whereas students evaluated their business knowledge as poor, their interest to start-up a company is high. Scott and Twomey (1988) focused on university students' career aspiration in three countries (USA, U.K., Ireland), and found that the U.S sample aspiring to self-employment was low (25%) in comparison to the U.K. with 41% and Ireland with 34%. In a survey of 372 Norwegian business graduates (conducted 1996), Kolvereid (1996) found that 38% preferred self-employment. Lüthje and Franke (2003) report that from a sample of 2.193 engineering students, 44% indicate, that they would quite probably and 11% that they would very probably run their own company after the completion of their studies. From the interviewed students in their study only 3% were already self-employed.

In general, research indicates that there is a relationship between gender and entrepreneurial intention (Stein & Nurul, 2004). Moreover, according to Kourilsky and Walstad (1998), females are significantly less likely than males (62%-72%) interested to start their own business.

There are still only a few empirical results yet, which examine change of intention over time. In this context, Woodier (2007) states that "intentions could slowly change over time and that the longer the time period between intention and behaviour; the greater the chance that unforeseen events will produce changes in intentions" (p. 6).

Research question 1: Do male and female students differ in their founding intention?
Research question 2: Do male and female students have a stable intention towards becoming self-employed over time?

The influence of the family background

Singh and DeNoble (2003) showed that personality, gender and having a close self-employed relative altogether have a strong positive impact on the attitude on self-employment. Moreover, Chen et al. (1998) indicated that the number of entrepreneurial friends and relatives was positive in respect of entrepreneurial decision. Regarding the family background, Klandt (1984) found in his study that the father's profession has an effect on the occupational decision of the son and the daughter, while the mother's influence is mostly limited to the daughter. Therefore, the father's profession seems to have a more universal influence. According to DeMartino and Barbato (2003) especially women are more influenced by the family background as to founding a business than men. Hence, there is some evidence, that the business family background strongly supports the children's propensity to take

up an entrepreneurial career (Scott & Twomey, 1988; Römer-Paakkanen & Rauhala, 2007; Wang & Wong, 2004; Benett & Dann, 2000).

Research question 3: Do male and female students differ towards becoming self-employed in regard to their family background?

Cognition towards entrepreneurship (motives and hurdles)

As far as potential entrepreneurs (students) are concerned, Heinemann and Welter (2007) found that motives that did not have to do with money (e.g. implementation of own ideas, freedom of decision and of handling, self realisation) were more important for students than money based motives. Lack of equity, high risk and high level of bureaucracy have been seen as hindering factors (Heinemann & Welter, 2007). Möller (1998) found that the important founding reservations were the lack of start-up finance and the high degree of risk. Especially students with a low intention to start an own business saw those reasons as hindering factors. Furthermore, "Too much work and too little spare time" was named as an important hindering factor.

Most of the studies that examine potential entrepreneurs that deal with motives and hurdles have not analysed the influence of gender yet. However, bearing in mind the basic assumption of the social feminism (Fischer et al., 1993), that women differ fundamentally from men due to their socialisation, it is necessary to analyse how gender affects the influence of inhibiting and fostering factors on the founding intention. Therefore, the influence of cognition on the founding intention through the gender-lens will be investigated.

In the literature of existing entrepreneurs, more similarities than differences in the motivation of the two gender have been identified (e.g. Birley, 1989). For example, researchers found that independence is a strong motivator for both males and females (Cromie, 1987; Shane et al., 1991) and that is valid also for achievement and status (Cromie, 1987). However, gender differences were found in the motivation of male and female entrepreneurs. Women are less likely than male entrepreneurs to be motivated by advancement, but rather by family and lifestyle (DeMartino & Barbato, 2003). Financial gain was found a strong motivation for males in general and less for women (Bradley & Boles, 2003). As far as hurdles are concerned, the availability of equity capital for women entrepreneurs is usually lower because for example women were not paid as high as men in earlier jobs (Verheul & Thurik, 2001). Drawing from the literature of existing entrepreneurs, one could argue that there are only small differences in the motivation and the perceived hurdles among male and female students. The following research questions are posed:

Research question 4: Do male and female students differ in their motivation towards entrepreneurship?
Research question 5: Do male and female students have over time a stable motivation

towards becoming self-employed?
Research question 6: Do male and female students differ in their perception of hurdles towards entrepreneurship?
Research question 7: Do male and female students have over time a stable perception of hurdles towards becoming self-employed?
Research question 8: Is there an influence of motives toward founding a business?
Research question 9: Is there an influence of hurdles toward founding a business?

Longitudinal studies

Besides a few exceptions in the entrepreneurship literature only a limited number of studies can be found that have a longitudinal character. "In order to better understand how interest in small firm ownership unfolds, it would be best to attempt to study it before the decision is made to open a business. These processes are best studied prospectively and over time." (Matthews & Moser, 1996).

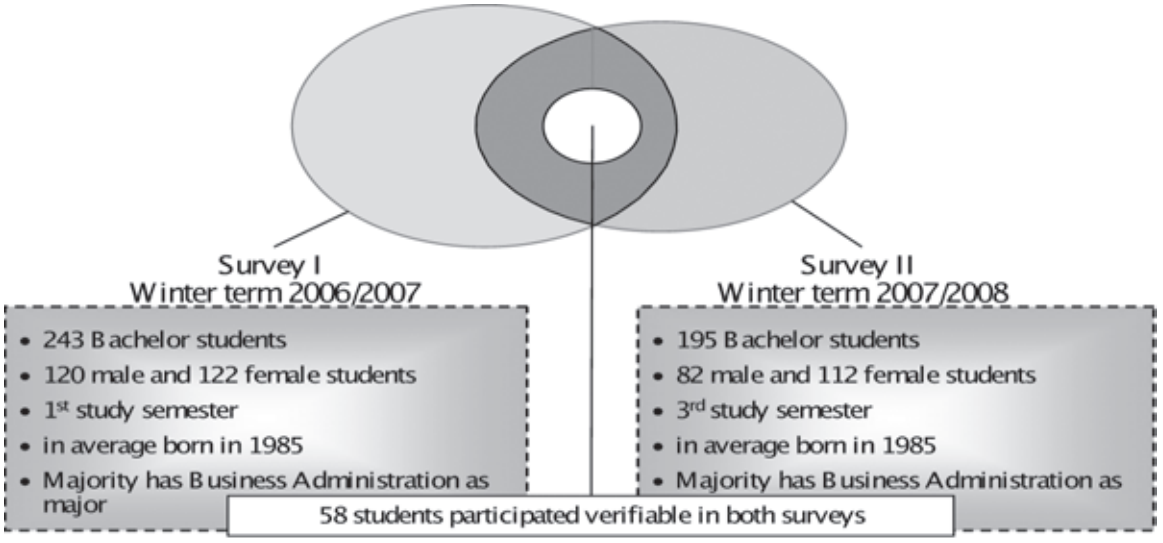
In their longitudinal study, Matthews and Moser (1996) found that whereas the interest of males towards self-employment stayed steady over time, females' interest declined. In the literature about existing entrepreneurs, Hisrich and Brush (Greene et al., 2003) conducted one of the first longitudinal studies that had gender as focus. Initial studies were conducted in 1983 and in 1987, they returned to their respondents and found among others that 30-40% of the businesses in the original sample had failed (Greene et al., 2003). Furthermore, businesses run by female entrepreneurs showed a revenue increase of about 7% per year (Greene et al., 2003).

Methodology

Data collection and sample characteristics

Two surveys were conducted between winter term 2006/2007 and winter term 2007/2008 at the University of Erlangen-Nuremberg. In total 553 students participated in the first and 398 in the second survey. The questionnaires were handed out in lectures that are mainly visited in successive order during the study. For the purpose of this chapter only data from bachelor students will be used who have started their study in the winter term 2006/2007. In general an average respondent was born 1985 and was studying Business Administration. Following Hakim (2000) our sample fulfils the requirements of a cohort study. The first wave (study I) included 243 students at the beginning of their study. The proportion of male and female respondents was almost even with 120 men and 122 women. 195 could be allocated in the following survey (study II) to this group. Therefore, our cohort study includes 243, respectively 195 participants for the two waves. From the entire sample 20 male and 38 female respondents could be identified for a panel study (n=58) (see Figure 1).

Figure 1: Data collection and sample characteristics



Operationalisation of variables

Intention

In order to measure entrepreneurial intention, the validated scale by Klandt (1984) was applied. The question used was "Have you personally ever thought about founding your own business?". Possible answers are varying from 1 (=no, not yet), 2 (=yes, occasionally), 3 (=yes, relatively concrete) to 4 (=yes, I have made the decision to become self-employed).

Family background

To measure the family background of the participants a scale of Möller (1998) was applied. "Manual, skilled or semi-skilled worker", "Salaried professional etc.", "Government employee", "Entrepreneur", "Freelancer or other self-employed" as well as "Other(s)" were given as answer alternatives in order to rate the profession of the parents. The variable family background was dichotomised for father's self-employment (0=not self-employed; 1=self-employed) and mother's self-employment (0=not self-employed; 1=self-employed).

Fostering and inhibiting factors

To measure the perception of fostering and inhibiting factors the scale of Möller (1998) was applied. Concerning the fostering factors the question was used "Please indicate which statement would best describe your feelings about starting a business" or respectively for the inhibiting factors "Please indicate which statement would best describe your feelings about NOT starting a business". Answer alternatives reached from 1 (=totally agree) to 5 (=totally disagree) (see table 1).

Table 1: Overview of fostering and inhibiting factors factors

Fostering factors:	Hindering factors:
Self-realisation	Missing business knowledge
Higher independency	Missing concrete business idea
Put studies into action	Missing seed capital
Higher autonomy of decision	Insufficient practical experience
Good economic climate	General missing interest
Realise idea/Pursue own business idea	Missing founding partner /team
Gain experience	Missing business network
Bear responsibility	Missing market knowledge
Higher prestige/social status	Missing market transparency
Higher income	Spouse or partnerdisapproves idea
Potential profit	High financial risk
Continue family business	Low income
Motivation by friends and family	Too much work for too less money
	Too much work and too less spare-time
	Bad economic climate
	Bound to the own company
	Risk of failure
	Missing social appreciation

Results

In the following chapter at first the descriptive findings will be shown and then the statistical results for our panel will be illustrated. Afterwards the results from the cohort study will be presented and the results of both approaches will be compared. Independent t-tests were conducted to find differences between men and women in each survey. Paired t-tests were chosen to identify and analyse changes and development over time (due to the limited amount of space we present only significant results for the dependent variables analysed). In addition, linear regression analyses were conducted for the panel study to examine the effect of motives, hurdles, and family background on founding intention. We present different analyses for survey 1 and survey 2. Figure 2 and 3 summarise the research framework for the panel and the cohort study.

Figure 2: Research framework (panel)

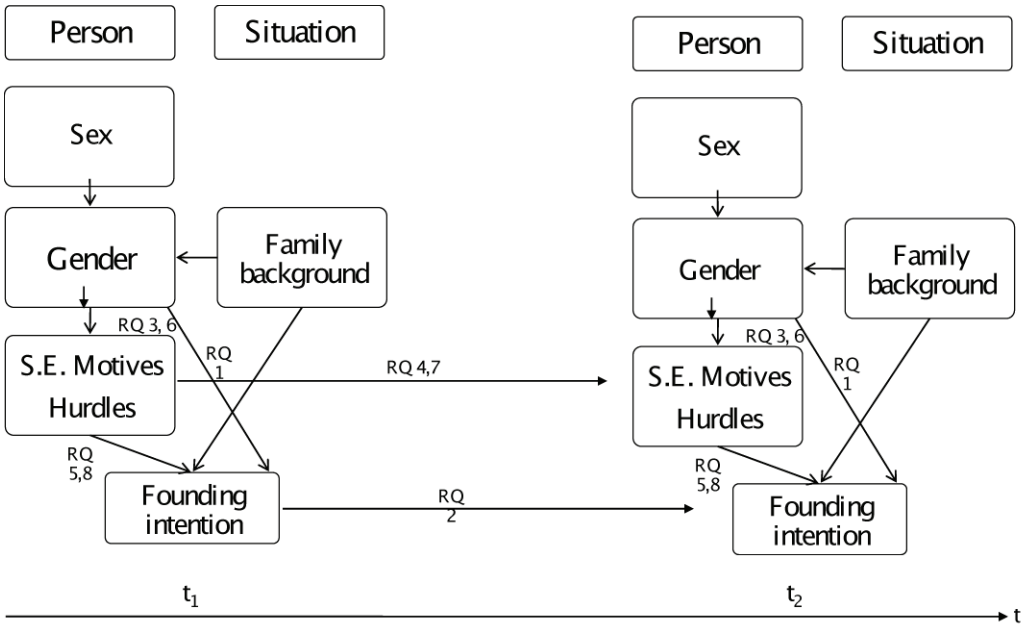
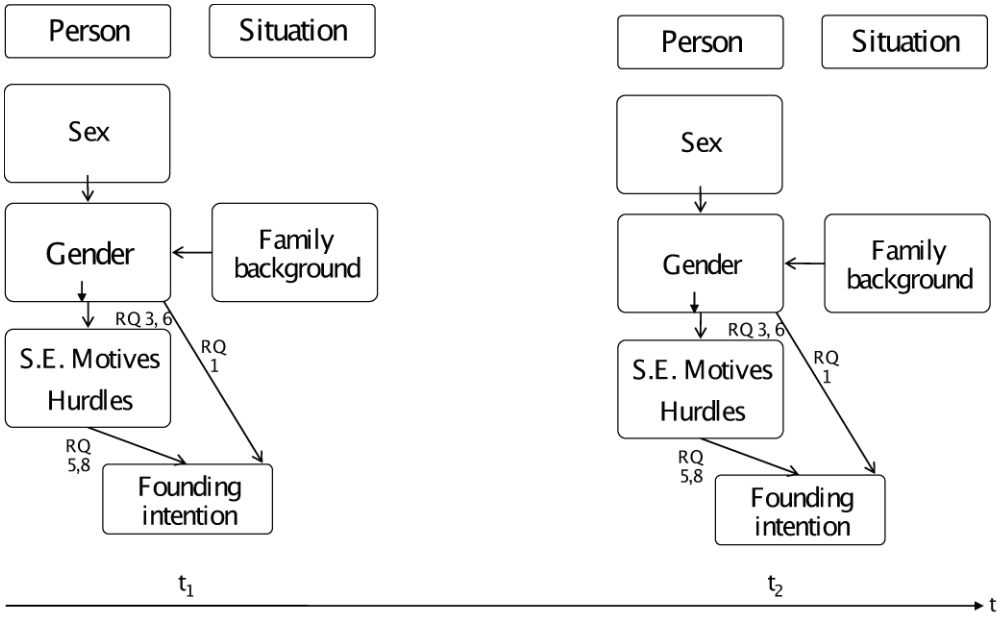


Figure 3: Research framework (cohort study)



Intention

The descriptive results show that within the panel group and the study cohort the founding intention is quite low. Male and female participants in general have thought only occasionally about founding a business. Regarding the self-employment status of the respondents, only one student in the panel group was already self-employed and the number of self-employed students in the cohort is also small (see table 2).

Table 2: Founding intention, self-employment of parents, own self-employment, study related factors

Founding Intention	Percentage							
	Panel				Study cohort			
	Male		Female		Male		Female	
	2006	2007	2006	2007	2006	2007	2006	2007
No, not yet	36.8	21.1	35.1	18.4	20.4	11.0	35.9	31.5
Yes, occasionally	47.4	52.6	56.8	68.4	46.3	65.8	52.1	61.1
Yes, relatively concrete	5.3	21.1	5.4	7.9	18.5	13.7	7.7	4.6
Yes, I have decided to become self-employed	10.5	5.3	2.7	5.3	14.8	9.6	4.3	2.8
Total	100	100	100	100	100	100	100	100
N	**20**	**20**	**38**	**38**	**108**	**82**	**117**	**12**
Self-employment (parents)								
Father	7	6	12	12	20	17	26	34
Mother	3	4	2	1	8	9	11	7
Self-employment (own)								
No.	1	0	1	0	5	2	1	2

As far as gender is concerned the intention to become self-employed is equal within the male and female panel group in each conducted survey both have thought about it occasionally on average. Over time, only women change significantly. Between the first and second survey they have started to think about self-employment to a higher extent (see table 3).

Table 3: Intention (panel)

Male				Panel	Female			
AM 2006	**AM 2007**	**Δ AM 06-07**	**Corr. Δ AM**		**AM 2006**	**AM 2007**	**Δ AM 06-07**	**Corr. Δ AM**
1.80	2.00	-0.2	0.856	**Intention**	1.71	2.00	-.29 °	0.582

In discordance to the panel findings, women and men differ significantly in the founding intention in each survey within the study cohort. Men have thought about becoming self-employed to a higher extent than women (see table 4).

Table 4: Intention (study cohort)

Male				Study cohort	Female			
AM 2006	**n**	**AM 2007**	**n**		**AM 2006**	**n**	**AM 2007**	**n**
2.28 °	108	2.22 °	73	**Intention**	1.80 °	117	1.79 °	108

Motives for becoming self-employed

In general, male and female participants of the panel group evaluate motives towards self-employment in a similar way. Although means tend to differ notably (e.g. better opportunity self-realisation), within the panel group no significant differences could be identified in the conducted surveys between the two gender. However, male and female participants have changed in their evaluation of motives from winter term 2006 to winter 2007. Men rated in the second study, “to put studies into action” more

neutral in the context of becoming self-employed. Women perceived the economic climate less fostering. Regarding the motive "continue family business" women changed their assessment towards tending to disagree with this motive after one year (see table 5).

Table 5: Motives (panel)

Male				Panel Motives [1]	Female			
AM 2006	AM 2007	Δ AM 06-07	Corr. Δ AM		AM 2006	AM 2007	Δ AM 06-07	Corr. Δ AM
2.79	3.26	-0.47	0.537*	Continue family business	2.74	3.33	-0.58^{o}	0.549*
2.53	3.00	-0.47^{o}	0.616*	Put studied into action	2.73	2.54	0.19	0.465*
2.83	3.00	-0.17	0.323	Good economic climate	2.49	2.84	-0.35^{o}	0.49*

scale used: (from 1= totally agree to 5= totally disagree), ^{o} significance (2-tailed) at 0.05 level; * significance at 0.05 level for correlations

In contrast to the panel findings, three significant differences could be identified in the cohort group between the gender in the first survey. "Better opportunity for self-realisation", "continue family business" and "good economic" climate were all significant on a 5% level. In addition, women showed a higher tendency to agree that these factors are motives towards self-employment. After one year, however, these items showed no significance in the second survey. Instead "potential profit" was significant and was rated higher by men (see table 6).

Interestingly, exactly those items were found significant in the cohort analysis, which had already recognisable but not significant differences in the mean within the panel group. An explanation could be that the number of panel participants was too small in size. As the panel results have shown that "continue family business" and "good economic climate" have changed significantly and became, therefore, less important for women, it could explain why both factors were not found significant between the two gender in the cohort analysis.

Table 6: Motives (study cohort)

Male				Study cohort Motives [1]	Female			
AM 2006	n	AM 2007	n		AM 2006	n	AM 2007	n
2.11^{o}	110	1.96	81	Better opportunity for self-realisation	1.75^{o}	123	2.01	111
1.92	109	2.11^{o}	81	Potential profit	2.10	122	2.38^{o}	111
3.35^{o}	109	3.53	80	Continue family business	2.82^{o}	114	3.16	105
2.81^{o}	107	3.05	79	Good economic climate	2.55^{o}	121	2.93	107

Motives against becoming self-employed (perceived hurdles)

Male and female participants perceive most of the hindering factors similar. At the beginning differences exist in the panel with "bad economic climate", "bound to the own company" and "missing social appreciation". Male panel members tend to see those factors less problematic as their female counterparts. Regarding "bound to the own company" a convergence can be identified so that no significant difference exists within the second survey. Over time only one significant change can be found in the valuation of the variable "missing seed capital" of men as scepticism increases. For female respondents three significant developments can be found. "Missing founding partner/team", "low income" and "risk of failure" are seen more optimistic after one year (see table 7).

Table 7: Hindering factors (panel)

Male				Panel	Female			
AM 2006	AM 2007	Δ AM 06-07	Corr. Δ AM	Hindering Factors [1]	AM 2006	AM 2007	Δ AM 06-07	Corr. Δ AM
2.40	1.80	0.60 [o]	0.521*	Missing seed capital	2.36	2.14	0.22	0.679*
3.21	3.37	-0.16	0.137	Missing founding partner /team	2.92	3.39	-0.47 [o]	0.622*
3.32	3.11	0.21	-0.062	Low income.	2.83	3.23	-0.40 [o]	0.494*
3.06°	3.56°	-0.50	0.521	Bad economic climate	2.42°	2.67°	-0.24	0.407*
3.95°	3.63	0.32	0.156	Bound to the own company	3.16°	3.35	-0.19	0.179
2.60	2.35	0.25	0.309	Risk of failure	2.24	2.67	-0.46°	0.308
4.37°	4.37°	0.00	0.236	Missing social appreciation	3.66°	3.83°	-0.17	0.163

[1] scale used: (from 1= totally agree to 5= totally disagree), [o] significance (2-tailed) at 0.05 leve; * significance at 0.05 level for correlations

In general women perceive the hindering factors in the cohort study as more problematic than men. Furthermore, the differences between male and female participants are larger than in the panel. In the first survey "missing market knowledge", "high financial risk", "bad economic climate" "bound to the own company" and "risk of failure" were significantly different between the gender. In the second survey significance could be found for "missing business knowledge", "high financial risk", "general missing interest", "too much work and too less spare-time", "bad economic climate", "bound to the own company" and "risk of failure" (see table 8).

Table 8: Hindering factors (Study cohort)

Male				Study cohort	Female			
AM 2006	n	AM 2007	n	Hindering Factors [1]	AM 2006	n	AM 2007	n
3.04	107	3.44 [o]	82	Missing business knowledge	2.72	118	3.06 [o]	109

3.29	107	3.50 º	80	Missing interest	2.93	109	2.89 º	111
2.67 º	108	2.67	81	Missing market knowledge	2.33 º	118	2.45	109
2.40 º	108	2.29 º	79	High financial risk	2.04 º	119	1.89 º	109
2.79	107	3.05 º	78	Too much work and too less spare-time	2.54	118	2.64 º	109
2.99 º	104	3.29 º	75	Bad economic climate	2.55 º	117	2.76 º	102
3.42 º	106	3.45. º	78	Bound to the own company	3.08 º	118	3.10º	109
2.56 º	106	2.61 º	80	Risk of failure	2.23 º	119	1.95 º	110

scale used: (from 1= totally agree to 5= totally disagree), º significance (2-tailed) at 0.05 level; * significance at 0.05 level for correlations

For the item "Bad economic climate", the independent t-tests in the panel and cohort analysis showed differences between the gender, as women see the economic climate less positive than men. However, the respondents tend to disagree with the statement that economic climate is seen as hindering. An explanation could be that the economy in Germany was and is in a growth phase. "Bound to the own company" was also significant in both approaches. Although, changes over time could be found in the panel they can not give an indication for the different values in the cohort study.

Regression analyses

For our panel study the results of the regression analyses are presented in the following. Regression analysis was conducted using as independent variables the three motives which became significant in the t-tests as well as the four hurdles which showed significant differences between survey 1 and 2 (see table 1). As controls we inserted gender into the model. For survey 1 and survey 2 no differences were found between the gender, i.e. our control variable did not become significant. Regarding our independent variables, the results demonstrated "risk of failure" as the dominant hurdle throughout the years. No other independent variable showed a significant effect (5% level). For survey 1 we had "good economic climate" as an additional effect on intention (10% level) and for survey 2 "missing founding partner/team" influences founding intention (10% level). The entire model reached an R^2 of 24.4% (significant on the 10% level) for survey 1 and 36.5% (significant on the 5% level) for survey 2 (see table 9).

Table 9: Panel findings for regression analyses with motives and hurdles

	SURVEY 1		**SURVEY 2**	
* p<0.10; ** p<0.05; N= 58	**Model 1 (Controls)**	**Model 2 (+ IVs)**	**Model 1 (Controls)**	**Model 2 (+ IVs)**
Main effects				

risk of failure		-.351**		-.412**
low income		-.200		-.129
missing partner/team		.067		-.211*
missing seed capital		-.110		-.178
succession		-.019		.160
put studied into action		.015		-.001
good economic climate		-.277*		-.116
Control variables				
Gender (0,1)	-.108	-.019	-.056	-.014
Model				
R Square:	1.20%	24.40%	0.30%	36.50%

For the second regression analysis the family background was inserted. In general the proportion of self-employed fathers was higher than of self-employed mothers in the panel. The percentage of female participants with a self-employed father is higher than of their male counterparts, while slightly more men than women have self-employed mothers. For survey 1 the entire model with gender, self-employed father and mother reached an R2 of 13.7% but did not become significant on the 5% level but on the 10% level (see table 6). No significant gender differences could be found. However our results showed mother's self-employment as the only significant variable (beta = .349) within this regression (5% level). For survey 2 the entire model attained an R^2 of 13.9% and became significant on the 10% level (similar to study 1). Regarding the affecting variables this time, father's self-employment became significant (beta=.328) on the 5% level. Again no significant gender differences could be found (see table 10).

Table 10: Panel findings for regression analyses with family background

	SURVEY 1		**SURVEY 2**	
* p<0.10; ** p<0.05; N= 58	**Model 1 (Controls)**	**Model 2 (+ IVs)**	**Model 1 (Controls)**	**Model 2 (+ IVs)**
Main effects				
father's self-employment		.115		.328**
mother's self-employment		.349**		.233
Control variables				
Gender (0,1)	-.187	-.065	-.133	-.053
Model				
R Square:	3.5%	13.7%	1.8%	13.9%

Discussion and limitations

Regarding intention, men seem to have a higher interest in becoming self-employed, even if significance for this was only found in the cohort analysis. This finding is in accordance with previous research conducted on potential entrepreneurs (students) (see Chen et al., 1998). Only small differences could be found between the two gender in motives for becoming self-employed. Significant changes over time in the

panel group could partly give an indication why existing significant differences in the cross-sectional analysis in the cohort occurred. The identified motives "better opportunity for self-realisation", "continue family business" and "good economic" (study 1) and "potential profit" (study 2) besides are not completely in concordance with the existing literature. Status e.g. was perceived similar by male and female participants. In general, it can be stated that women perceive hindering factors more problematic than their male counterparts. However, only within the perception of hindering factors especially the cohort analysis showed that the two gender differ in many aspects. The regression analyses showed that the risk of failure is a dominant and stable hurdle throughout the years which prevents most of our sample from becoming self-employed. Here, no differences could be found between men and women. We also could show that the self-employment of the parents does have an influence on the founding intention of the offspring. Next to family background, some research is indicating a positive relationship between entrepreneurship education and the intention to start a business (Peterman & Kennedy, 2003; Lee & Wong, 2003; Kolvereid & Moen, 1997).Within this study entrepreneurial education could not be analysed as the numbers of students who have attended entrepreneurship lectures or seminars are quite small (below 10) and do not allow further analyses (t-tests or regression analyses). Future research could analyse the effect of entrepreneurship education on the intention to start a business, after participants had specific entrepreneurship lectures.

The selection of a single country has the obvious limitation that the results generalise across populations and geographical settings. Furthermore, the survey was only conducted at the University of Erlangen-Nuremberg, which could affect the explanatory content. Another bias could be based on the fact that participants have chosen mainly business administration as their major. Therefore, it would be necessary to include also students from different faculties into the survey sample to exclude study-related biases. With 28 male and 30 female respondents the panel size was small in size (therefore the results of our regression analyses should only be looked upon as tendencies). Although cross-sectional findings were compared with the general study cohort resulting biases could have influenced the results. The second survey was conducted in the third study semester which marks the middle of the bachelor study programme. Further surveys could enable a further look whether students' intention to become self-employed has been realised or not. Hence, future research shall consider gender related differences in the founding intentions as an essential factor for improving entrepreneurship education.

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Collegiate Entrepreneurship: An International Analysis of Student Nascent Entrepreneur's Key Barriers

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Abstract

The research objective of this paper is to analyze the entrepreneurial potential among college and university students with the help of an international survey on academic entrepreneurship. The focus of the analysis is set on the perceived barriers for starting-up a business. Various items controlling for barriers of the internal, external and macroeconomic environment are analyzed on the basis of a comprehensive survey among students in 14 different countries. With regard to the research objective of this study the most important barriers to starting-up a business from the student's perspective can be classified in different categories related to the internal, the external environment and macroeconomic environment. By means of a factor analysis and reliability test, we have identified four factors for the analysis of the perceived single barriers from these three categories. Thees factors were labeled financial resources, economic conditions, individual risk-taking, personal engagement. Compared internationally, we can see that financial resources are perceived as the greatest barriers in all countries, ahead of individual risk-taking, economic conditions and personal engagement. Testing for potential correlations between the perceived barriers to starting-up a business and certain characteristics of the individual and its micro-social environment, as well as for national differences and particularities, some interesting results were found. Especially an international comparison of the key barriers to starting-up a business showed that these seem to differ substantially among the countries in the sample. Nevertheless, we can conclude that the personal characteristics can be seen as the most important factor in establishing a business.

Keywords

Student entrepreneurship, start-up barriers, nascent entrepreneurs, entrepreneurial intention, cross-national comparison

Introduction and objective of the paper

Research on the entrepreneurial activities of students is only a minor field within the discipline of entrepreneurship. Nevertheless, it must be regarded as relevant for entrepreneurship scholars to derive recommendations for the area of entrepreneurship education. Recent research in the area of academic or collegiate entrepreneurship has mainly focused on the entrepreneurial intentions of students analyzing the contextual conditions to start a business as well as the personal traits of students (Franke & Lüthje, 2000; Hinz, 1999; Autio et. Al., 1997; Golla/Holi/Klandt, 2003; Görrisch, 2001). Several studies looking at entrepreneurial activities of students in German and English speaking countries have been published in recent years, but only very few studies additionally focus on the perceived barriers for starting a business (Franke & Lüthje, 2003). Golla et. Al. (2006) and Füglistaller et. Al. (2006) developed a comprehensive

framework to research the entrepreneurial activities and intentions of students based on the assumption that entrepreneurship must be regarded as a process. The paper is based on the framework by Golla et. Al. focusing on the active aspects of collegiate entrepreneurship (i.e. entrepreneurial activities) as well as the psychological and sociological aspects of collegiate entrepreneurship (i.e. entrepreneurial intentions). In addition to that, the paper considers Hisrich's (2006) call for more international comparative research projects with a longitudinal approach in entrepreneurship research.

The objective of this paper therefore is to analyze the entrepreneurial intentions among college and university students in different countries with the help of an international survey on academic entrepreneurship. The focus of the analysis is set on the perceived barriers for starting-up a business. Various items controlling for barriers of the internal, external and macroeconomic environment are analyzed on the basis of a comprehensive survey among students in 14 different countries. Besides a pure identification of the most prominent barriers for student nascent entrepreneurs, implications are derived and the effect of perceived barriers on the entrepreneurial intentions of students is analyzed.

Methods

The relevant data for this study was gathered within the scope of the International Survey on Collegiate Entrepreneurship (ISCE) in 2006. This international research project, which is continued under the label GUESSS (Global University Entrepreneurial Spirit Students' Survey), is coordinated by the University of St.Gallen in Switzerland and the European Business School in Germany, and benefits from the active participation of partner institutions in 14 different countries worldwide. Partner universities in Australia, Austria, Belgium, Finland, France, Germany, Hungary, Ireland, Liechtenstein, New Zealand, Norway, South-Africa, Singapore and Switzerland actively participated in gathering the data and distributing an online-questionnaire to graduate and undergraduate students at 93 colleges and universities. 37,412 filled in questionnaires were returned by students of all ages with majors in various different fields of study. The comprehensive 20-page online-questionnaire included various items on the individual (personality, experience, competencies etc.), as well as on the student's micro-social (access to resources, networks, support programs etc.) and the macro economic environment.

Figure 1: Participating countries and response rate

Results

The average age of the surveyed students is 24.2 years, 56.2% are pursuing a Bachelor degree, while 38.1% are graduate students (Master's level) with additional 5.7% of Ph.D. or doctoral students. Most of the students study full-time and a little bit more than half of the sample is male.

Figure 2: Structure of the sample

code	study year (average)	under-graduate, BA-level	graduate, MA-level	doctoral studies, PhD	full time	part time	average age	male	female
SUI	3.10	56.4	34.9	8.7	84.4	15.6	24.8	62.8	37.2

LIE	2.31	67.5	31.5	1.0	65.0	35.0	26.3	71.5	28.5
GER	3.23	42.9	52.9	4.2	96.9	3.1	24.0	48.7	51.3
AUT	3.64	40.2	52.8	7.0	74.7	25.3	25.3	47.7	52.3
FRA	1.00	94.0	6.0	0.0	100	0.0	21.0	37.3	62.7
BEL	2.75	40.7	48.1	11.2	92.7	7.3	23.0	51.9	48.1
IRL	3.11	91.5	6.1	2.4	95.6	4.4	23.8	48.0	52.0
FIN	2.48	79.4	20.2	0.4	85.8	14.2	25.5	48.3	51.7
NOR	3.06	30.5	67.2	2.3	97.2	2.8	24.4	60.0	40.0
HUN	3.19	40.2	58.6	1.2	90.6	9.4	23.3	51.6	48.4
NZL	2.91	84.1	11.4	4.5	93.7	6.3	22.8	46.8	53.2
AUS	2.28	97.0	0.0	3.0	79.1	20.9	23.2	44.8	55.2
RSA	3.68	12.0	84.0	4.0	96.0	4.0	22.9	60.0	40.0
SIN	2.18	98.9	1.1	0.0	98.3	1.7	22.5	49.4	50.6
Intern.	3.15	56.2	38.1	5.7	86.6	13.4	24.2	52.2	47.8

(n=37,412)

Most prominent majors of the students are business administration or accounting for 25.7% of the sample, social sciences (9.9%), natural sciences (9.8%), exact sciences such as mathematics, physics or information technology (9.5%), engineering (9.3%), medicine and pharmaceutical sciences (6.2%), and economics (5.7%).

Figure 3: Subjects of the sampled students

	business studies	classical social sciences (ex. sociology and psychology)	natural sciences	mathematical sciences	engineering / electrical science	medicine or pharmacy	economics	others[1]
SUI	24.2	5.3	11.4	10.9	11.2	6.9	4.1	26.0
LIE	74.0	0.0	0.0	0.0	0.0	0.0	1.0	25.0
GER	20.5	11.6	11.2	10.0	16.6	4.1	2.4	23.6
AUT	36.5	12.0	7.2	9.1	7.0	1.6	1.4	25.2
FRA	97.0	1.5	0.0	0.0	0.0	0.0	1.5	0.0
BEL	23.3	11.8	8.4	4.8	3.0	15.0	15.3	18.4
IRL	53.6	2.4	5.6	2.8	5.6	5.2	9.3	15.5
FIN	36.2	2.2	5.1	14.4	22.1	4.0	2.7	13.3
NOR	9.9	0.7	12.4	14.3	14.2	5.1	12.2	31.2
HUN	30.3	5.1	7.1	16.3	8.6	0.7	16.7	15.2
NZL	11.1	17.3	13.4	5.7	6.0	12.9	6.1	27.5
AUS	68.7	1.5	0.0	0.0	1.5	0.0	11.9	16.4
RSA	72.0	0.0	0.0	0.0	0.0	0.0	24.0	4.0
SIN	63.0	6.8	0.0	1.7	0.0	0.0	12.7	15.8
Intern.	25.7	9.9	9.8	9.5	9.3	6.2	5.7	23.9

74.5% of the students can be classified as nascent entrepreneurs that plan to start-up a business some time in the future. 46.3% have already taken small first steps in that direction, and 14.2% of the students have already prepared some written notes about ideas, rough plans etc. The actual share of active founders of a business is however quite small at 3.2% of the total sample.

Looking at the total sample, we can see that the international average for the entrepreneurial potential of students is 35.5% (see appendix 1 for details).

Appendix 1: Index construction

The index construction is based on two questions used in the questionnaire.

Firstly, we asked whether or not students had ever considered establishing their own business. The answers to this question were measured in accordance with the following table, allowing for multiple answers.

Possible answer	Points	Type of business founder
No, never	1	No business founder
Yes, sketschily	3	Potential business founder
Yes, rather concretely	3	Potential business founder
Yes, but I turned awy from it	3	Potential business founder
Yes, I am bound and determined to work self-employed	5	Advanced potential business founder
Yes, I already started with the realisation	5	Advanced potential business founder
Yes, I am already self-employed	10	Business founder
Yes, I was self-employed, but no longer am I	10	Business founder

Secondly, we asked potential business founders which specific steps they had already taken in order to establish their own business. In this context, we made a distinction between committed and less committed activities, allowing for multiple answers. The rating of possible answers can be seen in the table below.

Possible answer	Points
No steps taken	0
Thinking through first business ideas	0.25
Writing down first business ideas	0.25
Developing a business plan	0.25
Gathering start-up specific information	0.25
Visiting star-up specific events	0.75
Talking to potential sources of financing	0.75
Determining a date of foundation	0.75
A prototype of the product / service exists	0.75

The minimum number of points that a student could get was 1 (for ‘non-founders’, i.e. students who had never considered establishing their own business). The maximum number of points was 10 (for students who had previously established their own business). The index was then calculated on the basis of the averages obtained for the various countries, as well as the international average.

The highest percentages are to be found in Ireland (40.9%), Singapore (39.5%), and Liechtenstein (37.5%). The lowest percentages are to be found in Germany (33.9%), Switzerland (34.5%), and Norway (34.9%). Together with Hungary, the entrepreneurial potential of students in these countries is below the international average.
Because of the unequal distribution of study disciplines across all countries, we also calculated the index for all students undertaking business-related studies. We can see that the international average is 36.4%. This indicates that students undertaking business-related studies show a slightly higher level of entrepreneurial potential when compared to the total sample, where the entrepreneurial potential was at 35.5%.

Figure 4: International comparison of entrepreneurial power

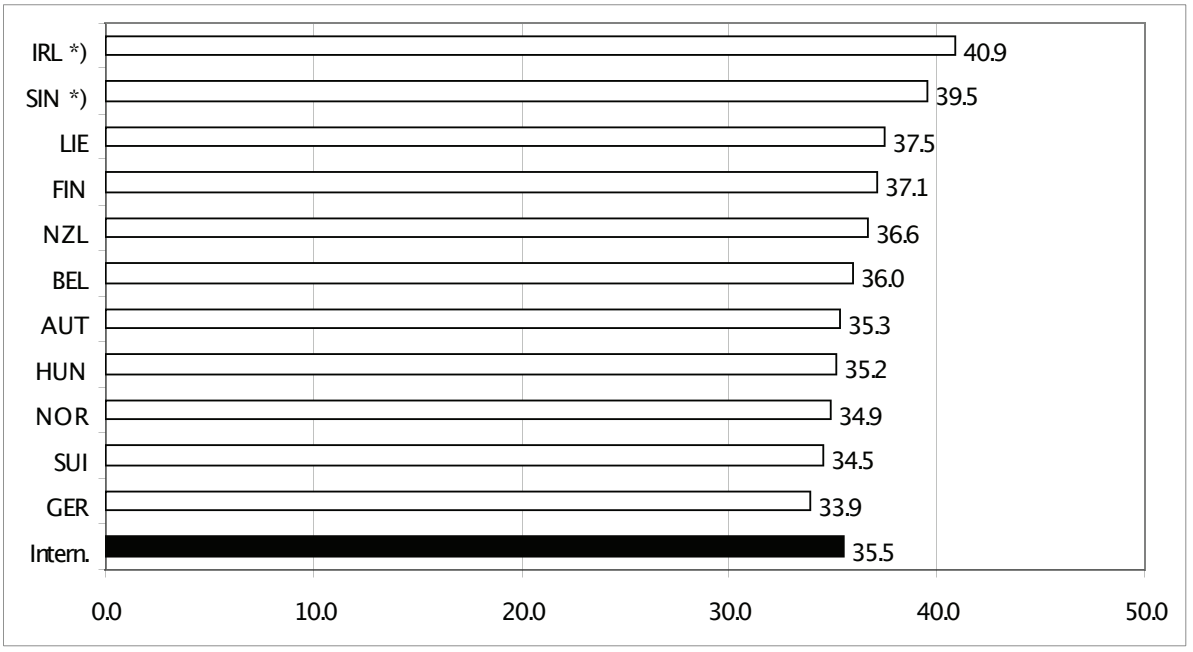
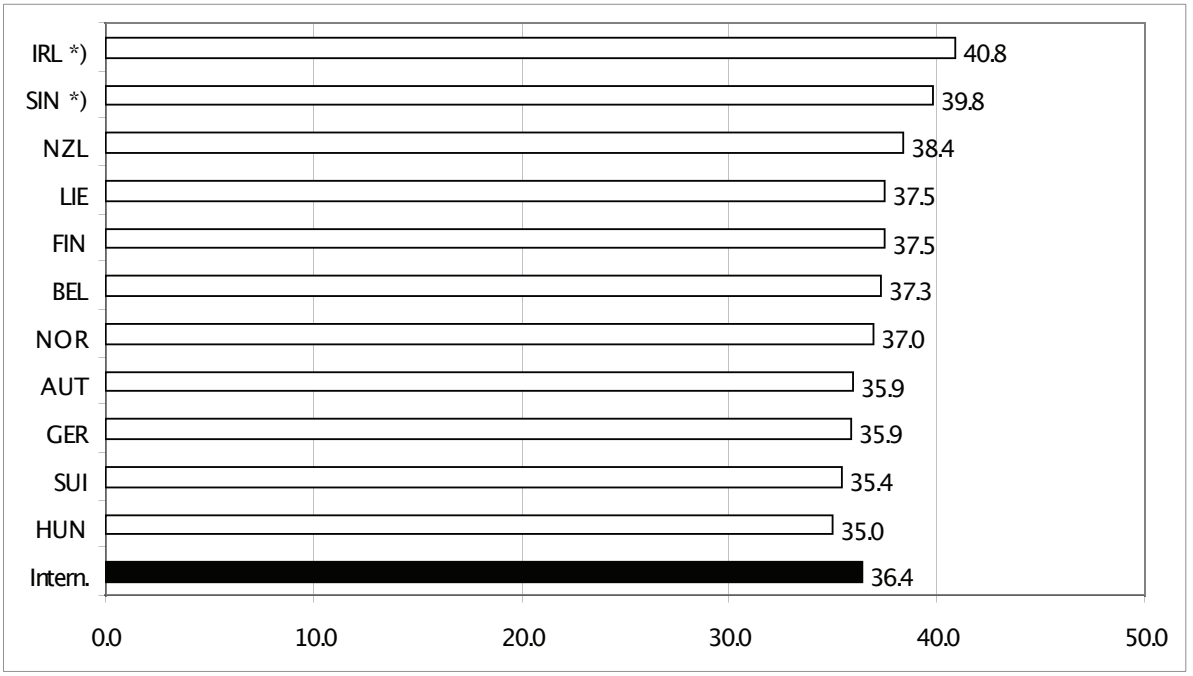


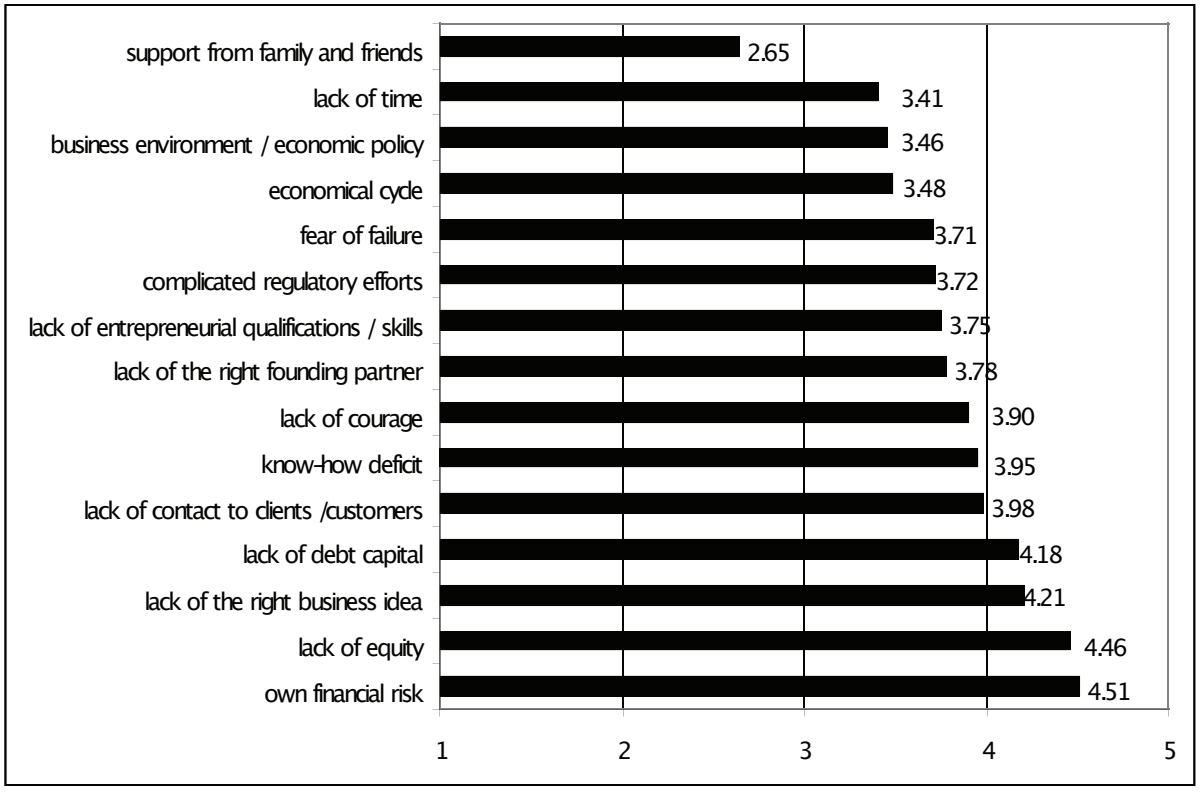
Figure 5: International comparison of entrepreneurial power of students undertaking business-related studies



Once again, Switzerland (35.4%), Germany (35.9%) and Hungary (35%) are at the lower end. This clearly indicates that the entrepreneurial potential of students in Switzerland and Germany is below the international average. Conversely, the highest percentages are to be found in Ireland (40.8%), Singapore (39.8%), and New Zealand (38.8%). In summary, we could say that the difference between countries ranges from 5.8 to 7 percentage points.

The process of establishing a business may present several difficulties. It is for this reason that we have asked students what type of barriers they might encounter, and to rate those on a scale. The results show that when compared internationally, financial support is seen as the biggest problem. Comparison of average values shows that personal financial risk (4.51), lack of private capital (4.46), or foreign capital (4.18), are seen as the main barriers. In relation to establishing one's own business, the main obstacles were perceived to be the lack of a good business idea (4.21), followed by the lack of client contacts (3.98). The lack of a suitable business partner, as well as the cumbersome official administrative process of establishing a business, were seen as less significant barriers.

Figure 6: Barriers for establishing a business



(6 = very significant barrier, 1 = very insignificant barrier)

As already mentioned previously, most students perceived taking personal financial risks as the biggest barrier. Similarly, we can observe on an individual basis that some students lack the courage to take such risk (3.90), or do not have the required know-how (3.95), which were indicated as obstacles in relation to the legal and financial requirements involved in establishing one's own business. The lack of entrepreneurial skills (3.75) and fear of failure (3.75) were rated similarly as well. No time (3.41), economic situation (3.48), as well as business environment (3.46), was seen to be rather less critical barriers. It is encouraging to see that sufficient support by family and friends was available (2.65).

Perceived Barriers in different countries

As a first step, we analyzed the perceived barriers and compared the results for the different countries in the sample. To better understand the results, the barriers that were rated as the highest ones among all countries a marked yellow in the table. Furthermore, barriers that were rated above the international average in the sample are marked in a light yellow. It can be concluded that students in Germany rate the perceived barriers on average very high. In Austria, Hungary, Finland, Belgium and Switzerland the barriers are perceived less high by the students, whereas in countries like Belgium and New Zeeland the perceived barriers are in most cases rated below the international average. In general it can be stated that students in German-speaking countries perceive barriers to start-up a business much higher than students in other countries.

Figure 7: Barriers for establishing a business (means)

Country	GER	SUI	NOR	HUN	AUT	BEL	NZL	FIN	Int.
index	**33.9**	**34.5**	**34.9**	**35.2**	**35.3**	**36.0**	**36.6**	**37.1**	**35.5**
support from family and friends	2.51	2.56	2.52	2.99	2.62	2.73	2.63	2.66	2.65
lack of time	3.16	3.39	3.49	3.52	3.20	3.46	3.64	3.58	3.41
business environment / economic policy	3.63	3.34	3.37	3.61	3.35	3.65	3.55	3.45	3.46
economical cycle	3.72	3.39	3.58	3.67	3.37	3.47	3.52	3.51	3.48
fear of failure	3.80	3.60	3.65	3.75	3.82	3.62	3.67	3.84	3.71
complicated regulatory efforts	4.14	3.63	3.56	4.33	3.58	3.73	3.61	3.58	3.72
lack of entrepreneurial qualifications / skills	3.79	3.72	3.68	3.70	3.76	3.79	3.81	3.93	3.75
lack of the right founding partner	3.78	3.80	3.89	3.49	3.91	3.93	3.76	3.34	3.78
lack of courage	3.94	3.92	3.70	3.82	4.05	3.63	3.75	4.18	3.90
know-how deficit	4.12	3.88	3.74	4.25	3.95	3.92	3.93	3.84	3.95
lack of contact to clients /customers	4.06	4.07	3.88	3.81	4.03	3.91	3.90	3.97	3.98
lack of debt capital	4.43	4.23	3.99	4.27	4.29	3.76	4.04	3.94	4.18
lack of the right business idea	4.30	4.27	4.05	3.99	4.29	4.06	4.07	4.62	4.21
lack of equity	4.68	4.55	3.68	4.85	4.73	4.17	4.02	4.31	4.46
own financial risk	4.74	4.51	4.21	4.45	4.77	4.43	4.25	4.36	4.51
# of very high barriers	**8**	**1**	**0**	**5**	**6**	**3**	**2**	**5**	
# of above average barriers	**4**	**5**	**3**	**4**	**3**	**3**	**2**	**2**	
Total	**12**	**6**	**3**	**9**	**9**	**6**	**4**	**7**	

Perceived Barriers for students of different subjects

Apart from that, we analysed how students from different environments (i.e. different subjects of study) perceive the individual barriers for starting-up a business. Only the most prominent subjects in the sample were included in the analysis. Again, all barriers that were rated above the international average a marked yellow. Regarding

these results, it can be stated that differences concerning the perceived barriers between students from business related subjects and technical or natural science related subjects do occur. Additionally, we marked the two most important barriers as perceived by the students from every single subject green. It can be observed that the finance-related barriers "own financial risk" and "lack of equity" are rated very high by all students. The different subjects do not differ very much in this context. The highest values for the individual barrier were furthermore marked red. Students from social and natural science seem to perceive barriers on average much higher than other students.

Figure 8: Perceived Barriers for students of different subjects (means)

	cases (n=)	lack of the right business idea	complicated regulatory efforts	own financial risk	lack of courage	lack of the right founding partner
economics	2107	4.20	3.76	4.32	3.79	3.63
business studies	9473	4.40	3.57	4.50	3.98	3.79
Information Systems	1373	4.25	3.62	4.38	3.79	3.75
Law	2681	4.23	3.50	4.55	3.97	3.83
mathematical sciences	3555	4.24	3.74	4.49	3.84	3.73
natural sciences	3666	4.19	3.88	4.60	3.91	3.85
medicine or pharmacy	2307	3.91	3.84	4.46	3.87	3.81
construction & architecture	2001	3.92	3.68	4.47	3.73	3.71
engineering and electrical sciences	3465	4.19	3.84	4.48	3.80	3.68
Social Sciences	3713	4.13	3.79	4.62	3.97	3.85
Total	37253	4.21	3.72	4.51	3.90	3.78

	lack of equity	lack of debt capital	know-how deficit	lack of contact to clients / customers	economical cycle	business environment / economic policy	fear of failure	support from family and friends	Lack of time	lack of entrepreneurial qualifications / skills
economics	4.31	4.07	3.80	3.86	3.29	3.34	3.66	2.77	3.37	3.54
business studies	4.53	4.16	3.73	3.99	3.33	3.33	3.76	2.69	3.30	3.51
Information Systems	4.32	4.03	3.80	3.98	3.36	3.34	3.60	2.64	3.42	3.56
Law	4.48	4.26	3.59	3.97	3.58	3.53	3.74	2.71	3.45	3.82
mathematical sciences	4.44	4.11	4.04	4.02	3.38	3.34	3.60	2.51	3.43	3.71
natural sciences	4.48	4.28	4.23	4.04	3.62	3.58	3.75	2.59	3.49	4.03
medicine or pharmacy	4.26	4.13	4.17	3.92	3.63	3.62	3.73	2.66	3.58	4.03
construction & architecture	4.36	4.14	4.01	3.95	3.59	3.49	3.57	2.57	3.30	3.68
engineering and electrical sciences	4.41	4.08	4.03	3.99	3.39	3.35	3.60	2.52	3.40	3.68
Social Sciences	4.52	4.32	4.15	3.99	3.67	3.66	3.81	2.68	3.49	4.00
Total	4.46	4.18	3.95	3.98	3.48	3.46	3.71	2.64	3.41	3.76

Factor Analysis of the perceived barriers

By means of a factor analysis and reliability test, we have identified four factors for the further analysis of the perceived single barriers. We will consider such factors as barriers in the following parts of the paper. Three of these factors consist of three items and the remaining factor is calculated on the basis of two items. Factor 1 can be referred to as *financial resources*, which includes the following three items: lack of equity capital, lack of debt capital, as well as own financial risk (Cronbach Alpha values from 0.7803 to 0.6086). Factor 2 is labelled *economic conditions*. This factor includes the following two items: business environment and economical cycle (Cronbach Alpha values from 0.8458 to 0.6949). Factor 3 is labelled *individual risk-taking* and consists of the items: lack of courage, fear of failure, and lack of a good business idea (Cronbach Alpha values from 0.6782 to 0.5739). The last factor can be referred to as *personal engagement*, and consists of the following three items: support from family and friends, support from family and friends and lack of entrepreneurial qualifications / skills (Cronbach Alpha values from 0.6587 to 0.5495). The values concerning the KMO-criteria are between 0.891 (NZL) and 0.788 (SUI) and can be regarded as satisfying and the explained variance is between 48.2% and 61.9%. In this way we have defined four potential factors, in three different areas, which may have an effect on whether or not students decide to establish a business.

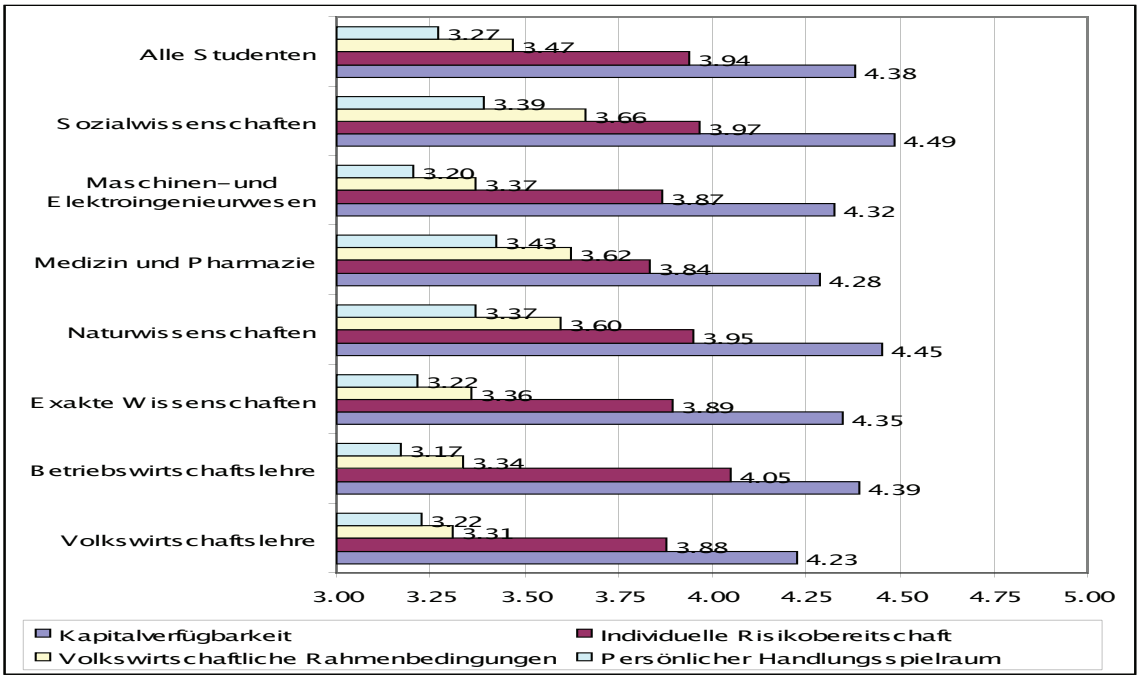
Perceived barriers for different areas of study

Using the result of the factor analysis, we compared the perceived barriers among

students from different subjects. As a result we can see that the ranking of the barriers is seen equally among students from all different fields of study with financial resources as the greatest perceived barrier and personal engagement as the smallest perceived barrier.

Above all, it can be stated that the differences concerning the values of the four types of barriers do not differ very much among students from all subjects. Taking a closer look at the results, it can be observed once again that especially students of social or natural sciences perceive the barriers labelled „financial resources" very high. Whereas students that study economics see this barrier far less critical and even students of medicine or pharmacy consider this type of barrier less important. It is interesting to see that especially business students perceive the barrier labelled as "individual risk-taking" quite high. Again students of medicine or pharmacy rate this type of barrier below average.

Figure 9: Perceived Barriers (factors) for students of different subjects (means)



Concerning the perceived barrier „economics conditions" some differences occur as well. Whereas business and economics students perceive this barrier less critical, students of social sciences, medicine or pharmacy evaluate this barrier as above average. Finally, taking a look at the barrier called "personal engagement" it can be

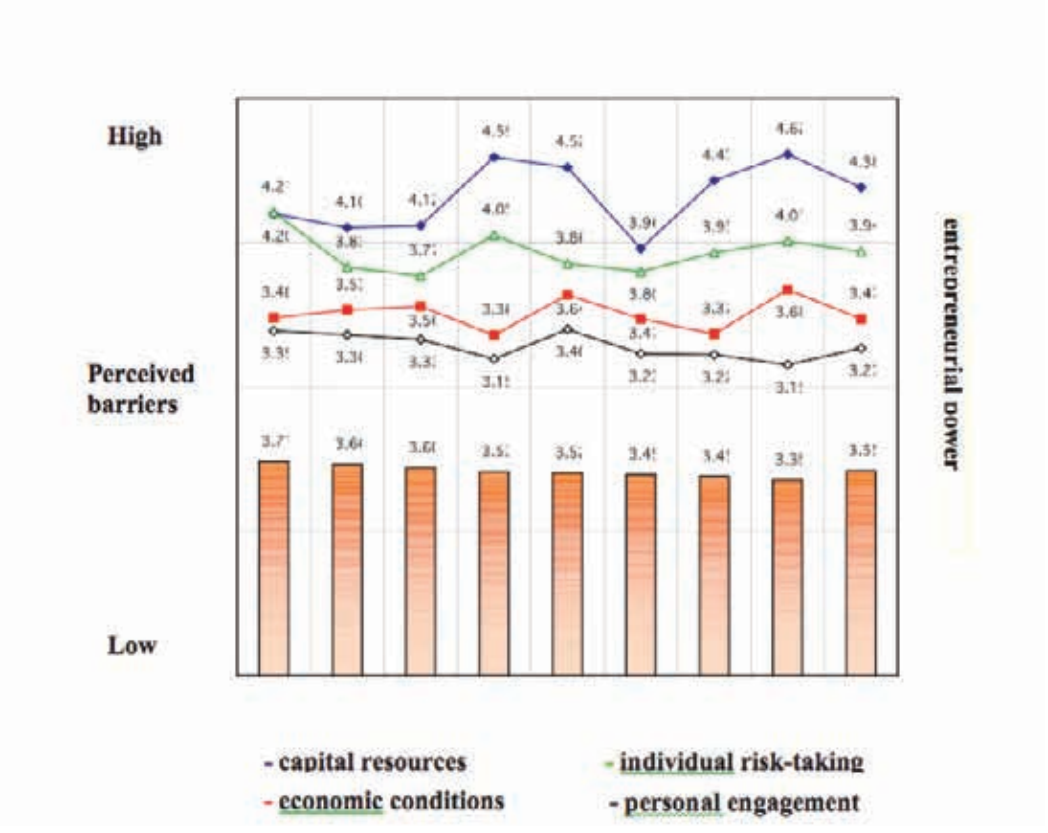
said that students of engineering, electrical sciences, business, economics and exact sciences perceive this type of barrier less critical than students of natural sciences, social sciences, medicine and pharmacy.

Barriers compared for different countries

Using the four different factors, we can analyze the perceived barriers among the students from various countries that are included in the sample.

Figure 10: Barriers compared internationally (factors)[2]

[2] * = not representative for the whole country.



Compared internationally, we can see that financial resources are perceived as the greatest barriers in all countries, ahead of individual risk-taking, economic conditions

and personal engagement. It should be stressed that the ranking of the barriers does not differ from one country to another. Nevertheless, the magnitude of the perceived barriers is different. Financial resources are seen as the highest barrier in Germany, Austria, and Hungary, followed by Switzerland. In comparison, the lack of financial resources is seen as a relatively minor obstacle in Norway, New Zealand, and Belgium. Concerning the other types of barriers no significant differences can be observed among students form different countries.

To analyze the relation between the perception of the barriers to start a business and the entrepreneurial activities of students we calculated the correlation coefficient of the entrepreneurial power index per country and the four different factors that represent the perceived barriers.

Figure 11: Correlation entrepreneurial power (index) vs. perceived barriers

Correlation entrepreneurial power	SUI	GER	AUT	BEL	FIN	NOR	HUN	NZL	Intern.
Factor 1 capital resources	-0,076**	-0,098**	-0,127**	-0,104**	-0,153**	-0,134**	-0,095**	-0,127**	-0,120**
Factor 2 economic conditions	-0,101**	-0,127**	-0,128**	-0.054	-0,177**	-0,163**	-0,101**	-0,086**	-0,104**
Factor 3 individual risk-taking	-0,174**	-0,230**	-0,199**	-0,117**	-0,197**	-0,232**	-0,158**	-0,195**	-0,186**
Factor 4 personal engagement	-0,093**	-0,147**	-0,124**	-0.047	-0,186**	-0,130**	-0,092**	-0,124**	-0,108**

Considering the factor individual risk-taking, such as the lack of courage, or the lack of business ideas, the correlation of -0.186** is most remarkable and negative for all countries. This means that the higher the level of students' potential to establish their own business, the less they perceive themselves as an obstacle. The highest correlation was found among Norwegian (-0.232**) and German (-0.230**) students, among Belgian students the correlation is the lowest (-0,117**). Furthermore, we can observe a weak,

but highly significant, negative correlation between students' potential to establish their own business and financial resources (correlation = -.120**).[1] This means that the higher the level of access to finance is seen as an obstacle, the lower the level of students' potential to establish their own business. Among Finish (-0,153**) and Norwegian (-0,134**) this correlation is higher than among other students, especially from Switzerland (-0,076**). Concerning the factor personal engagement the correlation with the entrepreneurial activities of students is even weaker (correlation = -0.108**). The highest correlation was found among students from Finland (-0.186**) and Germany (-0,124**), whereas again among students from Switzerland the correlation is the lowest.

Again, there is even less of a correlation between students' potential to establish their own business and economic conditions (correlation = -0.104**). This correlation means that the less economic conditions are seen as an obstacle, the more likely (albeit only to a small degree) it is that the entrepreneurial potential of young people will develop. As expected, such economic conditions are seen as less of an obstacle amongst students in Switzerland, contrary to those in Finland (-0.177**) and Norway (-0.163**), where the economic situation is seen as quite a significant obstacle.

Finally, on the basis of these findings we can conclude that the personal characteristics can be seen as the most important factor in establishing a business. However, the effect on an individual basis is still relatively small in order for it to be the sole factor in explaining the entrepreneurial potential of students at an international level.

Conclusions

The aim of this paper was to provide a deeper insight concerning the entrepreneurial intentions and activities of students in different countries and subjects. To test for potential correlations between the perceived barriers to start-up a business and certain characteristics of the individual and its micro-social environment, as well as to test for national differences and particularities, we conducted different forms of statistical data analysis. As a results, we found that the perceived barriers influence the entrepreneurial activities of students. In this context financial barriers are regarded to be most important

Regarding an international comparison of the perceived barriers, not only the entrepreneurial potential, but also the perceived key barriers to starting-up a business seem to differ among the countries in the sample. However, different environments (subjects of study) do not influence the perceived barriers among students significantly.

Nevertheless, the presented results have significant limitations. As the numbers are in most case not representative for the country, the interpretation of the results must be handled carefully. It is obvious that the structure of the sample may distort the results to a certain extent. In future studies longitudinal data should be used to analyze trends and changes in this specific context. Furthermore, the focus should be put on a deeper analysis of the relationship concerning barriers and entrepreneurial intentions of students.

References

1 Correlations were calculated for students studying business-related subjects to increase comparability.

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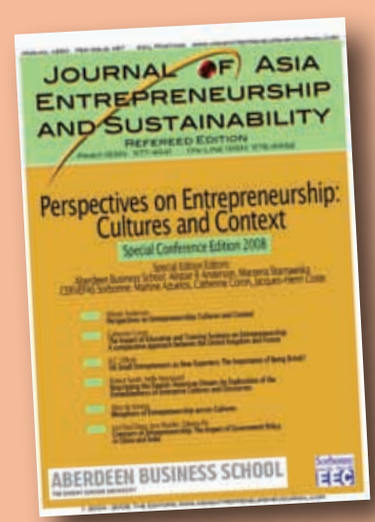

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An Evaluation Research on Mentoring Support Women Entrepreneurs

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Abstract

Research on mentoring women entrepreneurs has been shown to be limited, particularly on evaluating its results. The present paper aims to suggest an evaluation research process, concerning the mentoring support to women entrepreneurs, based on the results of a relevant project offered to Greek women rural entrepreneurs. The empirical research was based on a quasi-experimental design. Data were collected from 81 participants who were distributed in three groups: mentors, mentees and control group of mentees. Questionnaires were used to obtain information from respondents in three times: before, right after and six months after the end of the mentoring relationship. Positive results were found in terms of the value of mentoring for both mentors and mentees .The mentoring support provided was highly valued by the mentees as they had noticed improvements on their managerial skills and behavior to cope with change and crisis, as well as in team working. Mentors gained from the relationship, the increased job satisfaction and self confidence, the broadening of their connections and publicity.

Keywords

Mentoring, women entrepreneurs, entrepreneurship education, rural entrepreneurship, Greece

Introduction

Since the entrance of women in entrepreneurship activities, especially during the last decade, there is an increasing interest in supporting and promoting their business start ups, in the European Union boundaries at least, in order to enhance the female employment and their businesses' effectiveness.

Women who want to start their own businesses in EU face many obstacles economic and social, mainly due to the lack of support, information, knowledge and skills. Also, women who want to be entrepreneur often lack the role model effect of other women-entrepreneurs and need to develop business credibility either on their own, or on a cooperative basis. Mentoring is one of several factors and strategies used to overcome the barriers which women entrepreneurs face and has been reached as a training, developmental and socialization tool for educating new entrepreneurs (Rute 2006, Rivsa et all 2005, Carter 2000).

The promotion of entrepreneurial skills and the enhancement of the entrepreneurial behaviour through mentoring interventions are often incorporated in a broader framework. Mentoring covers all those areas an entrepreneur has to know, i.e. all the necessary knowledge and information needed in the process of successfully running, starting or taking over an enterprise (e.g. business planning, human resource management, marketing, finance etc).

Mentoring is defined as "the deliberate pairing of a more skilled or experienced person with a lesser skilled or experienced one, with the agreed-upon goal of having the lesser skilled person grow and develop specific competencies "(Murray 2004, Hunt 2005). Mentoring is an interactive process promoting the development of both the mentee and the mentor enabling behavioral and attitudinal change. (Sarri and Petridou 2006). Hence the role of the mentor is to facilitate the mentee to react on actions and learn how to learn from experience, in starting up their business and overcoming the crucial early stage period.

The roots of mentoring are found in Greek Mythology in Homer's epos Odyssey , where Athena, the goddess of wisdom, took the form of an old man named "Mentor " and became the counselor to Telemachus, son of Odysseus, who guided and counseled him in the long absence of his father. Nowadays, with the growth of information technology, e-mentoring is providing opportunities for mentoring not possible with some face –to face mentoring programmes, reaching the levels of reliability and capability for vibrant relationship to flourish (Hunt 2004). Although many of the goals and purposes of both types of mentoring are similar, one of the greatest advantages of e-mentoring is that it provides a very flexible communication environment independent of time and space, allowing for regular, informal discourse between individuals in disparate locations.

As research has shown only a few studies have investigated the effects of entrepreneurship education and training on start up entrepreneurs' actions and behavior (Falkang and Alberti, 2000, Petridou, Sarri, Archodoulaki, 2005).Furthermore, evaluation research on mentoring entrepreneurship has been shown to be limited (Kent, Dennis and Tanton, 2003, Ritchie and Genoni, 2002).Such approaches, are based on people's experiences on mentoring, and tend to consist of mentors being asked to assess the usefulness of the mentoring relationship and mentees to assess the value of the mentoring. Surveys using different qualitative and quantitative techniques such as questionnaires, semi-structured interviews, case analyses have been used sporadically (Gibb 1994, Dymock, 1999). While there has been a veritable explosion of online mentoring opportunities, very few academic articles today have addressed this phenomenon and there is relatively very little empirical evidence on evaluation research on e- mentoring support women entrepreneurs (Enser et all 2003, Stokes et all 2003, Hunt 2005). Therefore, there is a need for much more research on women entrepreneurship training interventions (Botha, Nieman and Vuuren 2006) and therewithal on mentoring support including methodologies and processes for measuring e-mentoring effects on women entrepreneurship.

The present paper aims to suggest an evaluation research process referring to mentoring women entrepreneurship, based on a relevant research project offered to Greek women rural entrepreneurs during the years 2004-2006. The empirical research consisted of quantitative research in which: i) the effectiveness of the experimental design of the e-mentoring support program was tested and ii) the effectiveness of the above program was evaluated.

Mentoring female rural entrepreneurs

Literature view

Business economics, sociology, psychology and other scientific disciplines have devoted a significant amount of research effort in an attempt to define the meaning of entrepreneurship and of the entrepreneur. However, efforts to define and specify the factors affecting rural entrepreneurship has been proven an even more difficult task, due to a series of issues mostly related to the differential forces and impacts exercised by rurality as an entrepreneurial milieu. Hoy (1983) defined a rural entrepreneur as someone who is " ... independent, risk-taking, achievement-oriented, self-confident, optimistic, hard working and innovative". He also stressed the fact that entrepreneurship in a rural context is focused upon creating new employment opportunities in rural areas, via the generation of new ventures. This way he connected the entrepreneurial initiatives in rural areas with the endogenous development of the local agricultural societies. Wortman (1990) also recognises this aspect by defining rural entrepreneurship, as «the creation of a new organization that introduces a new product, serves or creates a new market, or utilizes a new technology in a rural environment". This definition emphasizes the elements of innovation and creativity that can be expected to affect the wider community, within which the entrepreneurial activity takes place. In that sense, the difference between a rural and an urban entrepreneur may be found in the effects of rurality on the entrepreneurial process (Ray, 1999).
A common way of being woman entrepreneur in the rural sector in Greece, is the participation in female agro-cooperatives which permit them to take commercial initiatives in agrotourism, in light industrial and workshop manufacturing products derived from the processing of produce from the farms and selling them, in making and selling cultural heritage items as well as manufacture and sale of organic farm products.
Empirical research conducted in Greece has shown that financial reasons and preference of women to work in teams has led them to the formation of a co-operation instead of an individual enterprise (Gidarakou 1999,Petridou and Glaveli 2005). Today more than 100 women co-operatives are operating in Greece. Their operation has been proven an important factor for the endogenous development of the local economies, but the viability and continuity of such activities is uncertain. The reason is related to problems concerning mainly the knowledge and skills on management, marketing, financial and organizational matters. Furthermore, major drawbacks are connected to difficulties in terms of the behavioural aspects, the relations developed between the women, members of the co-operatives. Initiatives taken through both European and national policies (i.e. EQUAL, NOW) for promoting the viability and effectiveness of small enterprises and co-operatives are centred at helping farm women to undertake entrepreneurial roles and actions.
Mentoring is widely spread among women entrepreneurs in the EU and the same is observed in Greek environment. However it is often pointed out by many authors that, e-mentoring merges the approach of the traditional mentoring relationship with technology, it is looking as a suitable means of support for the traditional physical mentoring relationships and is increasingly used as the preferred choice of communication (Hunt 2004a, 2005) This narrow approach is in contrary by the definitions of e-mentoring which are looking it as a relationship that exists solely through the use of technology or as a supplement to , but not a substitute for face to face mentoring (Stokes et al. 2003) . As Hunt (2005 p. 7) underlines "utilizing technology, E-Mentoring is the process by which two people assist each other to grow and learn in a safe and supportive relationship."
In the present paper this definition is taken as a starting point in order to try to approach an evaluation research of the mentoring process offered in rural female entrepreneurs in Greece , primarily using information technologies (IT), electronic communications, tele–mentoring advisory schemes, video and television programs.

The Greek case

In 2004 within the framework of EQUAL initiative, a Developmental Cooperation was created in order to support female rural entrepreneurs throughout Greece. Since then, advice, training and information services have been offered to unemployed women as well as to early stages female entrepreneurs, who wanted to start their own entrepreneurial activities as members of rural co-operatives , or to develop their already existed. The first mentoring project, in addition to other support programs, was put into practice in May 2004 and since then, more than 60 persons have expressed interest in becoming mentors out of whom 41 were selected: 33 men and 8 women. On the other hand, the interest expressed to become mentees came from 104, all female, 98 of which, being "prospective
and new entrepreneurs ", were granted to participate in the mentoring programs.
In 2005-2006 a mentoring project was run for 12 months during which fifteen (15) mentors (successful & experienced men and women entrepreneurs) were selected and trained in order to support 33 women members of rural co-operatives who wanted to start or to enhance the capabilities of their business.

The framework of the mentoring process was defined by a number of researchers, each one emphasizing in particular principles, stages and key elements of the process (Pegg 1999, Hunt 2005). In the present study the mentoring framework created by a Greek Developmental Cooperation builds on the practical needs of the newly established female entrepreneurs, members of the rural co-operations, and on the available technology infrastructure supporting the e- mentoring processes.

The mentoring process included six stages : i) Publication of the program, ii) Mentors' selection, preparation and training iii) Mentees' selection and training iv) Mentor-Mentee matching, v) development of the relationship, vi) evaluation.

i) Publication of the program. Following the instructions of the EQUAL, invitations were made for mentors and mentees to offer their support on a voluntary basis for the first and to participate in the mentees group for the others. **ii) The mentors' selection and preparation**. Mentors were experienced entrepreneurs or professionals willing to support and counsel inexperienced female new business owners. The selection criteria referred to their personal and professional profile i.e. present occupation, experience, place of activities, motives, knowledge and skills. After being selected they had been trained for 15 hours on the philosophy, aims ,processes and practices of the mentoring programme, the role of the mentor, the needs of the mentees, and the mentor/ mentee relationship **.iii) Mentees' selection and preparation.** The mentees were female new entrepreneurs, members of rural co-operatives and their selection referred to their interest in being supported by a mentor and to the limitation that one at least representative of each co-operation had to participate in the mentoring process. A short preparation course for 10 hours in order to give them a good grounding in what mentoring is and how it works was offered too. **iv) The matching process**. There is no doubt there are conflicting views as to whether any attempt should be made to match mentors and mentees in a formal sense or whether mentors and mentees should to an extent "self seek one another". In the present case, in order for mentors and mentees to join the program, questionnaires were filled out, during the preparation stage, in order to match mentors to mentees according to experience, supporting needs, learning style, expectations and preferences. An "acquaintance" meeting took place and after that the final matching before the initiation of the relationship was made. It had been also foreseen that if for any reason any of the two parts involved in the relationship feels uncomfortable, it was possible for them to be paired with another partner (nothing same happened to the present case). **v) Development of the relationship**. The relationship lasted for 12 months during which the mentors and mentees had approximately 22-25 e-contacts. The mentor/mentee relationship was usually governed by the needs of the beneficiary as well as by their skills, knowledge and experience, **vi) Evaluation**. Evaluation research of the mentoring program, according to the methodology that follows, was undertaken in the

end of the relationship period.

The research design

The research design of the present survey was focused to obtain information about : i) the effectiveness of the mentoring program upon both the mentee and mentors knowledge and behavior and ii) the validity and reliability of the questionnaires, as research instruments of gathering the above information

Factors of primary importance in designing the evaluation research of mentoring support are: i) the determination of the aims of the mentoring program, the subjects to be evaluated, the levels in which one should look for the results and the criteria that should be used in order to collect useful information about the effectiveness of the mentoring process) the quasi-experimental model that will be employed , in relation to the group's number (the experimental mentees'group, the control mentees'group and the mentors'group) and the time of data collection (pre and post) iii) The systematically designed questionnaires, as research instruments in gathering information which record the degree of accomplishment of the mentoring program's goals (validity and reliability tests) iv) The statistical analysis of the data and the relevant discussion.

Measurement levels and criteria used to evaluate mentoring results.

The aims of the mentoring program were the development of the mentees' managerial and entrepreneurial knowledge and skills, enabling their behavioral and attitudinal change in order to be effective in starting up their business and overcoming the crucial early stage period. In the mean time mentors' knowledge and behaviour were also expected to be influenced too.

Therefore, the results of the mentoring support were measured at five levels: i) reactions, ii) knowledge, iii) behaviour, iv) performance. The related criteria used for the evaluation of the results of mentoring in each level are shown in the following Table 1:

Table 1: Measurement levels and criteria used to evaluate mentoring results.

Measurment level	**Criteria Mentees**	**Criteria Mentors**
Reactions	**- Satisfaction with mentoring relationship** (mentors' characteristics, frequency of contact, e- services) **-goals' achievement** **- Continuity of mentoring support** **- Recommendation to others**	**- Satisfaction with mentoring relationship** (mentees' characteristics, frequency of contact, e-services) **-goals' achievement** **- Continuity of mentoring support** **- Recommendation to others**
Learning	-Knowledge (small business management, marketing, finance, product quality) **-Skills** (entrepreneurial , managerial , IT)	**- Kknowledge** (experiences in cooperatives'activities) **- Skills** (interpersonal skills, ability to provide help, IT **)**

Behaviour	**-Attitudes** (facing uncertainty, flexibility, inovation) **- job satisfaction,** **- self confidence**	**Attitudes** (flexibility, interest in people) **-job satisfaction,** **- self confidence**
Performance	**-productivity** **-teamworking** (cooperativeness, conformity,moral, stability) **-cooperative's performance** (viability, effectiveness, adaptiveness**, -**networking development)	**-publicity-networking** **-Personal development**

At the first level , criteria for measuring the mentees' reactions consist of the degree of satisfaction they expressed with a) the mentoring relationship depending mainly on mentor's personal characteristics, knowledge ,skills and behavior, the frequency of contact, the information systems services employed for the e-mentoring process b) the achievement of their goals related to their personnel and cooperation's effectiveness and development, c) their desire to continue in the mentoring relationship and their disposition to recommend it to colleagues. The same criteria were used in order to measure mentors' reactions to the mentoring process. Surveys on mentoring results regarding participants' reactions have employed similar criteria. (Ragins and Scandura 1994, Megginson 2000, Moran and Sear 1997, Orhan and Scott 2001, Kent et al. 2003, Hunt 2005,).

At the second level, the learning that has been acquired by the mentees and mentors as well, can be measured by criteria concerning the development of their knowledge and skills. .According to their individual learning needs, the mentees should improve their knowledge on small business management, marketing, finance, product quality aspects and their entrepreneurial, managerial and ITskills. On the other hand, improvements on mentors' knowledge and skills could be met mainly on their interpersonal skills, leadership, coaching, and ability to provide help as well as on their knowledge based on experiences got in the specific sector of the cooperatives' activities. Literature review about the learning outcomes of mentoring support reveals analogous criteria measuring improvements in mentees' and mentors' knowledge and skills (Sullivan 2000, Kent et al. 2003, Hunt 2005, Rivsa et al. 2005, Botha et al. 2006).

At the third level behavioural aspects as attitudes towards, innovation , flexibility, uncertainty and risk, critical incidents, interest in people, as well as job satisfaction , self-esteem , self confidence, courage can be measured as mentoring results for both mentees and mentors . (Sullivan 2000, Allen et al. 2004, Ardchvili et al. 2003, Kurakato and Hodgetts, 2004, Sarri and Petridou 2006).

Attempting to evaluate the mentoring results at the fourth level, the performance criteria consist subjective measures of mentees' productivity, team working in terms of cooperativeness, conformity, moral, stability and co-operation's viability, effectiveness, adaptiveness, and development. Mentors'-publicity and personal development as well as networking for both sides are looking as mentoring consequences too. Evaluation research at this level of results, although potentially useful, has not been often conducted, which explains the criteria employed in the present survey are only sporadically found in the literature (Carter 2000, Botha 2006).

The experimental design

The evaluation research based on a quasi-experimental design (Cascio 1982), consisted of quantitative research in which data were collected from the experimental group of mentees, the control group and the group of mentors

Questionnaires were used to obtain information from respondents in three times (time series experiment): i) Before the mentoring process took place (T1) ii) after the end of the mentoring process (T2) and iii) six months after they had stopped the mentoring relationship (T3).More specifically, in

time T1 the members of the mentees' group were asked to state their expectations from the mentoring programme , their subjective appreciations about their knowledge, skills, behaviour and performance in a questionnaire (MEQ1T1) which was structured to measure the respondents' expectations, entrepreneurship knowledge and skills, behavioural and performance aspects that were expected to be influenced by the mentoring support . At the same time the control group was asked to complete a similar questionnaire (COQ1T1) measuring the same variables (except at the level of reactions) expected to be influenced not by the mentoring process (as the members of the experimental group) but by the entrepreneurial activities they had been involved in the mean time. After the completion of the mentoring process (T2) the mentees answered the questionnaire MEQ2T2 concerning the degree of satisfaction of their expectations from the mentoring process in the above mentioned four measurement levels of results, whereas the control group filled the questionnaire COQ2T2 , similar to those answered by the experimental group with the previously referred notes. Six months later the questionnaires MEQ3T3 and COQ3T3 similar to MEQ2T2 and COQ2T2 respectively of the previous time, were answered by both the mentees and the control groups.
The mentors expressed their views of the mentoring process by filling in questionnaires MTQ1T1, MTQ2T2 and MTQ3T3 at the 3 phases as the other groups. The questions referred to their expectations and perceived final benefits of the mentoring relationship in the four measurement levels of results, as in table 1 are shown.
It should be noted that all respondents, of the three groups, had agreed to post back the questionnaires participating in the sixth stage (feedback and evaluation) of the mentoring process.

Results and discussion

Demographics

Table 2 shows the personal characteristics of the mentees' and control groups. From Chi-square analysis, it is apparent that all mentees' and control group members' characteristics were similar as far as possible.

Table 2: Sample characteristics

Characteristics	Mentees' Experimental group		Control group		Chi-squar	d.f.	Sign.
Age	**N**	**%**	**N**	**%**	4.11	3	0.0513
under 25	5	15%	4	12%			
25-35	19	57%	17	51%			
35-45	8	24%	9	27%			
over 45	3	9%	3	9%			
Education					4.67	1	0.593
Secondary	12	36%	10	31%			
Higher	7	21%	12	36%			
Post graduate	1	3%	2	6%			
Other	13	39%	9	27%			
Durationof membership inco-operative					4.72	3	0.0616
Start up	14	42%	14	42%			
under 2 years	15	45%	17	51%			
over 2 years	4	12%	2	6%			

From the 33 members of the mentees' group the 14 were "prospective entrepreneurs/members of co-operatives" (42%), the 15 (45%) were less than 2 years members of co-operatives, and 4 women (12%) were more than 2 years members of co-operatives .Besides 5 women (the 15%) that were under the 25 years old, 19 women (57%) were between 25 and 35 , 8 women (the 24%) were 35-45 and 3 women (9%) were more than 45 years old. Their educational level was: 36% (12 women) of

secondary level, 21% (7 women) of university level, 3%(1 women) of post graduate level and 39% (13 women)of other higher level institutions.
The control group was as far as possible similar to the experimental group in terms of age, education level and duration of membership in co-operative. The 12% (4 women) was under the 25 years old, the 51% (17 women) was 25-35 years old, the 27% (9 women) was 35-45 and the 9% (3 women) was older than 45 years old. Their educational level was: 39% (10 women) of secondary level, 21% (12 women) of university level, 6% (2 women) of post graduate level and 27% (9 women) of other higher level institutions. Also, 14 women (the 42%) were about to start up the entrepreneurial activities within the co-operative, 17 women (the 52%) had been members of the co-operatives for two years and 2 women (the 6%) were more than 2 years members of the co-operatives.

Table 4: Mentors' characteristics

Characteristics	Mentors	
Age	**N**	**%**
under 35	2	13%
35-45	5	33%
45-55	6	40%
over 55	2	13%
Education		
Secondary	5	33%
Higher	7	47%
Post graduate	3	20%
Other	-	-
Years of entrepreneurial experience		
Under 10 years	3	20%
10-20	5	33%
over 20 years	7	47%

The mentors' group was 7 entrepreneurs (47%)with more than 20 years entrepreneurial experience ,5 (33%) with 10-20 years entrepreneurial experience and 3 (20%)with less than 10 years entrepreneurial experience, 3 had accomplished postgraduate studies, 7 were university graduates and 5 were secondary education level. The 13% (2 persons) were under 35 years old, the same number (2 persons) and percentage (13%) was more than 55 years old, 5 persons (33%) were between 35-45 and 6 persons (40%) were 45-55 years old (Table 4).

Validity and reliability of the measurement instruments

To address the validity and reliability of the questionnaires addressed to mentees, factor analysis was run and 4 factors were identified. (Table 5). With regard to the reliability of the scale measurements in relation to the variables composing each factor, the Cronbach alpha coefficients were calculated and were judged to be satisfactory (between 0.770 and 0.880). The loading for the majority of the items was deemed satisfactory (>0.5). For the first factor, concerning the reactions to the mentoring support, the items with high loadings were: mentoring relationship, continuity and recommendation, goals achievement. For the second factor, concerning results on learning, both knowledge and

skills were found with high loadings. For the third factor, behavioral aspects, the items were found with high loadings in the following order: attitudes, self confidence, job satisfaction. For the fourth factor, concerning performance, the items productivity, networking, team working and cooperative's performance were found with high loadings too.

Table 5: Factor analysis

Measurment level	Criteria Mentees	Loading	Cronbach alpha
Reactions	- Mentoring relationship - goals' achievement - Continuity and recommendation	0.698 0.553 0.598	0.880
Behaviour	-Attitudes - job satisfaction, - self confidence	0.802 0.762 0.778	0.855
Performance	-productivity -team working -cooperative's performance	0.775 0.560 0.547	0.770

Results of the mentoring support

As mentioned above, the aims of the mentoring program were mainly the development of both mentees' and mentors' entrepreneurial knowledge, skills and behavior. These aims seem to be fulfilled, since according to participants' perceptions, the results are encouraging ,as the mean scores of the variables for the three times of the measurements indicate (Tables 6,7). In order to have more reliable conclusions about the mentoring effects on mentees, the analysis of variance has been undertaken, as it is later presented. The collected number of mentors' questionnaires did not permit to employ such an analysis, but it is noteworthy that all the mean scores were improved at least in the time T2 (at the end of the program). In some cases the positive effects such as the mentoring relationship, the knowledge, and the self-confidence, seem to be maintained and improved even after six months (T3). It is noted that the remarkable improvements on mentors' variables can be traced on their skills and their desire to continue and recommend to others the mentoring process they had been involved in.

Table 6: Mentees' perceptions about the mentoring results

Level of results	Mentees'Variables	Mean T1	Mean T2	Mean T3
Reactions	- Mentoring relationship	3.9	3.4	3.8
	- goals' achievement	2.3	2.4	3.0
	- Continuity and recommendation	3.6	4.0	3.9
Learning	-Knowledge	3.5	4.2	4.0
	-Skills	3.4	3.9	3.7
Behaviour	-Attitudes	1.5	2.6	2.7
	- job satisfaction,	3.3	4.0	3.0
	-self confidence	3.7	4.0	3.1
Performance	- productivity	2.48	2.50	2.49
	-team working	3.4	4.2	3.6
	-cooperative's performance	1.4	1.5	1.6

Table 7: Mentors' perceptions about the mentoring results

Level of results	Mentors' Variables	Mean T1	Mean T2	Mean T3
Reactions	- Mentoring relationship	3.1	3.4	3.6
	-goals' achievement	3.7	3.4	3.4
	- Continuity recommendation	2.9	3.7	3.8
Learning	Knowledge	3.1	3.4	3.5
	- Skills	3.9	4.2	4.3
Behaviour	-Attitudes	4.0	3.8	3.6
	-job satisfaction,	4.0	3.7	4.0
	- self confidence	3.7	3.9	3.9
Performance	-publicity- networking	4.2	3.7	3.9
	-Personal development	4.0	4.0	3.8

Testing the statistically significant differences

In order to check the external validity of the research the t-student test was used to illustrate the statistically significant differences between the experimental (mentees) and control groups in time T1. As table 8 shows statistically significant differences were not recorded (Level of significance >0.05)

Table 8: T-Student test : Comparison of the experimental and control groups in time T1.

Measurment level	Criteria	p-value	DF

Reactions	**- Mentoring relationship** **-goals' achievement** **-Continuity and recommendation**	**0.58** **0.206** **0.640**	**65** **57** **65**
Learning	**-Knowledge** **-Skills**	**0.940** **0.820**	**67** **65**
Behaviour	**-Attitudes** **-job satisfaction,** **-self confidence**	**0.655** **0.442** **0.499**	**65** **65** **65**
Performance	**-productivity** **-team working** **- cooperative's performance**	**0.810** **0.757** **0.344**	**65** **65** **65**

Analysis of variance

Investigating the effects of the mentoring intervention on the four levels of results (reactions, learning, behaviour and performance) the analysis of variance (one way and two way ANOVA) was employed. The one way ANOVA was used in order to find out the mentoring effects on mentees' reactions since there were no measurements from the control group at this level. (Table 9).

Table 9: Analysis of variance (one way ANOVA)

level	**Variables**	**Differences in times T1,T2,T3**	**F**	**p-value**
Reactions	**- Mentoring relationship** **- goals' achievement** **- Continuity and recommendation**	**NO** **YES** **YES**	**2.2** **3.34** **4.36**	**0.012** **0.43** **0.017**

It should be noted that at the level of reactions, concerning the mentees' expectations from the mentoring relationship, statistically significant differences are not observed between the three times, since F = 2.2, equivalent with the p-value 0.12. This indicates that mentees' expectations expressed in time T1 about the mentors' personal characteristics, knowledge, skills and behavior, the frequency of contact and the information systems services , were in a sufficient degree accomplished in times T2 and T3.

At the same level, concerning the mentees' reactions on the degree of their goals' achievement related to their personnel and cooperation's effectiveness and development, because of their participation in the mentoring process statistically significant differences were observed (F=3.34, p-value =0.043) .The differentiation of the mean score in times T1 (2.3), T2 (2.4) and T3 (3.0) is tested by the Newman –Keuls test and declares the non-existence of positive results. Furthermore, the mentees' reactions expressed by their desire to continue in the mentoring relationship and their aspiration to recommend

it to colleagues, found to be positively influenced , since statistically significant differences were observed (F=4.36, p-value =0.017) in the mean scores in periods T1, T2, T3.
From the comparison of the experimental and control groups in the three times T1, T2, T3 by using the two way ANOVA, reliable results are found at the levels of learning, behaviour and performance (Table 10 and Table 11).

Table 10: Analysis of variance (Two way ANOVA)

Level	Variables	Differences between groups				Differences between T1,T2,T3			
			F	P-v	df		F	P-v	df
Learning	-Knowledge	NO	0.63	0.42	60	YES T2T1, T2T3	0.63	0.42	60
	-Skills	NO	1.45	0.23	61	YES T2T1, T2T3	82.72	0	122
Behaviour	-Attitudes	YES	3.2	0	62	YES T2T1	10.43	0	124
	- j o b satisfaction,	NO	1.16	0.28	62	YES T2T1	4.95	0.009	124
	-selfconfidence	YES	0.42	0.51	63	YES T2T3, T3T1	2.8	0.65	126
Performance	-productivity	NO	0.16	0.69	49	NO	0	1	98
	-team working	NO	0.05	0.83	63	YES T2T1,T2T3	6.07	0.003	126
	-cooperative's performance	NO	0.03	0.86	61	NO	1.8	0.17	122

Table 11: Analysis of variance (Two way ANOVA)

level	Variables	Differences because of groups and time interactions	F	p-value	
					df
Learning	-Knowledge	YES	5.82	0.004	120
	-Skills	YES	8.94	0	122
Behaviour	-Attitudes	YES	7.36	0.001	124
	- j o b satisfaction,	YES	4.85	0.009	124
	-selfconfidence	YES	4.33	0.013	126
Performance	-productivity	NO	0	1	98
	-team working	YES T2T1, T2T3	6.07	0.003	126
	-cooperative's performance	NO	1.8	0.17	122

At the level of the learning results, concerning the rural entrepreneurs' knowledge on small business management, marketing, finance and product quality, statistically significant differences are observed in the interaction between the two factors(group and time), since F equals to 5.82, which means that the value of the control probability is 0.004. The differentiation of the experimental group mean score in times T1, T2 and T3 (simple main effect) declares that the mentoring support effects were maintained more in the short-range (T2) and less after six months of the end of the mentoring relationship (T3). At the same level concerning the mentoring effects on the women' skills, like entrepreneurial,

managerial and information technology skills, significant differences were observed in the interaction between the two factors (F=8.94, p-value =0) and it was found that both the experimental and the control groups had been orientated to the same direction . Furthermore, due to the differentiation of the experimental group mean score in time T2 in a greater proportion than the same score for the control group, that is also improved ,we can assume that there are other reasons, additional to the mentoring process, that influence the skills' improvements in both groups.

Scouting for results at the level of behavioural aspects, concerning the rural entrepreneurs' attitudes towards innovation , flexibility, uncertainty and risk, statistically significant differences are observed in the interaction between the two factors(group and time), because F equals to 7.36, which means that the value of the control probability is 0.001. It was tested that the differentiation of the mean score in time T2 referred only to the experimental group and this let us to alert that mentees' attitudes are positively influenced by the mentoring support for the short-range (T2). Similar results are found in relation to their job satisfaction (F=4.85, p-value= 0.009) which shows that the positive results remain for the experimental group only in period T2. Concerning the mentoring effects on the women' self-confidence, significant differences were also observed in the interaction between the two factors (F=4.33, p-value =0.013) .It was also tested that there is differentiation only for the experimental group in time and by using the Newman- Keuls test it was found that this differentiation exists in periods T2T3 and T3T1.

At the last level, the mentoring effects on performance are examined in terms of productivity, networking, team working and cooperatives' performance. Concerning the rural entrepreneurs' productivity, statistically significant differences are not observed neither between the two groups, nor between the times and between their interactions as data shows (F =0.16 and p-value =0.69 for the groups, F=0 and p-value=1 for the time, F=2.41 and p-value=0.095 for their interactions). There are no positive effects of mentoring support on women productivity throughout time. Concerning the rural entrepreneurs' team-working, statistically significant differences are observed in the interaction between the two factors (group and time) since F=4.22 and p-value equals to 0.017. The tested differentiation of the experimental group mean score in times T1, T2 and T3 declares that the mentoring support effects on mentees' teamwork cooperativeness, conformity, moral and stability occurred mainly in the short-range (T2)

Rural cooperatives' performance in terms of viability, effectiveness, adaptiveness, networking and development has been found not to be influenced by the mentoring intervention, as the women responses showed .Statistically significant differences are not observed neither between the two groups, nor between the times and between their interactions (F =0.03 and p-value =0.86 for the groups, F=1.8 and p-value=0.17 for the time, F=1.62 and p-value=0.202 for their interactions).

Conclusions

The present survey has been carried out as the literature review and the empirical research on evaluating mentoring programs revealed the need for further investigation. Furthermore, the luck of evaluation surveys on mentoring support for women entrepreneurs on start up their activities, has addressed the design and implementation of the present research, in order to collect useful information about both the verification of the experimental design employed and the effectiveness of the relevant mentoring program. The proposed evaluation process was based on an e-mentoring project offered to rural women entrepreneurs, throughout Greece, and was tested by means of the quasi-experimental design methodologies (experimental and control groups, pre and post measurements). Statistical tests measuring the reliability and validity of the elaborated questionnaires, as well as the analysis of variance (one way and two way ANOVA) were employed in order to find results about the effectiveness of the mentoring program upon both the mentees' and mentors' reactions, learning, behavior and performance.

Synoptically, the following conclusions were come upon:

- At the level of reactions, mentees' expectations for i) the mentoring relationship were in a sufficient degree accomplished after the end of the mentoring program and even six months later, ii) their goals achievement were not satisfied, iii) the continuation of the mentoring relationship and their aspiration to recommend it to colleagues, found to be positively affected.

- At the level of learning, mentees' i) knowledge is maintained more in the short-range and less six months after the end of the mentoring relationship and ii) skills found to be improved, but it was not certain that this was due to the mentoring intervention only.
- At the level of behavioural aspects, mentees' i) attitudes towards innovation , flexibility, uncertainty and risk, were improved and maintained for a short period after the end of the program, ii) job satisfaction presented the same tendencies as above, iii) self confidence was gained and maintained for both the short and long term periods after the end of the program.
- At the level of performance, mentees' i) productivity had not been positively affected throughout time ii) team working had been positively affected the short term period after the end of the program, iii) cooperatives' performance was not influenced by the mentoring intervention.
- Mentors gained from the relationship the increased knowledge (based on experiences got from the rural cooperatives activities), self-confidence, publicity and the broadening of their connections. All the above, together with remarkable improvements on their interpersonal skills, leadership, coaching and ability to provide help, as well as their desire to continue and recommend to others the mentoring program, had been maintained for a long period.

Despite the limitations referring to i) the mentors' data analysis, due to the small sample, ii) the Hawthorn effect, iii) additional external factors and occurrences, beyond mentoring itself, that may have affected the results, the present study is deem to be helpful for further research in the field of entrepreneurship and especially on the mentoring interventions.

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Business simulation games with entrepreneurs and students – an empirical evaluation

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Abstract

Our main interest in conceptualizing this paper was to find out if simulation games are a valid teaching method for entrepreneurship courses. From a theoretical perspective, the main goal of the method is to fill the need for adequate training in management interdependencies and other complex business issues, in which training and hence uncertainty reduction is a major interest for improving the survival chances of new ventures. As entrepreneurs should have quite a clear picture of which knowledge they need, their assessment of the business simulation method in general and the examined game TOPSIM start-up in particular seems highly reliable. Our main findings in the analysis of 1.327 cases include a significantly better grading of the seminar by the participating entrepreneurs in comparison to that of students. The robust regression model shows that entrepreneurs, those who demand high professional usefulness of the seminar and those with practical working experience rated the seminar better than the average student. We are therefore able to recommend gaming simulations for dissemination as a powerful teaching tool for business and entrepreneurship education.

Keywords

Business simulation, games, start-up, teaching methods, entrepreneurs, regression

Introduction

The value of the entrepreneur to the economy as well as to society as a whole as innovator, employer and risk-bearer is widely acknowledged by now. One major policy aim in fostering entrepreneurship is therefore the general support and training of entrepreneurs. After a long time of disagreement among scholars about the possibility of entrepreneurial training the general opinion is now that entrepreneurs can be trained – at least to some extent, cf. e.g. Timmons (1990, p. 165), Ronstadt (1987, p. 69), Solomon and Fernald (1991). The highest gains of training can be expected for issues in which mistakes of the entrepreneur are fatal. While knowledge transfer in single aspects of subjects such as accounting or marketing is easily possible in traditional classes and makes mistakes therefore less probable, training in comprehensive qualities of entrepreneurs such as understanding of dynamic economic interrelationships is most necessary in the light of the severity of consequences of mistakes, but requires methods which can begin to come up to the complexity of real business. Computer business simulation games aim at closing the afore mentioned methodological gap of entrepreneurial knowledge transfer and training. But it is well known that aims and reality may well differ. We therefore wanted to know the entrepreneurs' opinion of the usefulness of the simulation game teaching method and compare it to a reference group of students. In this paper we present results of over 1,300 questionnaires filled in by participants of the TOPSIM gaming simulation seminar.

Previous evaluation results

The first business simulation game was played in America in the fifties. It was introduced by the American Management Association to fit the needs of managers of big corporations, Li and Baillie (1993, p. 336). As the method has been around now for some time, one would expect two things: First, that it had been adapted to the needs of the specific teaching subject, in our case entrepreneurship, and second, that there had been some research in order to check if this goal had been reached. Empirical evidence on the usefulness of the simulation method is scarce though.

Available research on simulation game evaluation divides mainly into two parts, Feinstein and Cannon (2002). One focus is the improvement of simulation game development, which is characterised by attempts to increase the fidelity level of the games, i.e. their level of realism. A problem here is that higher levels of realism may detract from educational efficacy, as students get lost in a myriad of details. The second focus of the evaluation literature is educational efficacy of simulation games. A necessary prerequisite for training success is the verification of the game, i.e. the model must work as intended. Selecting a good game is essential, as program or logic errors, or poor equipment kill off student enthusiasm. Only if the computer program works, one can proceed to ask the interesting questions: Do students learn anything from the game? And is it valid? Can the conclusions reached from simulation be used in the real world? Only if this can be assured, the simulation game method provides entrepreneurship lecturers with a valuable method delivering the desired touch of reality.

For the question "do they learn anything" there is relatively more evidence in the literature. Wolfe and Chanin (1993) found that simulation games impart conceptual knowledge to the students. In a later work Wolfe (1997) compared the simulation method with case studies and found that simulation works better. Li and Baillie (1993), however, present evidence that the case study method is as effective as simulation games. Washbush and Gosen's (2001) work supports the thesis that the simulation experience improves learning. This is in line with the result that students in complex game seminars rated their learning experience as more valuable than those in seminars in which easy versions of a game were used, Li and Baillie (1993).

Further results concern the learning environment in a simulation game. Wolfe and Chanin (1993) report that group play fosters higher learning levels than play with single units, but self-assigned teams do not outperform randomly assigned teams. The studied games are insofar valid, as superior students can outperform inferior ones, a fact that indicates that

luck does not play too important a role. Games that offer a wide range of user choice in the matters for decision increase motivation with the students, Wideman et al. (2007, p. 13).
Much less literature studies the learning content of the simulation games. Li and Baillie (1993, p. 344) postulate that good games should force students to plan for the long term, with their decisions reflecting a balance between long-term and short-term considerations. As for specific entrepreneurial training content of the games Feldman (1995, p. 352) states that a lot of the games do not relate to the entrepreneurial process: market feasibility analysis, business planning, new venture finance are all features, which a entrepreneurship simulation game must have.
In all, the literature review shows that simulation games have a pedagogical effect. On the basis of the known research it seems safe to say that students learn from the gaming simulation seminars. But the literature cannot answer the question about simulation game validity. In other words, are the conclusions reached in the seminar similar to those reached in the real world? Entrepreneurship lecturers can only provide a limitedly valid opinion on that question, as many of them have never experienced the problems of a new venture themselves and therefore have to draw on theoretical knowledge of the entrepreneurial process. The usually questionned students also lack entrepreneurial experience in their majority and, nota bene, it is just one of the more important goals of the computer simulation seminar to give them a first practical experience. If a simulation game is valid for entrepreneurship education is in our opinion therefore best asked of entrepreneurs themselves. They know best if the simulated reality comes close to their every day business. To our knowledge, however, this kind of evaluation approach, asking entrepreneurs themselves, has not yet been applied. Our dataset contains therefore the opinion of entrepreneurs who participated in a simulation game seminar as well as student opinions for comparison. The next paragraphs show what effects are expected of simulation games and how entrepreneurs are hypothesized to rate them relative to students.

Virtues of the gaming simulation method from a theoretical perspective

Lecturers of entrepreneurship often feel that classical schooling by lectures and reading assignments does not fit the complexity of their subject. They often decide on a combination of lectures and cases, and sometimes even practical projects to get a touch of reality. Now the computer simulation method allows students to be subjected to the type of behaviour evidenced by entrepreneurs in their day-to-day business under the conditions of ambiguity and risk, Sexton and Upton (1987).
A simulation game is a dynamic model of the real entrepreneurial process, in which a balanced number of decision variables require strategic intergration of several subunits such as marketing or new venture finance for organizational startup performance, Keys and Wolfe (1990). The game provides firsthand multiple experiences of management interdependencies and competition in one common marketplace. Participants allocate virtual resources and have to follow the rules of the specific virtual market framework in their decision-making process, Klabbers (1999). This concrete experience and its outcome are observed and reflected on by the participants in an iterative process with immediate feedback, designed specifically to eliminate some of the complexity to accelerate the frame of action of the long-run planning situation in order to mirror the whole entrepreneurial process, cf. Keys and Wolfe (1990). Simulation games are all quite similar in that they require input from the students, process the information and confront the participants with a certain outcome of their decisions, both in absolute terms of profit, loss, liquidity status or market share, and in relation to other virtual competitors. The models of the games are usually designed to show the general principles of management interdependencies and strategy and to teach students not to focus too much on tactical decisions based on the revelations of the short term financial statement. Games differ, however, in the credibility of their scenario, in the appropriateness of their sophistication level and in their technical reliability.
Simulation games are an intrinsically motivating teaching method, cf. Gee (2003), for

problem oriented learning in an authentic context. The decision-making process of the participants is characterised by trial and error, which supports the development of logical thinking and problem solving skills, cf. e.g. Whitebread (1997). But these are generally desirable characteristics of teaching methods. Especially for the needs of future entrepreneurs it creates a mistake friendly environment for understanding, selecting and appropriately using a set of key business skills. Venture evaluation and its understanding are a integral part of the seminar. Entrepreneurs and students are moreover forced to apply otherwise inert knowledge acquired in more or less theoretical classes, cf. Kriz and Hense (2004). Learning without reflection is therefore replaced by critical thinking. This is all the more important as startup reality requires decision-making under uncertainty. The necessary ambiguity tolerance can be sensitized to and in part built up in a simulation game. It is finally possible to describe simulation games insofar as very realistic, as they usually require team building processes as found necessary in startups. The game teaches the importance of unity of purpose in the team of founders and efficient peaceful resolution of the inevitable conflicts under the conditions of uncertainty.

From the theoretical perspective, the objective of the course is not only the procurement of new knowledge about startup strategies, marketing and finance issues, but also to foster a deeper understanding of change processes themselves. The strived for double loop learning process, cf. Argyris and Schön (1996), includes therefore not only the acquisition of new skills and abilities, but also new sensibility and new opinions. It could be rated a success of a simulation game seminar if the participants had not only contextualized their existing knowledge so that they had got a feeling for when and where to use it, cf. Bransford, Brown and Cocking (2000), but also had got a impression about the interdependencies of management decisions of the competitors and their probabilities for dynamic change. Sensitivity to the fact that once acquired knowledge or information might not be true once and for all is a very important training objective for entrepreneurs and other people acting in dynamic environments.

Hypotheses

From the theoretical perspective, the use of business simulation games is highly recommendable for the training of entrepreneurs, as the interdependencies of key business variables as well as managing methods and skills for dynamic change and growth processes can be taught. This is essential training content because mistakes of entrepreneurs in the areas of strategy implementation or business performance evaluation in an dynamic environment are particularly dangerous for the survival of the new venture firm. The existing body of literature suggests that participating in a simulation game seminar has pedagogical effects. On the basis of all the postulated positive effects of gaming simulations, it is now of prime interest to us to find out if the simulation game is more than an academic experiment of thought with a touch of reality. We want to know if the business and methodological knowledge gained is of real use for an entrepreneur, i.e. has the game not only pedagogical effects, but are they the right effects?

Our main thesis is that the simulation game approach is valid if it gets a good grading in school marks by the participating entrepreneurs. In other words, we postulate that good grades indicate a favourable opinion of the participating entrepreneurs with respect to a knowledge gain for once, and second, with respect to its usefulness for their everyday problems in leading a new business. This should be true under the assumption that entrepreneurs are purposeful profit maximizers who want to spend their time reasonably. By assumption we exclude therefore from our reasoning a good grading just for reasons of entertainment or other not primarily targeted sources of potential utility gains for the participants. But exactly for this kind of reason it is possible that the usual subjects of a entrepreneurship simulation game seminar, students, might mark the seminar good or very good. Therefore the evaluation results of entrepreneurs should be much more reliable.

Our thesis depends further on the assumption of a knowledge lead for valuable training content and methodology of entrepreneurs in comparison to students. Entrepreneurs should know better the kind of knowledge that is needed outside the classroom than students.
We hypothesize therefore that entrepreneurs' view of the usefulness of the training method in question and hence their overall grading should be better than that of students (H1), who are often more or less compelled to participating in the seminar and lack the accumulated knowledge of the start-up practitioners. If the business simulation method is fruitful and assuming that the simulation model is valid, the assessment of such seminars by participants with entrepreneurial experience in the family should also excel that of participants with no business background whatsoever (H2). The success of the method in facilitating experiences in practical problem-solving should also show itself in better evaluation results by participants who have some practical work experience or a similar educational background through training on the job (H3). On the other hand we hypothesize that participants who rate their own theoretical knowledge of business issues better, rate the seminar better (H4). As one of the main goals of the simulation seminar is the integration of knowledge, it seems logical to assume that participants who already have some basic knowledge are more apt to understand the various interdependencies of key business skills than participants who need to catch up on basic issues first. Finally the grading should be better if participants can see a clear professional use for their own business in the seminar (H5). For entrepreneurship training it is especially important to generate specific startup knowledge, not only useful, but general skills. The impartion of those, however, might translate in a good overall grading of the seminar.

Evaluation method

Between 2004 and 2006 we collected 1.327 anonymous opinions about the quality of the simulation game method in 72 seminars on the basis of the simulation game software TOPSIM startup. As the evaluation results depend necessarily not only on the method as such, but also on the software used, we briefly present its main content and the organisation of the seminars.
The software allows participants in its different versions to virtually open and manage a surfboard production and store (TOPSIM Easy), a sporting bike production, store and online shop or a fitness studio, which is the software version for training in services. All seminars, regardless of the version used, are organized in the same way and start with the writing of a business plan. Participants search in a virtual internet for information about the virtual market, about locations, cost of labour, cost and contingencies of machinery etc. and draw up their business plan. The difficulty here is to match a opportunity oriented, top down marketing strategy to the financial restrictions. This is usually done during the first half day of the seminar. Then the virtual businesses are founded, i.e. the most important conditions are set, such as location, number of initial personnel, kind of machinery and potential subsidies. On the second, full day the firms start competition in the virtual market for six time periods. First the teams get new information, which might or might not correspond to the projections used for the business plan. Then they prepare their decisions by calculating different scenarios in a excel-based tool. After approximately an hour each team decides and the simulation software calculates market shares, profits, cost per unit and the virtual balance sheet. Participants get immediate feedback and the process starts all over again. At the end of the seminar each teams presents the performance of its firm in a annual meeting to the other teams and the lecturer. This debriefing phase at the end of the simulation is pedagogically valuable for two reasons. First, participants may profit from other teams' virtual experience and second, the lecturer may check and complete the conclusions reached. The main characteristic of TOPSIM in all its versions is to allow maximal performance through congruent strategic decisions in a Porterian sense, i.e. the underlying algorithm of the software rewards careful analysis and long-term planning. For further information see www.business-simulation.net.
Our data stems from participants of seminars on all the TOPSIM versions. In a preparation phase we drew up the two-page, mainly Likert-scale based questionnaire according to the state of the art of data collection on the basis of the theoretical effects mentioned above and subjected it to a pretest in one seminar. After a few minor changes the data collection in entrepreneurship seminars for entrepreneurs by the Hans-Lindner-Institut, a foundation for fostering entrepreneurship, and for business and other students could start. The questionnaire asks the participants' perception of the simulation game seminar and is therefore not as objective an indicator as could be desired, but all the lecturers involved assured strict anonymity, so that our data guarantee a maximum of reliability. A further problem discussed in the simulation game literature concerning reliability is the halo effect, which postulates a relationship between simulation performance of the participant and his game evaluation. However, our experience as simulation game lecturers tells us that performance and evaluation of the seminar do not correlate. Many a student or other participant told us after the seminar how valuable it was to him, and many of them were in unsuccessful teams. Washbush and Gosen's (2001) paper supports our finding.
The use of modern econometric methods shows that the results are robust. First, the plenty of cases allows us to renounce from still heavily discussed methods of imputation of missings in the independant variables. That leaves us with 930 complete cases for multivariate analysis. Missings in the dependant variable, the general assessment of the usefulness

of the business simulation method, have been examined for selection effects by the Heckman (1979) procedure and can be ignored. Therefore we ran standard regressions. The postulations of the standard regression model have been tested for and are all fulfilled but one. As the data have been collected in the course of 72 seminars with different trainers and software versions and possibly other differing circumstances, we have to account for inconstant variance, which is done by using robust standard errors, Gujarati (2003). In the following sections we present descriptive analysis of the structure of participants as well as multivariate evaluation results.

Characteristics of participants – descriptive results

The structure of our dataset is as follows: 23.5% of the participants are entrepreneurs, further 36.4% are generally interested in start-ups and for another 36.1% the seminar was compulsory. The rest did not disclose the motivation of their participation or chose the response field "other". Entrepreneurs are defined as people who shortly started their own business (6.1%) or are in their business-planning process (17.4%). The categories "generally interested" and "compulsory" consist of students. In splitting up our data set by the present occupations of participants, we get naturally a majority of students with 85.3%, as the seminar is in the curriculum, whereas seminars for entrepreneurs do not take place with that much regularity. 5.7% are employed and are elaborating their business plan, 4.3% are self employed. The discrepancy to the 6.1% who shortly started their own business is made up of those who started already but are still employed elsewhere in order to assure a minimum income. 3.1% of the participants are jobless and try to get out of that situation by starting up their own business, which is a subsidized way out of unemployment in Germany. 46.2% of the participants claim to have entrepreneurs in their family, which should have given them the opportunity to collect some practical experience in managing a business.

Other practical experience and therefore a feeling of what skills might be needed in starting up a business can be expected of those 42.4% who have served an apprentice- or mastership. As for academic education, 8.0% have been to a university and 12.3% attended a university of applied sciences, which has a focus on practical usability of the knowledge imparted, and not so much on research. We collected data also on the participants' business education background. 39.5% indicate their prior knowledge of business issues as "good" or even "very good", and a further 37.3% rate their business knowledge as "medium". But that leaves 23.2% who participated in order to gain some business know-how first, and not so much to profit from the most important virtue of the seminar, the experience of seeing the interdependencies of key variables at work.

Interestingly there is a clear predominance of male participants with 60.5%. Our information about the age of participants is consistent with the main findings of entrepreneurship research. Entrepreneurs in the simulation game seminar were of middle age, in the mean 38.0 years old. As the simulation game seminar is recommended to be held for advanced students, their mean age of 24.0 years is not surprising.

We use multiple criteria for measuring the success of the gaming simulation seminar. The first is the general assessment of the seminar in the form of a school mark, whose mean is 2.0 for all participants and 1.8 for volunteers. This may already indicate a higher rating of the usefulness by entrepreneurs than by students. 90.6% of all participants and 95.4% of volunteers would recommend the seminar to others. Further criteria are 10 precise questions of what has been learned during the simulation game, whose evaluation must be left to another paper. Yet we are able to include information on the specific professional usefulness of the seminar in this paper. 56.4%, i.e. more than half, rate the usefulness of the simulation game seminar "very high" or "high", and only 10.1% can make low or no use of it.

Multivariate analysis will now show that many of the positive effects already discovered in descriptive analysis will withstand the overlapping effects of multiple influence factors on the personal perceptions of the pedagogical use of the gaming simulation seminar.

Multivariate analysis

The hypotheses and the suggestions of the descriptive results are finally examined in multivariate analysis. With an R square of 34.87% our regression model with robust standard errors explains a good part of the variance. The incidence of missings reduces our cases from 1.327 to 930, and the number of seminars from 72 to 63. Again, we control for inconstant variance due to differences in the different seminars. For interpretation it is necessary to point out that the best school mark in Germany is a 1 and the worst is a 6. Therefore coefficients with negative signs indicate a better grading, as long as the independant variable gets "better", the higher it is. Let us now look at the results in detail in table 1.

H1: The general school mark assessment is influenced significantly and positively by entrepreneurs (Iberuf_5) as opposed to students (Iberuf_1,(_2,_3)). Therefore we are able to state that those who are supposed to know best what kind of training an entrepreneur needs rate the business simulation seminar best. The opinion of employees or of the jobless does not differ significantly from that of the students.

H2: Our hypothesis that participants with entrepreneurs in the family (o25eltse) rate the seminar better than those with an employee or other non-self-employed background in the family could not be proven.

H3: We hypothesized further that participants with practical work experience in their educational background should rate the seminar better, as they should have some feeling of which knowledge is important in everyday business. Interestingly we get a significant result the other way round. The dummies for those with an education that consists mainly of training on the job are not significant (o2801leh, o2803mei, o2804tec), but the dummy for those with university education is significant on the 10% level and positive, i.e. those who have a theoretical university education rate the seminar worse than their colleague participants with a less formal education (o2807uni). Two explanations spring to mind here. First, one could think that university graduates with usually little work experience have a somewhat underdevloped feeling for everyday problems. Second, and more plausible in our eyes after holding simulation game seminars for three years by now is the fact that some of these students try to beat the software instead of training their economic thinking under the given conditions of the virtual market. In all, the educational background seems not as strong a factor as the entrepreneurial motivation tested in H1.

H4: The level of prior knowledge of business issues should be a significant factor of the overall perception of the seminar, as its main goal is to teach the management interdependencies of key variables. It seems logic to postulate that those who have already a basic knowledge can profit more from the seminar, whereas the other ones might feel too stretched. But this seems not to be the case. Prior business knowledge has no significant influence on the grading of the seminar (o05bwlke). This might indicate that regardless of any prior business courses, participants of all knowledge levels may profit from the seminar.

H5: Finally we postulated that the overall grading of the seminar should be the better, the more the participants rate it useful especially for their professional projects, as opposed to general usefulness which might translate itself in a good overall grading, but not so good a grading of professional usefulness. We find that professional usefulness is highly and positively significant (o03semnu, which is measured by a Likert scale from 1 to 5 where 1 is best). This allows the following conclusions. First this result indicates that a good overall grade is mostly then given, when participants found the seminar professionally useful. Indirect usefulness in a more academic sense for general skills such as logic thinking or problem solving capacities largely seems not to have been rewarded.

Table 1: Regression with robust standard errors

Regression with robust standard errors		observations	930
		F (23, 62) =	10.32
		Prob > F =	0.00000
		R square	0.34870
Number of clusters = 63		Root mse	0.59668
o01note	coeff.	robust std. err.	P > |t|
o03semnu	.4184777	.0440086	0.000
o05bwlke	-.0259358	.023264	0.269
Io23tngru_2	.119306	.1584973	0.454
Io23tngru_3	-.0941614	.061872	0.133
Io23tngru_4	.1542069	.0763093	0.048
Io23tngru_5	.0807991	.1068463	0.452
o24alter	-.0028753	.0050428	0.571
o24gesch	-.1277211	.0498563	0.013
o25eltse	-.0006879	.044736	0.988
Iberuf_2	-.0788943	.0584954	0.182
Iberuf_3	-.207917	.2356272	0.381
Iberuf_4	-.1333106	.0903496	0.145
Iberuf_5	-.267277	.1312021	0.046
Iberuf_6	.0020446	.2222555	0.993
Iberuf_7	-.2715898	.1116027	0.018
o2801leh	.0112024	.0449243	0.804
o2802abi	-.0472612	.0722525	0.515
o2803mei	-.0324622	.1034616	0.755
o2804tec	-.0289037	.1061579	0.786
o2805ba	-.0837128	.094266	0.378
o2806fh	.0080664	.0553199	0.885
o2807uni	.1356593	.0757508	0.078
o2808pro	-.02231	.2075529	0.915
_cons	1.27	.1814055	0.000

Other significant factors include gender (o24gesch), motivation of participation (Io23tngru_4) and the professional category “other”, which contains mainly those who did not want to disclose their present occupation (Iberuf_7). Gender and motivation of participation had been included for control, as it is not surprising that those for whom participation was compulsory will grade the seminar less favorably. Interestingly male

participants constitute not only the majority of participants, but they grade the seminar also significantly better.
In all, we are able to state that hypotheses H1, H5 and indirectly H3 could be proven with our data set. Entrepreneurs, those who demand high professional usefulness of the seminar and those with practical working experience rated the seminar better than the average student.

Conclusion

Our main interest in conceptualizing this paper was to find out if simulation games are a valid teaching method for entrepreneurship courses. From a theoretical perspective, the main goal of the method is to fill the need for adequate training in management interdependencies and other complex business issues, in which training and hence uncertainty reduction is a major interest. As entrepreneurs should have quite a clear picture of which knowledge they need, their assessment of the business simulation method in general and the examined game TOPSIM start-up in particular seems highly reliable. It is therefore quite surprising that the existing body of simulation game evaluation literature does not provide opinions of entrepreneurs themselves on the usefulness of the method.
Our main findings in the analysis of 1.327 cases include a very good absolute grading of the seminar (1.8) by all the voluntary participants including the entrepreneurs, and a still good grading (2.0) from all the participants, including now also the students for whom the course is a compulsory part of the curriculum. The vast majority of students (90.6%) and entrepreneurs (95.4%) would recommend the simulation game seminar to others. The robust regression model finally shows that entrepreneurs, those who demand high professional usefulness of the seminar and those with practical working experience rated the seminar better than the average student. These results may be interpreted as quality seal for the simulation game method.
We are therefore able to recommend gaming simulations for dissemination in the educational community as a powerful teaching tool for business and entrepreneurship education. Considering the highly formal education at most universities, experimantal learning methods could be a good instrument to add practical problem solving competencies and fuller understanding of interrelationships between businesses' functional areas to the necessary theoretical expertise acquired in traditional classes.

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The Use of Personal Journals for Assesment of an Undergraduate Enterprise Module

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Abstract

A personal journal has been used for three years as part of the assessment of a ten credit "Entrepreneurial Skills" module offered as an option for a number of subject areas at Manchester University, including civil engineering, biology, chemistry, computer science and geography. The aim is to introduce students to companies, business models, finance and with an emphasis on analysis rather than simple repetition with the aim of getting the students to think how business issues could be applied to their subject area.

Entrepreneurship is very much concerned with the development of transferable skills and the personal journal is one of the ways we at Manchester have found to help students think about how to gain transferable skills and think about what employers are looking for in addition to specialist knowledge in the students own subject area. The transferable skills element of these courses have proved to be a large selling point to other departments whose more traditional courses often do not offer this transferable skills training.

The ten credit module involves 10 one hour lectures and 10 one hour workshops, using the lectures to teach basic principles and workshops to give the students the tools to complete the projects - In teams the students gather information on a well known "entrepreneurial" company and from this pool of information prepare a 20 minute PowerPoint presentation in groups and write individual reports. The project involves studying an entrepreneurial company of each group's choice and producing a report with conclusions and recommendations as to whether it is doing well/badly and what it should do in the future. There is no examination for the course. The

Journal has formed part of the assessment for the course (15%) along with a project report (60%) and group presentations (25%). The journal has four sections.

1) A skills audit of transferable skills such as presentation skills, report writing, to identify strengths and weaknesses and formulate a plan for improving.
2) A "diary" section where the student comments and reflects on experiences during the 12 week course e.g. lectures and workshops, when they have met in their groups outside of work time, individual research etc. This section is fairly flexible and left to the students as to what they include as long as it is reflective
3) A section where they can detail what they have done to demonstrate each of a range of transferable skills during the project.
4) A statement of involvement in the group work to ensure work has been divided equally is also included – giving them an explicit opportunity to state what they have done, and what others in the group have done for the project (Working in groups clearly gives weaker students the opportunity to do little work without this safeguard).

We have found a number of benefits of using the journals, for example, it helps students focus on transferable skills and records strengths/weaknesses and helps them to structure future plans. It encourages lifelong learning and reflection and learning by experiencing.
It has also provided a number of hidden benefits – It encourages student attendance (so the students actually have experiences to write about in the journal), provides feedback to the lecturing team, and encourages all students to participate equally in the project because of the statement of involvement. One of the most remarkable and unexpected aspects of the use of the journals has been the amount of candid feedback which the students have supplied. This has been far more useful than the feedback supplied on the anonymous feedback forms which the university uses to assess student satisfaction with courses. This has in fact been used to modify the courses in future years. This paper will also look at differences in approaches from different subject areas to the completing of the journals, differences in approaches from small workshop groups (4-5 students) compared to larger groups (25-30) and how we have used the feedback to improve the course.

Keywords

Entrepreneurship Education, Personal Journals, Teaching Methods

Introduction

There are a number of diverse methods for teaching enterprise with mixed and debatable results (for examples see Gartner and Vesper, (1994), Phillips and Styles, (2006)) with theory and practical elements all with their particular champions.

Reflection is accepted as an important way by which people learn (Kolb, (1984) and Honey and Mumford (1986)).There are many examples of using journals for a range of subject areas, particularly the medical area, and using a broad range of methods e.g. from completing clearly defined questions to testing work done during the lesson to unstructured learning diaries. (For example, Schon, (1987), McFarlane, (2001) and Niemi, (1997)). Parker, (2004) also suggests programs should emphasise the need for continuous awareness and learning, and the importance of flexibility and suggests this method can be expected to be more successful when used in programs that embed as well as teach strategic awareness and iterative feedback, where the student takes responsibility for their own learning. Personal Journals, in which students are asked to describe and then reflect on their experiences, are becoming more popular for a number of university courses not just as a method of assessment, but also by means of encouraging the gaining of transferable skills and encouraging reflective learning (For examples see Schon, 1987, McFarlane 2001, Niemi 1997)). Schools in the UK have adopted "records of achievement" which although are not reflective, are a descriptive record of a student's progress and the next logical step is to reflect on these descriptive events so the idea of a reflective personal journal should be a natural progression when these students arrive at university. Schon (1987) has suggested that there are two types of reflection; reflection in action which is described as reflection that occurs during (without interrupting) the activity by thinking about how to reshape the activity while it occurs. It can also be described as thinking while doing. The second type is reflection on action. Reflection on action is reflection that occurs either after the activity, or by interrupting the activity. It involves looking back on an experience and critically examining that experience. The personal journals assess the second type of reflection. For enterprise, for which exams are considered to be not necessarily the best way to test learning outcomes, we suggest personal journals are a useful method of assessment.

The context in which the personal journals have been used

This paper focuses on an eleven week course called Entrepreneurial Skills, for which no prior knowledge is needed and is offered as an optional module to a range of undergraduate degree subjects. The ten credit module involves 10 one hour lectures and 10 one hour workshops, using the lectures to teach basic principles and workshops to give the students the tools to do the project work. In teams the students gather information on a well known "entrepreneurial" company of their choice from a list which includes companies from a range of subject areas such as JCB (Civil Engineering) Dell, Microsoft (Computer Science), Glaxo, AstraZeneca, BP (Biology/Chemistry) plus some more general companies such as EasyJet and Dyson which can be studied by groups from mixed subject areas to prevent some students from some subject areas having a disadvantage or advantage. From this pool of information each group prepares a 20 minute PowerPoint presentation and each group member writes an individual report (2000 words). This company report is

constructed using tools learned in lectures and should have an introduction, analysis using business models, financial analysis and conclusions and recommendations as to whether the company is doing well or badly and what it might do in the future as regards strategy. There is no examination for the course. The personal journal runs concurrently to this task and students are encouraged to fill in experiences from the first week. The 10 lectures include opportunity recognition, competitive advantage and sustainability, company structures, methods of analysis (PESTEL, SWOT, and Porter's Five Forces Models), basic finance and managing growth and change (See Table 1).

The ten workshops are designed to give the students tools for carrying out the project work and include ice breaker activity, how to manage meetings, team roles (Belbin, 1996), using electronic sources of information (To locate unbiased information such using Mintel or FAME databases), presentation skills and practice presentations. They also have two workshops of "consultancy" (Progress reviews) in week five and eight where the lecturer spends time with each group and the students can ask questions and obtain feedback on any work which has been done for the projects so far (and the lecturer can check to see that work is progressing satisfactorily). Lecture class sizes have ranged from 15 to 100 and workshop sizes are capped at 25 to allow for a more interactive experience for the students.

Table 1: Lectures and Workshops for Undergraduate Module Entrepreneurial Skills

Week	Lecture (1 hour)	Workshop (1 hour)
1	Introduction	Ice Breaker exercise
2	Business opportunities	Belbin test and managing meetings
3	Company Structures	Electronic sources of Information
4	PESTLE	Team working activity
5	SWOT	Progress reviews
6	Porters Five Forces	Using PowerPoint (Optional for students)
7	Competitive Advantage	Presentation Skills
8	Finance I	Progress reviews
9	Finance II	Practice Presentations
10	Managing Growth and Change	Practice Presentations
11	Final Presentations	Final Presentations

In their own time, students are expected to meet in their groups to organize their projects, decide on a company to study, to divide up the workload, to share results and prepare and practice the presentation. The format of the personal journal is fairly flexible with students asked to log particular tasks and a space is left for how they attempted it, what they learned, and how they could improve on this task next time – reflection. It has been suggested (Honey and Mumford (1989), Pedler *et al*., (1978)) that the most effective method of using personal journals is in three stages. Firstly, writing a description of the task and what happened, secondly writing down what was learned from the experience and any conclusions drawn and thirdly suggesting how the task could have been differently next time i.e. how you learned from the experience. Guidelines were used, both written and a verbal example by the lecturer as this is thought to improve the success of the journals (Barclay, 1996). Students were given a journal in week one and guidelines were provided as four boxes to be filled in for each activity undertaken.

1.Activity Undertaken (Team or Individual)
2.Knowledge and Understanding enhanced
3.Skills Developed
4.Personal Development (Thoughts and reflection on the experience, lessons learned and actions required)

Prior to completing the personal journals, students were asked to fill in a transferable skills questionnaire where they rated their competence at a number of different skills and compiled an action plan as to what they would like to improve on. It was hoped that this would focus the student's minds on trying to improve their transferable skills during the course or at least recognize that they were important to employers.
It is important to be aware of potential problems using the journals as a method of assessment, the students are not used to reflective working and journals submitted can be too descriptive instead of reflective for weaker students. By encouraging students to fill in separate sections for description and reflection it was hoped this could be avoided. There is also a danger that the students might write what they think the lecturer wants to read, and write only about good experiences, it has been reported by some the possibility of a "loss of honesty and integrity" when it is assessed (Stewart and Richardson, 2000). This seemed to be solved by giving a few examples from my own experience of bad experiences and reinforce the idea that the reflection and learning part is more important than the experience itself, and that it is also equally possible to learn from bad experiences. However, it is likely that the majority of the students would not complete the journals if they were not assessed. Others have also stated that another potential problem is

students simply waiting to the end of the course to write up the journal (Grey and Fitzgibbon, 2003) which generally leads to a lower mark and a poorer experience for the student. In terms of marking, highest marks were awarded to students who reflected on their experiences and suggested future actions rather than simply describing what happened. Taking a range of activities such as lectures, workshops and group meetings, self directed learning also gained more marks.

Results and examples of comments made by students

The things that students generally talked about in the journals were aspects of the lectures which they found useful/poor, the workshops for example what they thought of their Belbin team role, or how useful they found learning about electronic information sources. They also talk about events outside the lecture times, such as when groups need to meet to pool the information that they have obtained and to put together the presentation. They also use this to talk about work they have done independently- where they have found information and detailed things that have been helpful and unhelpful. Some comments and reflection have been picked out from the personal journals which are representative of comments made by the students.

Time management

The most commented on aspect of the work by the students in the reflection was the time management aspects of completing the coursework and in preparing the presentations in which they were very honest. Most groups had chosen a company to study early in the course and had divided the work, but the research work was slow to get done by individuals and was commented on by the more keen students, although most tactfully said that all had contributed equally. For example;

"I have learned to start the work earlier to prevent a rush at the end because research took longer than expected"

"In future, would do the report first even though it took longer, then take slides for the presentation from there"

"need to be more organized, take names and emails of all group members at the first meeting as people don't always show up for lectures"

"Would set an earlier deadline in future"

Team working

In terms of commenting on their fellow team members again this was a popular subject for reflection. For example;

"Felt disappointed by the input of other members, while I didn't want to take over control of the project I felt I had to put in extra work to ensure the presentation happened" and "Most of the group hadn't finished so I felt like nagging, need to set earlier deadlines"

"Two of us contributed 80% of the work, so felt it was an uneven distribution of work" "Required extra motivation with three uncooperative members" "Be more assertive in group work to ensure others produce work"

"Three members turned up with poor quality work, two with nothing this agitated me very much, in future would organize regular checks on progress"

"Not impressed with my group due to lack of communication, important to check up on others work well before deadline"

Practice presentations

These sessions were done in an informal atmosphere to get students used to presenting in front of an audience, particularly for those who have never presented before. Of the practice presentation session, most found this useful. It was clear the presentation skills workshop and practice presentations did boost confidence. Many commented that they found it useful in overcoming nerves. For example;

"Able to come to grips with talking in front of an audience"

And specific points were raised for improving their performance;

"Was able to practice speaking about the subject without just reading off the slides" "Action- Learn the information better so I don't have to keep referring to notes"
"Time was wasted changing between members which was corrected for the final presentations"

Interestingly, also said of the practice presentations was "By seeing who attends you can predict which team members are taking the work seriously"

Progress reviews

These were used to look at students work and for the lecturer to check that work was progressing satisfactorily, and showed that the students although they chose a company to study early, hadn't completed much research by week five:

"Did not get enough out of the progress review session because we didn't prepare"

"The review session could have been useful but we wasted it"

"Asked questions to clarify requirements but hadn't yet done enough research to utilize session properly"

For those who did use it "Gave me confidence as the tutor made sure I was going in the right direction"

"I began to trust my class mates more when I saw them produce work"

Ice breaker workshop

This involved carrying out an exercise, where each student was given a small piece of information needed to complete a puzzle, it was designed so all students would need to talk to each other.

"Everyone was having fun, so people are less tense"
"Looking at a problem from different angles, Accepting the ideas of others"
"Should start listening to people more carefully, but to still take leadership when it is needed"
"Learning to respect others opinions, even if I believed mine to be correct"

"I made a point to respect my team members more"

"Good to nominate a group leader first instead of everyone just talking"

Electronic sources of information workshop

The comment in the personal journals has suggested that the workshop on electronic sources of information where the students are asked to find information on their companies and relate it to real world events is a major breakthrough in the students understanding the relevance of enterprise to their subject area.

"I will read more about world events in a business and biological context, this will help with analyzing companies activities and their reasons for it"

Team building workshop

This was used to encourage the groups to begin to work more effectively together with the first of the progress reviews in the following week. Had considered dropping this exercise for new material but it was clearly enjoyed by the students and fulfilled its aim of illustrating how effective team working can be:

"I have always been told that team working is better but this is the first time it has been shown in such a convincing way"

"Working in a group can easily lead to digression so it is important to avoid this by choosing a chairman"

Finance lectures

It became clear the finance section was the hardest, with the weaker students ignoring this section completely in reports and presentations;

"An extra session on finance would we useful as this was the most difficult" "I realize I have a lot to learn about finance"

Belbin team roles workshop

Most students seemed pleased with how the test turned each having been given a team role profile after completing a brief questionnaire and many commented on the realization that you need to be truthful to get the most out of the exercise:

"Belbin- make decision on instinct and try to be truthful"

General comments about the course

Many students commented or hinted at which parts of the course they enjoyed and did not enjoy and could be used to improve the experience for the students;

"Initially I was dissatisfied with this module as it seemed totally irrelevant to civil engineering, but as I proceeded I began to enjoy making the report"

"Hadn't done anything like this before, so it was quite exciting"

"Although I felt the session today was quite chaotic and not very well organized the lecturer assured us as we progressed things would get clearer"

"Missed a lecture – individual learning is not as good as learning from the lecturer who can emphasise important points"

"Found the first analytical model (PESTLE) difficult, Action: to take more active part in the lecture next time to understand the next model"

"Better to have less speakers for the presentations to make it smoother, avoiding changeovers"

Interestingly, comments and reflection made were very rarely subject specific, but one computer science student suggested "Setting up Wikis or a forum for group members to post work"

Despite the fact that extensive feedback surveys are conducted for all courses at Manchester University (mid semester and end of semester) the personal journals have provided a valuable source of feedback for how the course has been viewed by students despite the feedback forms being anonymous.

University feedback forms consist of simple point system of 1-5 for a number of different categories such as enjoyment of lectures, usefulness, helpfulness of staff, quality of support material and a space of addition comment which is very rarely used by the students. Typically, spaces for comments are not filled in and scoring of courses good, average etc. provides little direction for improvement. Personal journals have picked out specific incidents, which are brought to the attention of the lecturer which can be improved on and really gives a feel for whether the students have enjoyed the course or not. Reflective logs seem to be difficult to plagiarise as they should be unique to each individual and generic comments taken from elsewhere are easy to recognize, experiences described would have to relate to events during the project. No plagiarism was detected for any personal journals. Despite the different subject area backgrounds, no obvious different trends between subject areas in the ways in which they reflected were noted, most of the experiences picked out for comment were common to all students regardless of subject background.

Comparison of students marks from different subject areas and comparing Personal journal marks to report and presentation marks

Table 2: Number of students and average mark for each subject area

Subject Area	Number of Students	Ave Mark (%) Personal Journal	Ave Mark (%) Reports	Ave Mark (%) Presentations
Civil Engineering I	75	61	55	59
Civil Engineering II	18	58	65	69
Computer Science	3	93	64	75
Biotechnology	10	70	68	65
Physics	1	80	83	70
Geography	1	47	80	71
Totals	**108**	**62**	**59**	**62**

Classes were arranged as follows:
Geography student had lectures and workshops with Civil Engineering II.
Computer Science students had lectures with Civil Engineering I, but a separate workshop to themselves. The Physics student was with Biotechnology for lectures and workshops.

Average marks of journals compared to those of presentations and reports do not seem to show a large difference in terms of student's achievements. It is not surprising that the students in the smaller workshops did better since they had more time with the lecturer to ask specific questions about their work.

Conclusions and discussion

The personal journals have been shown to be a successful method of assessment for

this undergraduate module. The marks obtained by students are comparable with those obtained by the other methods of assessment (Presentation and report) indicating the students are not finding the concept of the journals too much of a culture shock compared to exams and essays which they would have been used to previously. The students seem happy to reflect on aspects of the lectures, commenting on whether they thought they were relevant, how much they gained from the workshops, meetings the students had arranged in their own time and self directed work for example, researching information on the internet. The students have accepted that the journal is confidential and so are not afraid to comment on others student's efforts. This has proved valuable when students have failed to hand in reports or not attended presentations, these students usually have a documented history of failing to attend meetings arranged by their groups or sharing work with their group. It is of course difficult to give more or less marks to students who have been highlighted by their peers for good or bad work, although it has been considered by others (Unpublished data). It has clearly encouraged students to take a full part in the projects and limited the possibility of some students allowing others to do the work, since they know that their peers will be commenting on them. However, the personal journals have proved to have many benefits beyond that of simply using as a measure of assessment. It has been used effectively to gain useful feedback about the course and has been used to make improvements based on comments in the journals, for example reducing from two workshops on PowerPoint to a single, optional workshop as most students were arriving at University with a better ability for using PowerPoint than many of the lecturing staff. Also, the decision to change the team working exercise was reversed after reading positive feedback. Prior to this, the only way of obtaining course feedback was the University standard feedback which the University requires students to complete for each module. These forms are anonymous but few comments are usually written by the students, so the journals have clearly provided far more constructive feedback than is gained by other modules that simply use the university feedback form. The personal journal encourages the concept of lifelong learning, the students are often honest and self critical, for example with many suggesting that they would start the research earlier in order to make better use of the progress review sessions. This should be good practice for the future, as reflective logs are being introduced in a number of workplaces for tracking of promotion milestones and annual reviews. It is also used extensively for on the job training such as the University of Manchester Certificate of Academic practice which all new lecturers must complete. The journals are also useful for taking excerpts from for adding to the students C.V. at a later date, many job application forms now ask for examples of instances when a student has shown leadership, or overcome a problem etc. It appears there is no real difference in marks between students from different subject areas, so it seems it can be applied as an assessment method for enterprise skills to any subject area, or mixed groups from different subject backgrounds seemingly without disadvantaging any students. These journals are very difficult to plagiarize with the work being so self specific and generic comments are very easy to spot, indeed no students attempted to plagiarise their work for this course. Overall it has been a positive experience to assess students studying an enterprise module as part of another main subject using personal journals, but this can be taken further, for example to engage students further, a number of educational establishments are using Blogs as a commentary on their course and as a method of reflective learning (Williams and Jacob, 2004).

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Consultancy-based Learning: Interaction and Larning in a Small Business Context

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Abstract

Consultants often work in project teams and project-based learning and in this context consultancy-based learning can be seen as learning while working on real business issues ("learning by doing" or "learning in action").
In the Research Centre for Innovation & Business (Hogeschool Utrecht) bachelor students and teaching staff members are working together as partners in consultancy teams. Small business management problems (acquisition work is already done) have to be solved and clients pay the amount of 3500 euro. The money is necessary to contract sufficient teaching staff (= professionals: experienced senior consultants) and train and teach the students / junior consultants (consultancy skills and knowledge).

The specific aim of this paper is to introduce and explore a consultancy-based learning experiment. To understand the success of the consultancy-based learning programme and to improve the quality of this programme, especially the learning and performance aspects concerning the consultancy projects, a research project started in January 2007. Focus: 12 small business consultancy projects of the Minor Programme Consultancy (30 ects, major level). Main research topics are the following:
interaction and cooperation of student consultants and clients / entrepreneurs;
individual learning (success and failure concerning interaction) and development of entrepreneurial and consultancy competences of student consultants;
performance of student consultants and success of projects in the eyes of entrepreneurs;
learning of small business clients, depth of client learning.

Data are collected by using a questionnaire, face-to-face interviews and panel discussion. The Body

of Knowledge and Skills (BoKS) of management consulting[2] and the self test consultancy competences (entrepreneurial competences are included) of De Caluwé & Reitsma[3] are used to identify and test the consultancy competences of students. To collect data on performance and success of the consultancy projects (consultancy performance) indicators of Phillips

(2000)[4] are used and translated for the small business context. At the end of the projects and programme each participant had to fill in a questionnaire and students (panel), teaching staff and entrepreneurs were interviewed.

The first findings of the research point in the direction that interaction of student consultants and clients contributes to (consultancy-based) learning of all participants. Analysing the data we exploited information concerning the complex role of senior consultants and successful and not so successful interventions (''critical incidents") of student consultants. In the perception of student consultants the behaviour of clients influences the success of interventions. Expectations, motivations and abilities concerning project goals and roles of clients and consultants need attention at the start and during a consultancy project. Only in one case (firm conditions changed dramatically during the project) interaction and communication seem to be connected with active learning of a client. Reflection with students and clients is necessary to become aware of intangible data and important side effects of the projects. In almost all cases clients have not the intention to learn during the project but admit that student consultants bring in new knowledge (esp. marketing), skills ('how to use internet') and attitudes. Students give examples of learned lessons concerning their attitudes and professional behaviour as a consultant. Self-knowledge, self-assurance and communication skills are improved in their eyes. Results of a self-test of consultancy competences underline these perceptions.

Keywords

consultancy, learning, small business, interaction, competences

Introduction

In the Research Centre for Innovation & Business (Hogeschool Utrecht, the Netherlands) we started advising SMEs in the region of Utrecht 4 years a go. Firms have to pay 3500 euro for the consultancy work. Students and teaching staff members work together in consultancy teams. It seems that small- and medium-sized firms benefit from these projects and every year an increasing number of students like to join the programme.
In this paper I'll introduce 8 small business consultancy projects of a Minor Consultancy programme (bachelor students of all disciplines). In these projects there are three actors: a small business client, a bachelor student called 'student consultant' and a member of the teaching staff, a so called 'senior consultant'. The senior consultant is responsible for the final quality of the consultancy process and products and if

2 Body of Knowledge and Skills (BoKS), version 2.0, oktober 2002, Ooa. Source: www.ooa.nl

3 De Caluwé, L. & Reitsma, E. (2006), Competenties van organisatieadviseurs. Management en Consulting Studies. Amsterdam.

4 Phillips, J. (2000), The consultant's scorecard. New York: McGraw Hill.

necessary improves this quality. The student, more specific, there are two or three of them in each team, join a special training programme focussed on management consultancy attitude, knowledge and skills. Student consultants are responsible for the hands on consultancy work. At the end of the projects we reflected with all participants on their experiences. We explored the success and failures of student consultants and the perceived performance with clients. In this paper I'll describe the background, research questions and methodology, the context / research setting and I'll discuss the first research results and give conclusions.

Background

SME business advice / SME consultancy is an emerging field for research (Bennett & Robson, 1999, 2005; Bennett, Robson & Bratton, 2001; Bennett & Smith, 2004; Breen & Bergin-Seers, 2002; Gooderham, Tobiassen, Doving & Nordhaug, 2004; Mole, 2002; Rusten, Gammelsaeter and Bryson, 2003). Loxley & Page (2001) describe SME consultancy as one of the fields of consulting activity. They make the point that an entirely different approach to consulting (of SMEs) is needed: "there is not much slack in the system and priorities can shift suddenly, so you need exceptional flexibility and responsiveness" (Sadler, P. (ed), 2001, Management Consultancy. A handbook for best practice. Part 6, chapter 18, page. 362).
Rusten, Gammelsaeter and Bryson (2003) consider the fact that the use of external consultants may be an unusual event in the life of a SME (small and medium enterprise); companies that do not employ them may be the norm rather than an aberration. They notice three related criticisms mentioned by small- and medium-sized firms on the use of external consultancy: consultants have to be trained (by the firms) to function and they finally run away with knowledge, consultants give competence away that does not benefit the firm and the cost of consultants can better be used to employ more people. Loxley & Page stress the fact that successful consultants can make typical mistakes when consulting small firms. Experience and skills acquired in large firms can not be transferred easily. Assumptions made by Loxley & Page are the following: personal motivations and long-term aspirations of owners or major shareholders are important, the need of clients for multi-skilling and whole brain thinking in order to manage all elements that impact the business. SME clients are professional amateurs who have something to teach and are interested in learning. SME clients do not make time for training courses laid on by the educational establishments. A set of recommendations in a report is not the answer to a firm's development needs; most successful projects are the result of 'learning partner' relationships between directors and consultants. Experienced consultants in their eyes do not questioning whether or not their own personality and values fit in with those of the client. A productive working relationship needs to fit.
In the small business consultancy projects of the Minor Consultancy we meet motivated client-entrepreneurs who want to collaborate with student consultants and senior

consultant / members of staff in order to be able to be successful in their business. According to Chrisman and McMullan (2004) and Chrisman (1999) a contextual learning process, directed and facilitated by an experienced outsider, may lead to the creation of a combination of tacit and explicit knowledge. In the programme Minor Consultancy we have noticed that no so experienced student consultants and senior can at the one hand can lead to new competences of all participants and at the other hand to business success.

Teaching SME consultancy

In the Minor Consultancy programme (half year full-time, 30 ects, bachelor students in their third year) we decided to introduce authentic learning or in my words ‘’consultancy-based learning”. I agree with Williams and Woodward (1994) that effective performance as a consultant is best achieved by using active learning methods. In the Minor Consultancy programme there is a combination of deductive and inductive learning (Fiet, 2001). After a 4 weeks introduction programme on consultancy and research skills (desk research, data analysis, interview techniques) we start with the consultancy projects. Meanwhile training sessions and study groups on theoretical and practical issues continue. We train individual and group skills, issue and business analyses. Theory of project- and changemanagement in relation to project experiences are discussed. Students organise workshops on a consultancy issue and have to deliver a personal skills portfolio.

Members of the teaching staff are teacher, trainer or senior consultant in the programme (Our definition of senior consultants in the Minor Consultancy: members of teaching staff who join the student consultants in consultancy project teams).

All teachers and trainers are experienced and educated management consultants. Senior consultants are in some cases less experienced. Senior consultants, specialists in finance, economics, marketing or business administration, are trained (consultancy skills) before the start of the projects. Field managers help them “learning on the job”. Teaching staff members in the role of senior consultant have to face both learning student consultants and demanding (and learning?) clients. It’s a complex role considering the many functions (consultant / educator, expert, tutor and conciliator). Senior consultants get 52 teaching staff hours to work with students during 15 weeks. Projects have to be finished within this period. If problems rise a senior has to solve them with the help of one of the field managers.

Consultancy teams have to deliver a project plan and documentation during the project. Teams are free to develop their own consultancy approach / style

During the last 3 years it became clear that theory on management consultancy and the BoKS needed critical attention of the teaching staff and students before and during the projects.

Small and medium enterprises have their own dynamics in comparison with large firms. Teaching small business consultancy is in my view like teaching entrepreneurship: it

"involves both arts (e.g. creative and innovative thinking) and sciences (e.g. business and functional management competences)" (Jack and Anderson 1999, Rae 2004, Heinonen, 2006). I agree with Politis that learning and in my view also consultancy-base learning in a small business context can be related to key components of the entrepreneurial process: opportunity, motivation and ability (Politis, 2005).
In the programme and projects we focus on successful performance of the consultants and learning of participants. We stress the fact that the effective interaction of client and consultant is crucial and one of the success factors. To measure success of consultancy projects in general (not only large firms) Phillips (2000) introduced six types of data: reaction to satisfaction with the project (1), amount of learning of those directly involved in the project (2), application or implementation of the project (3), business impact (4), return on investment (5), intangible data, representing important data not converted to monetary value (6).
We introduced these items in our programme and made a translation for a SME context. For the second item, learning, we made a distinction between learning within a 'frame of reference' and learning that involves the capacity to 'bring forward' experience (Huber, 1991) or in the words of Gibb (1995) "learning in order to cope with change and survive and learning that involves the capacity to bring forward experience".

Small business context

The external context (= client organisation) of our consultancy projects of the Minor Consultancy Programme can be characterised as regional small or medium enterprises (majority of the cases), non profit organisations (health care) or institutions for voluntary work (minority of the cases), starting or growing business, have been or still are in contact with SYNTENS (institute for advise SMEs financed by the state), want to make use of students because of low costs, quick delivery, support of teaching staff and interested in an educational context.

Research questions

The context of the Minor Consultancy programme seems a rich environment for researching and learning. In order to explore this specific educational and consultancy context, we indicated 2 topics: teaching of small business consultancy (1) and interaction and learning of junior consultants and entrepreneurs in small business consultancy projects (2). In this paper I'll focus on (2) interaction and learning. Research results will be used to improve the programme Minor Consultancy (1).
The following research questions were formulated:
1. How can interaction of student consultants and clients be characterised? Did student consultants cooperate with small business clients?
2. Which critical incidents (success and failure concerning interaction) took place and which lessons were learned by the student consultants?
3. How successful were the student consultants and the consultancy projects in the eyes of the client?

4. What did the small business client learn? What was the depth of learning?
Project interactions can refer to client – staff member responsible for acquisition, client – senior consultant, client – student consultants, client – consultancy team (juniors and seniors) and student consultants - senior consultant. In this research we focus on the interaction of clients and student consultants.

Methodology

At the end of the consultancy-based learning programme of 2006-2007 we organised a review of the 12 consultancy projects with 36 students, 12 staff members (senior role) and 12 clients. To answer our research questions we explored 8 small business projects and analysed corresponding data (see Appendix 1, Table 1. Features of 8 small-sized firms).
To collect data on organisational context, performance and interaction we used 2 techniques for this explorative research: face-to- face interview and questionnaire (see items in Appendix 3 / Appendix 4). We interviewed two students of different consultancy projects twice during the programme. They acted as representatives for all students participating in twelve projects (information for the interviews was collected on beforehand). Individual students and members of the teaching staff had to fill in a questionnaire at the end of the programme (collecting data on competences, critical incidents, interaction, and performance). 8 clients of small-sized firms (66%) filled in the questionnaire and were interviewed. Data of 8 projects and more specific data of 15 student consultants, 6 senior consultants and 8 clients were analysed.
To identify competences of student consultants we explored the 56 competences of a management consultant identified by De Caluwé and Reitsma (2006). We asked student consultants to fill in the self test (response of students of 7 projects).

Results

According to our research questions the findings can be described as follows:
Research questions 1: How can the interaction of student consultants - clients be characterised? Did student consultants cooperate with small business clients?
To answer these questions we analysed data of 21 students, 6 members of staff and 8 clients. Results: see Appendix 2 (Table 2. 8 small business projects, 2006-2007).

Results concerning interaction client - student consultants:
In almost all cases clients assist student consultants to get adequate business information. Students bring in new expertise and skills related to their task / the project issue. Clients and student consultants seem to need each other (one-sided or mutual dependent?) and collaboration seems necessary. Some

senior consultants seem to play a role in the realisation of equivalence in the interaction. The first meetings with the client are very important in the opinion of student consultants and senior consultants. Senior consultants take no part in this daily or weekly cooperation and join meetings on more formal moments when results are discussed or presentations are planned. The interaction clients - student consultants is characterised as open in 6 cases: students and clients cooperate. In 2 cases clients are willing to cooperate but communication is poor: these clients seem to have not enough time. In one case the client is critical and disappointed because of supposed lack of professional capacity.

Results concerning roles of consultants:

Clients are not in all cases used to cooperate with consultants and the acceptance of the role of student consultant costs time. Student consultants are often compared with placement students. The role of student consultants is characterized as a combination of roles. Student consultants bring in expertise and consultancy knowledge to solve a defined business problem and at the same time they interact with a demanding, sometimes difficult client / entrepreneur and have to control the consultancy process. In one case students see themselves as manufacturers and the client as an engineer. In 2 cases they see their role as an extra pair of hands and in the other cases they perceive a combination of roles: expert and process-consultation.

Senior consultants experience (after 2-3 weeks) a lack of knowledge and have difficulties with their role as senior and supposed professionalism. Seniors seem not to function as experts, educators, synergists, executives, powerbrokers, researchers or conciliators (see 1 + 7 consultancy roles model of Williams and Woodward). They are in some cases coach, tutor or facilitator. Student consultants like senior consultants who perform in more then one role.

Only one client considers himself as a direct project partner and is interested in collaboration in combination with learning. He learns how to use internet, to be concrete, to organise a brainstorm session, etc. At the end of the projects 50% of the seniors criticize the clients attitude, students are positive (70%).

Results concerning client type:

Student consultants perceive in 4 cases involvement of the client and they call them dedicated entrepreneurs. They are demanding but open. Clients are critical and act like a manager in 2 cases. These clients take action / intervene or guide when they think this is necessary and they don't like student consultants who work too independently.

In one case student consultants cooperate with a not focussed entrepreneur and it costs a lot of time to make the project plan. In another case the client is an absent owner / entrepreneur. Student consultants communicate with a staff member.

Results concerning communication tools:

Student consultants make no use of telephone. Internet is very important as well as weekly planned meetings.

Conclusions research question 1:

Student consultants interact with the client and in 6 of 8 cases there is a positive and constructive (weekly) cooperation (according data of clients, students). Interaction between client and student consultants can be characterised as open in most of the cases. In one case interaction and communication seem to be connected with an active learning process of the client. The senior consultant can play an important role at the start of the projects when clients start interacting with the student consultants (to realise equivalence). Student consultants like seniors who are able to perform in more then one role. Further exploration of interaction (students and senior consultants with small business clients in all stages of the consultancy project) and the roles of all participants are necessary. Expectations, motivations and abilities concerning interaction and roles need attention.

Research question 2: Which critical incidents (success and failure concerning interaction) took place

and which lessons were learned by the students?
To answer both questions we used written review material of the 21 students of the 8 projects situated in a small business context. Students described successful experiences and failures concerning interaction with each other, the senior and the client.

Results concerning critical incidents:
(Quotes of students)

Research question: Try to remember a very effective moment of interaction with the client / failure concerning interaction and describe the following: what happened, when, where and with whom, result(s) of your behaviour, what did you exactly do and what did others do?

Successful interaction:
- Our evaluation of project documents with the client: content and presentation of sufficient quality.
- My meeting with the client and our discussion concerning the changes in the plan.
- Our communication with the client during our trip to Antwerp to meet potential clients.
- Our brainstorm session with the client.
- To stay neutral and not to react on jokes of the client I could not understand
- To plan / create a conflict with the client in our weekly meeting in order to get things clear!
- Our good prepared meeting with the client. The meeting had the effect that acceptance of our new plan was 100%!
- Our business-like attitude and use of a laptop during the good prepared meeting with the client.
- We organised a meeting for all participants of the client organisation and realised an agreement.

Failing interaction:
- Our evaluation of project documents with the client (his vision was not clear).
- We failed to deliver our project document in time. Team communication failed.
- The client was not clear about his expectations and could not explain what he wanted to achieve with the project results.
- We had to make a new design because of indistinctive wishes and demands of the client.
- Many changes of our project plan because of changing ideas and wishes of the client.
- Our client had not enough time and talked about less important questions.
- No or late response of the client.
- Our communication with the senior consultant (2x).

In the reviews of students we find a lot of success stories. Almost all students refer to moments of (prepared and scheduled) meetings with the client / client organisation. In their view this is an important moment of interaction with the client. Good preparation of this meeting seems normal (and this can be the result of our skills training). Failing

interaction is connected with teamwork of students, attitude of the client and the fit with and attitude of the senior consultant. A minority of the students have in their opinion not experienced failures while interacting with the client and refer on communication problems with the senior consultant.

Results concerning lessons learned concerning critical incidents:

(Quotes of students)

Research question: what did you learn (topic: effective interaction) and really changed your behaviour?

Attitude:
- professional attitude towards the client
- to face the relevance of my personal meaning in favour of the project goal
- to be critical towards the client because of his ideas
- to be focussed and to be able to mention only the essential questions during a meeting
- not to deliver products before wishes and demands of the client are clear enough
- not to trust everybody
- to develop a new attitude concerning listening and dealing with people
- to be less "easy going"
- to organise a better contact with the client
- to have patience
- to control my emotions during a conflict
- to be assertive in a conversation
- to change my idealistic view
- to become a self-assured person during the project
- to have the courage to intervene
- to deal better with humour and jokes

Skills:
- to make documentations in a professional way
- to cooperate and interact with all participants, different people
- to listen carefully
- to give my opinion and explain my vision
- to be concrete
- to be planned
- to be able to use different techniques to communicate
- to use new modes of communication
- to affirm appointments
- to lead a conversation
- to bring structure in the conversation and to get commitment of all participants
- to do a marketing research
- to negotiate
- to work with colleagues who lacked motivation
- to give a presentation

Knowledge / understanding:
-to know the content of all project issues
-to be able to understand the consultancy process in general
- to know my own power and perseverance
- to understand the work and skills of a consultant / project management

Every student gives an example of learned lessons concerning their attitudes and professional behaviour as a consultant. Almost all students have the opinion that they improved their self-knowledge and self-assurance in their interaction with the client. They stress the fact that they learned to communicate more adequately. The results of the self-test (see also Appendix 6, table 4) management consultant competences of student consultants of 7 small business projects underline the perception of students that they have used their communication competence. 87% of the students used and improved their competence concerning entrepreneurship, 80% concerning conceptual thinking, 80% concerning integrity, 73% concerning vision development, awareness of context, communication, negotiation, decision making and convincing people. A minority of student consultants of 7 small business projects did not make use of so called 'basic competences' (De Caluwé, L., Reitsma, E. (2006) Competenties van organisatieadviseurs. Chapter 8, page 111).

Students do not mention the interaction and cooperation with the senior or juniors as a learning opportunity. Students describe that they have improved their knowledge concerning the project-content issues (esp. marketing), project management and their understanding of the profession of a consultant.

Conclusions research question 2:

All students experience success in their interaction with the small business clients. Weekly prepared en scheduled meetings with clients play an important role in the projects. According to the students the behaviour of their clients is influencing the success of interaction. It's obvious in their opinion that good preparation of meetings, adequate communication skills and self assurance can improve their success. Failures concerning interaction are less mentioned. With their (new) attitude and skills they seem to be more effective in their performance as a consultant. Students explain that they can and will use new learned competences in new (consultancy and other) projects. We have to strike the influence of predicted behaviour of the students. At the moment they participated in the research they had to finish their final assessments.

Research question 3: How successful were the consultants and consultancy projects in the eyes of the client? To answer this question we used data of questionnaires en material of the face-to-face interviews of 8 clients and 6 senior consultants. Results: see Appendix 3 (Items 1 – 12 concerning performance, items 13 – 14 concerning impact).

Results concerning success of consultants and impact:

Reactions of clients concerning satisfaction with the projects (see chapter 3, Phillips, item 1) are in almost all cases positive. 75% of the clients perceive the analyses of the business problem as correct and have the opinion that the meetings with consultants are valuable. Clients (100%) are positive concerning conclusions and recommendations of the consultants. Clients (75%) agree with the fact that the consultancy work has been delivered conform the contract. Only 50% of the clients have the perception that student consultants are in control during the project. Clients (87, 5%) are very positive concerning useful contributions of student consultants and positive (62, 5%) concerning the contributions of senior consultants. A minority of clients (37, 5%) perceive they are invited sufficiently during the project. Senior consultants and student consultants don't agree.

Clients are critical concerning the effective work style of student consultants. Only 37, 5% of clients perceive that student consultants are effective. The amount of learning of those directly involved in

the project (Phillips, item 2) is above normal concerning the students (all have learned see research question 1). Senior consultants became aware of the complex role but are critical concerning their own learning. Learning in their opinion concerns their role as a coach of student consultants and has no relation with the project content and context. Learning of clients, see results of research question 4. Application or implementation of the project (Phillips, item 3) is discussed with the clients. In 5 cases clients can implement project results immediately. Clients are very positive (80%) concerning the business impact (Phillips, item 4) of the projects on the short term. 68% is positive concerning the long term and 22% cannot give a prediction. Only one client is very clear about the item 'return on investment' (Phillips, item 5). The company earned 40.000 euro hiring junior consultants in stead of contracting professionals. In the other cases clients have the idea they pay a good price but have to spend time (= money). Intangible data, representing important data not converted to monetary value (Phillips, item 6) can be listed as follows: management problems of a growing company became clear, a client became more focussed, a new vision on the business was developed, the discovery of unexpected new market opportunity, a client learned to use internet and to make a website.

Conclusions research question 3:

Consultancy projects are successful in the opinion of all participants. The clients of the 8 small / medium-sized firms of this research are positive concerning performance of consultants and the impact of the consultancy work. Clients are critical concerning the work style of student consultants. The project costs are not a problem and reflection with the client is necessary to become aware of intangible data and important side effects of the projects.

Research question 4: What did the small business client learn? What was the depth of learning? To answer this question we used data of questionnaires en material of the face-to-face interviews of 8 small business entrepreneurs. Data of 21 students and 6 members of staff related with the projects of these clients were analysed. In the questionnaire 7 items concerning learning were included. Results: see Appendix 4 (items 1-7 concerning learning).

Results concerning learning:

Clients (75%) and consultants (>75%) perceive that they have learned concerning their functioning during the project. Only 50% of the clients (and seniors) perceive that they have learned new skills (student consultants: 89%). Perceptions on development of new attitudes: clients score is 50% positive (students are not so positive, only 33%; seniors score positive, 75%). According to clients the consultants can learn from their clients. Senior and student consultants don't agree (students consultants are more positive than senior consultants).

Clients are not positive when asked if they have learned from the senior or student consultant. They are more positive concerning learning from a student consultant.

Clients don't think both consultants (seniors and student consultants) bring in sufficient consultancy competences.

Results concerning learning of clients and depth of learning

Results: see Appendix 5, table 3. Learning of 8 small-sized firms / consultancy projects,'06-'07.

Clients of the 7 cases had not the intention to learn at the start and during the projects. In one case the entrepreneur decided to cooperate with the consultants in order to learn new (marketing) knowledge and skills and change his behaviour (his business partner left the firm and he felt the necessity to cope with his new situation). In all cases clients are positive about the fact that they have learned something. Marketing knowledge is frequently mentioned as well as 'how to do' issues / skills and new attitude (use

of internet, to be planned and organised). Learning of the 8 clients at the end of the projects seems to be within the frame of reference (Huber, 1991) and can therefore be defined as learning in order to cope with change of survive. In one case we perceive the first steps in the direction of learning that involves the capacity to 'bring forward' experience (Gibb, 1995).

Conclusions research question 4:

Clients learn in their perception and this learning concerns new knowledge, new behaviour and new skills. They admit that this learning was not their intention. First steps of learning a new frame of reference are only recognised in one project. Further research is necessary on the learning item. We know too little of what happened during the different stages of the projects. The questions ''do clients learn from consultants", "what is the clients perception of the consultants competences", ''how do motivation and ability of clients / entrepreneurs influence the learning of new competences during all stages of the consultancy project" and "are involvement and awareness (of learning opportunities) connected to project / business success and failures'' need attention.

Discussion and conclusions

As a programme manager I made some interesting observations in the last three years: Sufficient project information and communication was and still is important for client / entrepreneurs; a growing group of students has been very motivated to act as a student consultant in a real-life small business context and some of them have been working as a junior management consultant since they left our University; in some cases students were sceptical about small business as a learning environment: they didn't like to be "only an extra pair of hands" and in some cases students experienced the entrepreneur as an difficult partner to cooperate with; teaching staff members were and still are confronted with a (complex) senior consultant role: to consult more experienced colleagues during the consultancy project had and has to be encouraged; consultancy teams with a flying start often faced team problems towards the end and vice versa. During the research period I had another remarkable observation: students, field managers, senior consultants and clients liked the research questions and wanted to reflect on the consultancy projects and their roles. Most of the clients spend more half an hour to contribute to the research project. Almost all clients wanted to go for a new consultancy project with student and invited me to call them for a new contract. Senior consultants became aware of their way of operating during the project and felt relieved with the knowledge that their role had to be seen as a complex one.

In this research we explored 4 research questions concerning effects and outcomes of 8 small business consultancy projects. We focussed on success of the student consultants and learning of all participants (student consultants, senior consultants and clients). We paid attention to critical incidents in the interaction client – student consultants. The first results point in the direction that the small business consultancy projects of the Minor Consultancy programme are successful concerning project results, business and learning opportunities. A small business environment can be demanding and clients /

entrepreneurs unpredictable. In the eyes of the students advising entrepreneurs (here: owners / managers of small enterprises) needs special competences: "they (students) had to become co-entrepreneurs for half a year but at the same time they had to be an expert and business advisor" (panel interview).
Research results will be used to improve the content of our next-year programme for students and the training programme for staff members. We want to pay special attention to the role and function of senior consultants, the cooperation of senior consultants with clients, students and colleagues, the character of small business enterprises and their owners / managers, the way clients interact and cooperate in combination with effective performance of junior (and senior) consultants and (awareness of) learning opportunities and new competences of clients, students and teaching staff in combination with small business success and entrepreneurship. We want to invite client / entrepreneurs to join workshops on project related knowledge issues organised by students. Experts will be invited. Project evaluation will continue but has to take place on more than one moment during the project and will be introduced as a consultancy and learning tool for all participants.
Our first findings of our research point in the direction that the interaction of student consultants - clients contributes to the (consultancy-based) learning process of clients and the project- and business success. New research data are necessary to indicate factors that influence the success and failures of small business consultants in all phases of the consultancy process and the relation with learning and interaction.
In order to improve the quantity and quality of our results we'll make use of different research techniques and instruments (questionnaire, face-to face interview, observation, process-evaluation tool).

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Appendix

Appendix 1:

company	**1. A.**	**2. B.**	**3. C.**	**4. D.**	**5. E.**	**6. F.**	**7. G.**	**8. H.**
branch / sector	Bus. Services	Bus. Services	Bus. Services	Bus. Services	Bus. Services	Bus. Services	Bus. Services	Bus. Services
entrepreneur: m(ale) / f(emale)	m	m	m	m	m	f	m	m
size (number of employees)	5	20	10	12	1	7	1	2
phase of business	start up	growing	start up	growing	start up	growing	start up	growing
research question / focus	new market opportu-nities Belgium	develop-ment of strategic mktg. plan	develop-ment of new franchise formula	analysing new market / HRM customers	develop-ment of mktg. plan	specifications new information system	develop-ment of mktg. strategy	customer & efficiency analyse

Features of 8 small-sized firms of 2006 - 2007.

Appendix 2. 8 small-sized firms / consultancy projects, 2006-2007.

company	interaction: client - junior consultant according to data of clients and students	character of interaction according to data of clients and students	role of senior according to data of clients and students	role of junior consultants according to data of clients and students	client type according to data of students	communication tool according to data of students
1. A.	+, cooperation	open, informal	coach, tutor, facilitator	combination of expert and process-cons.	2 involved entrepreneurs	email, meetings (every week)
2. B.	+, cooperation	open, formal, task orientation	facilitator	extra pair of hands	critical, demanding owner / manager	email, meetings (every week)
3. C.	+, cooperation	open, task orientation	facilitator	engineer-manufacturer	involved entrepreneur	email, meetings (daily, weekly)
4. D.	+/-, poor communication	partly open, formal	facilitator	extra pair of hands	critical, demanding entrepreneur / managers	email, meeting (frequent)
5. E.	+, cooperation	open, informal	coach, tutor, facilitator	extra pair of hands, expert consultation	not focussed entrepreneur	email, meetings (every week)
6. F.	+/- poor communication	partly open, task orientation	facilitator	combination of expert and process-consulting	helping staff member (absent owner / entrepreneur)	meetings (every week)
7. G.	+, cooperation	open, informal, focussed on learning	facilitator	doctor-patient (start), process-consulting	involved entrepreneur willing to learn	email, meetings (every week)
8. H.	+, cooperation	open, informal, task orientation	facilitator	combination of expert and process-consultation	involved entrepreneur not business-like	telephone, email, meetings (almost every week)

Appendix 3.

Performance / Impact

Item 1: correct analyses of client-problem

meaning of:	no	yes
client	25%	75%

Item 2: meetings consultants – client valuable

meaning of:	no	yes
client	25%	75%

Item 3: conclusions and recommendations valuable

meaning of:	no	yes
client	0	100%

Item 4: delivery of consultancy work conform agreement / contract

meaning of:	no	yes
client	25%	75%

Item 5: student consultant is in control during the project

meaning of:	no	yes
student	16%	84%
senior	27,5%	72,5%
client	50%	50%

Item 6: senior consultant is in control during the project

meaning of:	no	yes	?
student	48%	52%	0
senior	75%	25%	0
client	25%	62,5%	12,5%

Item 7: student consultant contributions were useful

meaning of:	no	yes
student	-	-
senior	-	-
client	12,5%	87,5%

Item 8: senior consultant contributions were useful

meaning of:	no	yes	?
student	51%	49%	0
senior	25%	75%	0
client	25%	62,5%	12,5%

Item 9: student consultant invites the client sufficiently

meaning of:	no	yes
student	5%	95%
senior	25%	75%
client	62,5%	37,5%

Item 10: senior consultant invites the client sufficiently

meaning of:	no	yes	?
student	15%	85%	0
senior	25%	62,5%	12,5%
client	37,5%	37,5%	25%

Item 11: student consultant is effective

meaning of:	no	yes	?
student	26%	74%	0
senior	37,5%	62,5%	0
client	50%	37,5%	12,5%

Item 12: senior consultant is effective

meaning of:	no	yes	?
student	39%	56%	5%
senior	25%	62,5%	12,5%
client	25%	62,5%	12,5%

Impact

Item 13: impact of the consultancy work (short term)

meaning of:	no	yes	?
client	10%	80%	10%

Item 14: impact of the consultancy work (long term)

meaning of:	no	yes	?
client	10%	68%	22%

Appendix 4.

Learning

Item 1: did I get new insights (to function in my role as a consultant or entrepreneur/client)?

meaning of:	no	yes / no	yes	?
student	0	0	100%	0
senior	12,5%	12,5%	75%	0
client	12,5%	12,5%	75%	

Item 2: did I learn new skills?

meaning of:	no	yes / no	yes	?
student	0	11%	89%	0
senior	50%	0	50%	0
client	25%	25%	50%	

Item 3: did I develop a new attitude?

meaning of:	no	yes / no	yes	?
student	22%	28%	33%	17%
senior	12,5%	0	75%	12,5%
client	25%	12,5%	50%	12,5%

Item 4: the consultant learned from the client:

meaning of:	no	yes / no	yes	?
student	47%	37%	11%	5%
senior	87,5%	0	12,5%	0
client	0	12,5%	62,5%	25%

Item 5: I learned from the student consultant:

meaning of:	no	yes / no	yes	?
student	6%	26%	63%	5%
senior	25%	0	75%	0
client	25%	37,5%	37,5%	0

Item 6: I learned from the senior consultant:

meaning of:	no	yes / no	yes	?
student	53%	21%	26%	0
client	37,5%	25%	37,5%	0

Item 7: consultant's (student + senior) competences were sufficient

meaning of:	yes
student	68%
senior	50%
client	25%

Appendix 5.

Learning of 8 small-sized firms / consultancy projects, 2006-2007

company	client type according to students	what did the client learn according to clients	depth of learning (new frame of reference?)	agreement on learning?
1. A.	2 involved entrepreneurs	how to enter a new market (Belgium)		no
2. B.	critical, demanding owner / manager	new bus. ideas and how to be more directive	no	no
3. C.	involved entrepreneur	knowledge (franchise), how to be concrete, to work systematically	no	no
4.D.	critical, demanding entrepreneur / managers	marketing strategy, how to be more directive	no	no
5. E	not focussed entrepreneur	how to enter new and existing markets	no	no
6. F.	helping staff member	how to manage the internal processes	no	no
7. G.	involved engineer-entrepreneur	how to enter new markets, how to make a website	yes (after crisis)	yes (after crisis and changing of project goals)

Appendix 6.
Self - test management competences / student consultants 8 small business cases.

Scale: 1 2 3 4 5 ; 1= not at all; 5= totally;

See 1. courage: 40% of the students scored 4 or 5.

Competence management consultant	**Total score of junior consultants of 8 small business consultancy projects (n=15)**	**Total score of junior consultants of 12 consultancy projects of 2006 -2007 (n=32)**	**competence: basic, intervention, expert-, process-orientation**
to be entrepreneurial			
1. courage	40%	48%	expert, intervention
2. individual	53%	58%	
3. independent	53%	45%	expert
4. entrepreneurial	53%	52%	expert
5. market orientation	60%	52%	expert
to be flexible			
6. adaptability	67%	71%	
7. flexibility	74%	70%	basic
8. stress tolerance	67%	67%	
9. self-control	60%	61%	
to be able to organise			
10. control progress	47%	52%	
11. be planned	67%	58%	intervention
12. organise	53%	55%	intervention
13. realise coalitions	47%	42%	process
to achieve			
14. achieve results	53%	65%	expert
15. be detailed	33%	48%	intervention
16. fixedness	40%	39%	intervention
17. achieve quality	60%	71%	expert
18. have energy	80%	74%	process
19. be ambitious	53%	65%	
20. claim a right	62%	66%	
21. solve problems	53%	58%	intervention
to analyse			
22. be analytical	87%	68%	basic
23. think conceptual	67%	65%	basic
24. have a learning orientation	60%	58%	basic
25. be creative	74%	52%	basic
to contemplate			
26. be able to judge	93%	39%	basic
27. be context-oriented	46%	52%	basic
28. develop a vision	60%	45%	basic
29. be innovative	47%	42%	

30. be aware of organisational context	60%	48%	intervention, process
to facilitate			
31. be client orientated	67%	68%	
32. able to coach	60%	55%	intervention
33. able to cooperate	67%	74%	
34. able to listen	87%	71%	basic
35. to be sensible	80%	39%	basic
36. to be accurate	53%	58%	
37. able to inspire	47%	42%	intervention
38. aware of costs	80%	26%	
39. appeal on loyalty	40%	32%	basic
to influence			
40. able to communicate	80%	71%	basic
41. to perform	66%	61%	basic
42. able to convince	60%	55%	basic
43. to be sociable	73%	55%	
to govern			
44. able to decide	73%	58%	process
45. leadership	47%	42%	expert
46. able to delegate	40%	45%	
47. communicate vision	47%	32%	
48. able to consult	67%	67%	expert
49. able to negotiate	60%	53%	
50. diplomacy	60%	52%	
51. risk awareness	74%	61%	expert
52. able to network	54%	52%	
to gain trust			
53. integrity	67%	55%	basic
54. reliable	73%	74%	basic
55. loyalty	53%	48%	basic
56. to create a good atmosphere	60%	58%	basic
57. able to change roles	60%	55%	

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Higher Education, ADHD and the Creation of Student entrepreneurs: is there a Need to Rethink?

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Abstract

Around the world education systems are being charged with the creation of more student entrepreneurs. One group of young people whom, like many successful entrepreneurs, do not normally succeed in the formal education system are those with Attention Deficiency and Hyperactivity Disorder (ADHD). Often regarded as problem cases and/or nuisances, such young people frequently display many of the characteristics traditionally associated with entrepreneurs. The study uses the Durham University General Entrepreneurial Tendency (GET) Test to assess the entrepreneurial tendencies of 30 young people with ADHD. It discovers that they are more entrepreneurial than the traditional university student and, like successful entrepreneurs, have a right-brain learning preference. The implications of the findings are considered for the creation of student entrepreneurship and entrepreneurship education.

Keyword

Student Entrepreneurship, University General Entrepreneurial Tendency (GET), Attention Deficit Hyperactivity Disorder (ADHT, enterprising tendency

Introduction

Both anecdotal evidence and research demonstrate that many successful entrepreneurs have not excelled in the education system. Yet, not unsurprisingly perhaps in the modern, knowledge economy, governments around the world are attempting to stimulate the creation and development of graduate entrepreneurs. This is not something that is new. One of the first courses in entrepreneurship was offered at Harvard Business School in 1947 and in 1953 Peter Drucker taught another at New York University (Brockhaus 2001). Since then there has been a global proliferation of courses (Vesper and Gartner, 1998), and an ongoing debate has emerged on whether and how entrepreneurship can and should be taught.

For example, in the UK, the first courses, launched in the 1980s, were intended to encourage students to start their own businesses on graduation (Brown, 1990; Kirby, 1992). These were followed in the late 1980s by the Enterprise Initiative in Higher Education, which was intended to develop enterprising teaching environments where students developed and applied a range of personal transferable skills. The distinction between the two programmes raises the issue of what Graduate Enterprise is intended to do - increase the number of Graduate start-ups or to equip students with a set of enterprise skills, a way of thinking and behaving that will enable them to meet the challenges of the entrepreneurial –driven business climate of the 21st century? If it is the former, then the exercise is relatively simple. If it is the latter, then it is more difficult, probably requiring a change in both the content of courses and the process of learning (Kirby, 2004). The successful entrepreneur has a set of personal skills, attributes and behaviours that go beyond the purely commercial. It is these attributes, this way of thinking and behaving, that needs to be developed in our students if their entrepreneurial capabilities are to be enhanced and they are to meet the entrepreneurial challenges of the 21st century knowledge economy – whether that is launching a new venture or securing employment. As Ray (1997, 199) has observed *"the skills traditionally taught in business schools are essential but not sufficient to make a successful entrepreneur"*.

What is required is a transformation of the education system. As Chia (1996) has suggested, it would seem necessary to weaken the thought processes so as to encourage and stimulate the entrepreneurial imagination. Whilst this transformation is not impossible, it will be difficult and will not occur over night. However, there is a group of young people, those with Attention Deficiency and Hyperactivity Disorder (ADHD), who appear to display many of the characteristics and ways of behaving traditionally associated with the entrepreneur. ADHD is a neurobiological disorder the cause of which is unknown. It is believed to be genetically transmitted, however, and the result of a chemical imbalance or deficiency in certain neurotransmitters in the brain (Nichey, 2005). Essentially young people with ADHD, mainly boys, are thought of as a nuisance, as, at school, thery disturb others and are frequently in trouble (Bailey, 2006). An estimated one out of 25-30 children are believed to have ADHD (Cooper and Bilton, 1999) with boys outnumbering girls by 3:1. Like entrepreneurs, young people with ADHD under-achieve in the formal education system (DuPaul and Stoner, 2002) and there is a considerable difference between what might be termed the "model" student and the student with ADHD (Table 1)

Table 1: Classroom traits among those with ADHD and those without.

MODEL STUDENT	ADHD STUDENT	REFORMING NEGATIVE ASPECT
Sits still	Fidgets	Animated
Attends	Distracted	Aware
Obeys requests	Disregards rules	Individual
Co-operative	Disruptive	Enthusiastic
Organised	Disorganised	Original
Aware of others	Peer Problems	Intense

Apart from being very different from the "normal" students, young people with ADHD display many of the characteristics traditionally associated with the entrepreneur as mentioned above (table 2). Thus, if a link were to be found with entrepreneurship, not only would it go some way toward explaining why so many successful entrepreneurs are not successful in the education system, but it would identify a potential source of entrepreneurial talent amongst a sizeable group in the population who are currently regarded as something of a problem. Indeed, rather than attempting to make the ADHD sufferer, through medication, more like the "normal" student, it could be that young people with ADHD are a rich source of entrepreneurial talent. Hence, the aim of this research is to explore the entrepreneurial tendencies of those with ADHD compared with other sectors of society, and particularly the "normal" student.

Table 2. The characteristics of entrepreneurs and those with ADHD.

ADHD	ENTREPRENEUR
Easily distracted - seems to always have something new to think about	Short attention span – constantly has new ideas for how to improve the business
Day dreamer – visual thinker	Strong visualisation of their goals, enabling the skill of painting pictures for others
Disorganised	Ability to change direction quickly
Socially undeveloped	Willingness to make mistakes to progress
Starts several projects at the same time, may not complete any of them	Flexible – approaches problems from several different angles, always ready to change direction if that is what is needed
Impulsive	Quick reaction to opportunities
Prone to act without taking the consequences into account	Impatience to grow their business
Low self esteem	Modesty about their achievements
Hyperactive	High energy levels and ability to sustain their drive to get results – always on the go
Inattention	Underestimation of how long it takes to achieve a goal
Not good at using words, written or spoken	Belief in hands on, practical experience rather than training
Distorted sense of time – e.g. will spend hours playing a video game without realising how much time has passed	Immerses themselves in the job and often does not realise how much time has passed
Intrudes	Strong focus on customers and their needs
Hands-on-learner	Hands-on-manager

Source: O'Connor 2002.

Testing for Entrepreneurial Tendency

Although the traits approach to entrepreneurship is now somewhat dated, much attention has been focused on the measurement of the entrepreneurial personality. This not surprising given the importance of the person in business success. Over the years, therefore, numerous measures have been developed in an attempt to identify those likely to succeed, the most common of which are based on responses to a series of statements about the attribute being measured (Rotter,1966; Lynn, 1969; Levenson,1973; Smith, 1973, Steers and Braunstein, 1976, Tziner and Elizur, 1985).

Some of these instruments are simple to complete, some are complex and their reliability and validity is questionable. However, according to Cromie (2000) one of the most useful, comprehensive, accessible and easy to administer and score is the General Enterprising Tendency (GET) Test, developed by staff at Durham University Business School (Caird, 1991). This is a 54-item questionnaire designed to assess five dimensions traditionally believed to be indicative of entrepreneurial personality – Need for Achievement (12 items), Autonomy (6 items), Drive and Determination (12 items), Risk Taking (12 items) and Creativity (6 items). Each item is a statement and participants are required either to agree or disagree with it. Each dimension receives a score of 0-12 (0-6 for the Autonomy dimension) with a composite score for the Test of 0-54. The complete Test takes about 10 minutes to complete and although Cromie believes it requires further work to verify its psychometric properties, it would appear to have "*criterion and convergent validity and good internal consistency*".

There have been numerous applications of the test and from the work of Caird (1991), Cromie (2002) and Cromie and O'Donaghue (1992), it would appear that it is possible to use it to identify differences in the entrepreneurial tendencies of different occupational groups (Tables 3, 4 and 5). As can be seen, the test suggests that undergraduate students (score 33.20) are one of the least entrepreneurial groups in society, much less entrepreneurial than Business Owners/owner managers (score 41.04) or their own lecturers and trainers, even (score 38.28).

Table 3. Means and Standard Deviations for Occupational Group Scores on Measures of Enterprising Tendency.

Group	Means and Standard Deviations	Need for Achievement (Max Score = 12)	Need for Autonomy (Max Score = 6)	Creative Tendency (Max Score = 12)	Calculated Risk Taking (Max Score = 12)	Internal Locus of Control (Max Score = 12)	Enterprising Tendency (Max Score = 54)
Business Owners/ Managers	X	9.92	4.14	8.77	8.75	9.51	41.04
	SD	1.56	1.38	1.88	2.00	1.68	5.44
Teachers	X	8.84	3.32	8.24	7.50	8.17	35.94
	SD	1.94	1.52	2.03	1.94	2.13	5.69
Nurses	X	8.52	2.85	7.97	6.61	7.76	33.33
	SD	1.54	1.30	1.85	1.95	2.21	4.48
Clinical Trainees	X	6.70	3.00	6.10	6.20	7.90	29.40
	SD	2.50	1.56	2.33	1.69	1.29	7.18
Civil Servants	X	8.45	3.00	7.70	6.80	7.50	33.55
	SD	2.44	1.03	2.18	2.07	2.37	7.19
Lecturers and Trainers	X	8.88	4.12	8.48	8.64	8.24	38.28
	SD	1.81	1.33	2.38	2.72	2.07	7.60

(**X** = Mean, **SD** = Standard Deviation, Sample size = 73) Source: Caird 1991

Table 4. Means and Standard Deviations for Groups of given Size (n) on Components of the General Enterprising Tendency (GET) Test.

Group	Means and Standard Deviations	Need for Achievement (Max Score = 12)	Need for Autonomy (Max Score = 6)	Creative Tendency (Max Score = 12)	Calculated Risk Taking (Max Score = 12)	Internal Locus of Control (Max Score = 12)	Enterprising Tendency (Max Score = 54)	n
Business Owners/ Managers	X	9.92	4.14	8.77	8.75	9.51	41.04	73
	SD	1.56	1.38	1.88	2.00	1.68	5.44	

Lecturers and Trainers	X SD	8.88 1.81	4.12 1.33	8.48 2.38	8.64 2.72	8.24 2.07	38.28 7.60	25
Part-time MBAs	X SD	9.49 1.58	3.35 1.51	7.86 2.12	8.08 2.54	9.19 1.96	37.86 6.76	101
Teachers	X SD	8.84 1.94	3.32 1.52	8.24 2.03	7.50 1.94	8.17 2.13	35.94 5.69	101
Managers	X SD	8.96 1.85	3.19 1.22	7.63 2.09	7.43 2.54	8.06 2.13	35.29 6.61	194
Civil Servants	X SD	8.45 2.44	3.00 1.03	7.70 2.18	6.80 2.07	7.50 2.37	33.55 7.19	20
Nurses	X SD	8.52 1.54	2.85 1.30	7.97 1.85	6.61 1.95	7.76 2.21	33.33 4.48	33
Under-Graduates	X SD	7.85 1.99	3.24 1.30	7.48 2.21	7.01 2.24	7.61 2.12	33.20 6.29	661
Clerical Trainees	X SD	6.70 2.50	3.00 1.56	6.10 2.33	6.20 1.69	7.90 1.29	29.40 7.18	10

(**X** = Mean, **SD** = Standard Deviation, **n** = sample size)

Source: Cromie, 2000

Table 5. Means and Standard Deviations for Entrepreneurs, Managers and Undergraduates on the Component Parts of the GET Scale.

	ENTREPRENEURS		**MANAGERS**		**UNDERGRADUATES**	
	X	**SD**	**X**	**SD**	**X**	**SD**
Need for Achievement	9.92	1.56	8.96	1.85	7.85	1.99
Autonomy	4.14	1.38	3.19	1.22	3.24	1.30
Drive/ Determination	9.51	1.68	8.06	2.13	7.61	2.12
Risk Taking	8.75	2.00	7.43	2.54	7.01	2.24
Creativity	8.77	1.88	7.63	2.09	7.48	2.21
Total GET	41.00	5.40	35.29	6.61	33.20	6.29

(**X** = Mean, **SD** = Standard Deviation)

Source: Cromie and O'Donaghue, 1992

Research Aims and Methodology

The research sets out to explore if there is a link between entrepreneurial behaviour and ADHD – i.e it attempts to determine whether young people with ADHD display greater entrepreneurial tendencies than the more "normal" or traditional students. To do this it administers the GET test to a sample of young people with ADHD drawn from The Studio ADHD Centre (www.addtherapy.net) in Surrey, England. The studio has 256 students, ranging in ages from 7-25 years of age. Whilst the results of previous similar research conducted by Cromie (2000) and Cromie and O'Donaghue (1992) with "normal" undergraduates are used for comparative purposes, the questionnaire was also administered to a randomly selected sample of Business Management undergraduate students at the University of Survey. Both surveys were conducted between February and April 2006. In total they yielded responses from 30 young people with ADHD and 50 undergraduate students. Analysis of the responses (table 6) indicates that the samples were not "matched" in that the student sample was predominantly female whereas the ADHD sample was mainly male and there were relatively fewer 18-21 year olds in the ADHD sample compared with the student cohort. In terms of nationality, the two samples were more comparable with the majority in both cases being largely of British origin.

Table 6. Profile Data of Respondents.

	Undergraduate		ADHD	
	No	(%)	No.	(%)
GENDER				
Male	7	23	26	87
Female	23	76	4	13
AGE				
14-17	0	0	8	27
18-21	26	87	15	50
22-25	4	13	7	23
NATIONALITY				
British	25	84	28	94
European	1	3	1	3
Other	4	13	1	3

However, as Stormer (1999) has demonstrated the Cronbach alphas for the GET Test yield an overall rating of 0.86, suggesting that the results of its application are reliable and credible.

Findings and Discussion

The findings (table 7) reveal that the ADHD students in the sample have a higher mean GET test score (35.27) than either the Surrey undergraduate management students (28.0) or the undergraduates (33.20) studied by Cromie and O'Donaghue (1999). However, neither cohort scored more than the average for the population as a whole (37) as calculated by Caird (1988), though the ADHD group exceeded the average population score in 3 out of 5 of the sections in the test (Need for Autonomy, Creative tendency and Calculated risk-taking). Where they "underperformed" was with respect to their "need for achievement" and their "drive and determination". In part, this may reflect the very nature of ADHD as those with the condition do have difficulty, as Nichey (2005) has recognised, focusing (i.e. picking something on which to pay attention), sustaining the focus (i.e. paying attention for as long as is needed) and shifting focus (i.e. moving attention from one thing to another). However, it could also be a reflection of the way they are often viewed and treated by Society, namely as a problem and a nuisance, thereby reinforcing their low self-esteem and self-worth.

Table 7. Means and Standard Deviations on Categories of the GET Test.

Group	Means and Standard Deviations	Need for Achievement (Max Score = 12)	Need for Autonomy (Max Score = 6)	Creative Tendency (Max Score = 12)	Calculated Risk Taking (Max Score = 12)	Drive and Determination (Max Score = 12)	Enterprising Tendency (Max Score = 54)	n
ADHD Students	X	7.07	4.23	8.27	8.00	7.70	35.27	30
	SD	1.48	1.17	1.86	1.91	2.19	5.32	
Undergraduate (Business Management) Students	X	7.07	2.17	6.03	5.27	7.47	28.00	30
	SD	2.14	1.15	2.22	2.17	1.85	6.24	
Entrepreneurs	X	9.92	4.14	8.77	8.75	9.51	41.00	73
	SD	1.56	1.38	1.88	2.00	1.68	5.40	
Under-Graduates	X	7.85	3.24	7.48	7.01	7.61	33.20	661
	SD	1.99	1.30	2.21	2.24	2.12	6.29	

(**X** = Mean, **SD** = Standard Deviation, **n** = sample size)

Source: Survey plus Cromie & O'Donaghue (1992) from Cromie (2000), p.49).

In comparison, though, the "normal" undergraduates, in both the Surrey and the Cromie and O'Donoghue samples, failed to achieve the average scores for any of the categories, even though they have a track record of academic success and might be expected to have, for example, a high need for achievement and the drive and determination to succeed. This suggests that attempts tocreate graduate entrepreneurs is going to be more challenging than might have been first thought. While the reasons for this are unclear, it has been argued elsewhere (Kirby, 2003) that rather than releasing and developing the enterprising tendencies of our young people, the education system actually constrains it by programming the left-brain capabilities of the students. From a neuropsychological perspective (Sperry, 1968, Ornstein, 1975), it would appear that the brain is divided into 2 hemispheres:-

- the left side handles language, logic and symbols. It processes information in a step-by step fashion . Left-brain thinking is narrowly focused and systematic, proceeding in a highly logical fashion from one point to the next
- the right side takes care of the body's emotional, intuitive and spatial functions. It processes information intuitively, relying heavily on images. Right-brained thinking is lateral, unconventional, unsystematic and unstructured. It is this right brained lateral thinking that is at the heart of the creative process.

According to Lewis (1987, 38-39)

"while the left brain requires hard facts before reaching a conclusion, the right is happier dealing with uncertainties and elusive knowledge. It favours open-ended questions, problems for which there are many answers rather than a single, correct solution… The left specializes in precise descriptions and exact explanations; the right enjoys analogies, similes and metaphors. The left demands structure and certainty; the right thrives on spontaneity and ambiguity"

Thus, those who have learned to develop their right-brained thinking skills tend to:

- ask if there is a better way of doing things
- challenge custom, routine and tradition
- be reflective – often deep in thought
- play mental games, trying to see an issue from a different perspective
- realise that there may be more than one "right" answer.
- see mistakes and failures as pitstops on the route to success
- relate seemingly unrelated ideas to a problem to generate a solution
- see an issue from a broader perspective, but have the ability to focus on an area in need of change.

Although the two halves normally complement each other, on occasions they compete or one half may choose not to participate. Importantly, also, most formal education systems since the time of the ancient Greeks have tended to develop in their students left brain capabilities. As Lewis (op. cit. 41) has recognized

"In class, students are expected to acquire knowledge one step at a time, adding methodically to their storehouse of facts until they have sufficient to pass an examination. This demands left-brain skills. The problems students are given to solve more often demand an analytical than an intuitive approach. This, too…is a task for the left hemisphere. Written work, by which ability is chiefly evaluated, must be organized, well argued and logically structured…all left-brain skills. The students considered most intelligent and successful are those who strive after academic goals, can control their emotions in class, follow instructions, do not ask awkward questions, are punctual and hand in class assignments on time. Goal-setting, emotional restraint, time-keeping and matching your behaviour to other people's expectations are all left-brain skills. Children are meant to learn by listening, keeping notes and reading books. All these, too, of course, are tasks in which the left hemisphere specializes".

This may well explain why those with ADHD, and so many successful entrepreneurs, appear not to have succeeded in the formal education system, especially as recent research by Nieuwenhuizen and Groenwald (2004) in South Africa has shown that successful entrepreneurs demonstrate a preference for right brain thinking. Accordingly, the research also explored the brain dominance of the two cohorts (i.e. those with ADHD and the Surrey Management students). To do this, it administered the Alert Scale of Cognitive Style Test developed by Crane (1989) at the Western Michigan University. The test comprises 21-questions, in which the participant has to pick one statement out of two, statement A or statement B, with which they agree most, without leaving any blanks. The categories in which this test score determines whether an individual is predominantly left or right brain are shown below:

- 0-4: Strong Left Brain
- 5-8: Moderate Left Brain
- 9-13: Middle Brain
- 14-16: Moderate Right Brain
- 17-21: Strong Right Brain

The results (Table 8) reveal that the majority of the Surrey Business Management students have a Moderate Left Brain (37%) dominance, whilst 47% of ADHD students were Strong Right Brain. None of the ADHD students were Strong Left Brain, compared with 13% of the Business Management students. Overall, 80% of the ADHD students had a right-brain learning preference, compared with only 27% of Business Management students. Alternatively, 50% of the Business Management students had a left-brain learning preference, with the ADHD students scoring 3% in these categories combined. With consideration to a Middle Brain preference, 23% of the Business Management students scored in this category, with the ADHD students obtaining a score of 17%.

Table 8. Alert Scale of Cognitive Style Quiz Results.

BRAIN HEMISPHERE DOMINANCE	BUSINESS MANAGEMENT STUDENTS		ADHD STUDENTS	
	Result	Percentage (%)	Result	Percentage (%)
Strong Left Brain	4	13	0	0
Moderate Left Brain	11	37	1	3
Middle Brain	7	23	5	17
Moderate Right Brain	6	20	10	33
Strong Right Brain	2	7	14	47
Average Result	MIDDLE BRAIN		MODERATE RIGHT BRAIN	

Thus, the results suggest that there is a difference in the brain dominance of the two groups and that, like the successful entrepreneur, those with ADHD, have a right brain learning preference. This would explain why both entrepreneurs and students with ADHD fail to succeed in an educational system that is predominantly left brain in its orientation. However, it might also suggest ways in which

- the educational system needs to be changed if more entrepreneurial graduate students are to be developed, and a fairer system is to be created that meets the needs of those students with right-brain learning preferences as well as those whose preferred learning is left-brain oriented.
- the attributes of those with ADHD might be perceived in the future and not just harnessed to create more entrepreneurs but used constructively to change perceptions and give "sufferers" a sense of self worth – instead of them being seen as a nuisance and a problem, they are regarded as possessing attributes that are much needed in contemporary society.

Conclusion

It has been observed that a large proportion of entrepreneurs have ADHD (Bailey, 2006). Bill Gates, Oprah Winfrey, Donald Trump and Martha Stewart all have ADHD and research from the University of Southern California is reported to *"show that there is a genetic link between Entrepreneurship and ADD/ADHD"* (Frank, 2006). In the article, Daniel G. Amen M.D states that individuals with ADHD *"are people who take risks, need people to help them stay organised, don't like working for other*

people, have a lot of energy and are good at multitasking". This suggests that there is emerging evidence that recognises, for example, *" the connections between ADD and creativity"* (Marshack, 2005) and that ADHD need not hinder success and can lead to entrepreneurial achievement. In a society, like the UK, that is concerned to increase the number of young people, particularly graduates, this could be important.

Given these similarities between those with ADHD and entrepreneurs, the aim of this study was to examine the entrepreneurial tendencies of those with ADHD and to compare them with the typical university undergraduate student. The findings have revealed that the ADHD cohort possessed more entrepreneurial tendencies than undergraduate students and that they, like successful entrepreneurs, were more likely to have a right brain dominance. Clearly such findings have implications for the creation of student entrepreneurs, for education and for those with ADHD. First, for the creation of student entrepreneurs, the findings would suggest that if the entrepreneurial tendencies of those with ADHD could be harnessed successfully, then it should be possible to increase the number of new venture creations by students and young people. Second, they would suggest that if the education system is to create more student entrepreneurs, then it needs to develop the right-brain capabilities of its students, not just the left as has been traditional. Such as shift in emphasis, from left to right brain learning, would not just help create a more entrepreneurial student population, however, but it would help create a more equitable educational system, whereby those traditionally disadvantaged by the present system would be able to play a more active part in the formal educational process. In an education system such as that of the UK, where fewer than 50 per cent of all school leavers enter higher education, a revised system that can harness the talents of those who traditionally have been regarded as failures must surely be an improvement. Finally, for those with ADHD, it is important that their entrepreneurial tendencies are recognised and harnessed in order not just to encourage them to start their own ventures but to change perceptions of them, help them develop their self-esteem and self-worth and bring them into "mainstream" society. In order to do this, it would seem necessary, though, to introduce them into entrepreneurial teams whereby their positive attributes can contribute to the success of the team and their negative attributes can be compensated for by their more traditional colleagues. As Belbin (1981) has recognised, teams are made up of individuals with different attributes and roles and although no test hast been made for it, it is likely, given the known attributes of those with ADHD, that in Belbin's typology, they will perform the role of the plant. The plant, according to Belbin, is the ideas person, the team's chief source of new ideas. Plants are creative, imaginative and frequently unorthodox people whose ideas may seem impractical and who may seem distant and uncommunicative. They are usually dominant, introvert and creative, normally with a high Intelligence Quotient (IQ) and can be prickly and not good at accepting criticism. If their ideas are not accepted they may withdraw and may need to be coaxed.

Clearly these findings are only tentative. The sample is small and the "control " sample is not matched exactly. Also, it only includes management students. However, the

findings do seem to point to a line of research that could be potentially fruitful and could play an important part not just in the task of creating more entrepreneurial students but in helping develop an education system that is fairer and more inclusive, as well as being capable of meeting the entrepreneurial challenges of the 21st century. Not only is there a clear need for a larger investigation, involving a bigger sample and a multi-disciplinary research team, but the control sample(s) need(s) to be matched more precisely. This is important, as it could be that other types of students (e.g. those studying Arts and the more creative disciplines for example) display more entrepreneurial tendencies and learn differently from those that are studying management. Hence it would seem that there is a need, at the very least, for a much larger investigation with "control" samples for different types of students.

Whatever, this preliminary investigation does appear to confirm that the similarities between entrepreneurs and those with ADHD are not just coincidental – that there is indeed an associational link and that it is this link that might explain why so many successful entrepreneurs have not succeeded in the education system and why the education system produces so few successful entrepreneurs. It suggests that if the education system is, indeed, to produce more entrepreneurial students, then it needs to change and if society is to create more entrepreneurs, then perhaps it ought to be harnessing more effectively the latent entrepreneurial tendencies of those with ADHD who have traditionally been regarded as "failures", rejects and misfits.

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Best Practice Full-Stop: Anticipating the Spillover Effects of Enterprise Education

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Abstract
This paper considers the potential flow-on benefits that may arise from the increasing provision of enterprise education. The issue of vulnerability is proposed to be a factor associated with superior learning outcomes. Therefore, this paper aims to highlight the use of student and facilitator vulnerability to increase the capacity for learning in Higher Education. It is argued that students benefit from having to struggle to find their identity within a learning environment. That group work can assist the development of confidence through which improved learning behaviours are adopted. Also, the development of good learning practices in the domain of enterprise education have the potential to aid student learning outcomes in other areas of study. This paper provides another means of valuing the potential gains to be received from enterprise education.

Keywords
Enterprise education, learner-centred, vulnerability

Introduction

This paper contemplates the potential significance of enterprise education to student development within the higher education setting. The contextual backdrop of the

discussion is the developing *hic et nunc* teaching framework used at the University of Tasmania. The philosophical foundations of the *hic et nunc* process have been discussed elsewhere by Jones (e.g. 2005a; 2006a; 2006b; 2006c; 2006d) and have received national acclaim for teaching excellence. However, it is the emergence of a speculated generative mechanism (Bhaskar, 1979), postulated to be a form of vulnerability that is the primary focus of this paper. It is argued that observed learning behaviours, associated with excellent student learning outcomes are accounted for by ongoing presence of widespread vulnerability within the *hic et nunc* teaching framework.

The research method used within this paper has been modeled on Hayward's (2000) cycle of reflective practice within which the seminal works of Dewey (1933), Kolb (1984) and Schon (1983; 1987) where successfully integrated. This process of reflective practice is designed to allow the self-reflection of one's practice with the aim being the development of new knowledge that is personally relevant. The process began in 2002 with the author's participation in the development and delivery of a new degree program in entrepreneurship. During the last four years a continuous cycle of acquiring feedback from multiple sources (Brookfield, 1995), reflecting upon the information received, drawing inferences from that information, developing new patterns of thought and then taking action to alter practice has occurred. Evidence of the process and its outcomes can be found in the numerous peer-reviewed publications related to the programs past development (Jones 2006a; 2006b; 2006c; 2006d; 2006e; 2006f, Jones 2005a; 2005b; 2005c, Jones & English 2004, Jones 2003, and English & Jones 2003).

The research is based on a single-site case study with the data collected almost entirely by the author. The following sources of data were collected; an initial review of literature related to entrepreneurship education, informal student feedback (both one-to-one and one-to-many), formal student feedback (Student Evaluation of Teaching and Learning), peer observation by colleagues, mentor feedback, and continuous interaction with the literature. At this point in time, the research process has been focussed on developing explanations of observed outcomes (Mahoney, 2003). The reasoning for this (reflective) position is that the explanation being developed relates to outcomes that having already occurred (cannot be tested), and therefore the challenge is to develop a proposition (and a number testable postulates) that tease out the presence of an (unobservable) generative mechanism. So initially, a leap of faith is required to propose the existence of the generative mechanism with the view that that such insight is eventually supported through testing of the postulates.

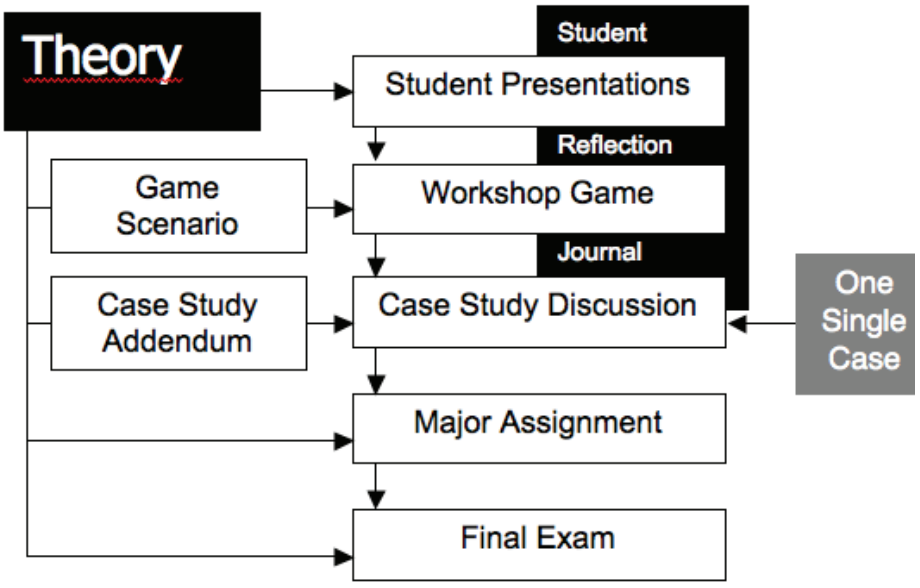
The remainder of the paper is structured as follows. First, a very brief history of the hic et nunc teaching framework is provided. Second, the concept of vulnerability (within the context of hic et nunc) is explained. Third, the authors initial observations and reflections are presented. Fourth, a set of testable postulates are developed for the purpose of teasing out the potential significance of the concept of vulnerability to overall student learning outcomes. Fifth, evidence is provided that demonstrates the importance of the concept of vulnerability to best educational practice. The paper concludes with a summary of the unique contribution that enterprise education potentially may make within the broader domain of higher education.

The key proposition is that enterprise education is increasingly being developed to allow students to learn through and for, rather than about particular subject matter (Gibb, 2002). The consequences of all manner of experiential forms of programmes developed is the potential for greater student engagement in the learning process than that typically occurring in more lecture-centred learning processes. As a result, students may intentionally (or unintentionally) place themselves in more exposed situations where their epistemological assumptions (Baxter-Magolda, 2004) are positively reshaped. However, two very significant and interrelated issues are central to these claims. The first is that, students may in fact become the co-architects of their learning environment (Jones, 2006b). The second issue is that it may well be the personality and approach of the facilitator that most influences the presence of student vulnerability through which enhanced student learning outcomes are possible. As such, it is the facilitator's preparedness to also be vulnerable to the learning environment that matters as well. Within the context of the discussion, the final section of the paper considers the potential transferred benefits of enterprise education provides to students engaged in other areas of study. The great poet Yates apparently noted that 'education is not the filling of a pail, but the lighting of a fire'. It is argued that this beautifully captures the potential benefits students gain from involvement in a truly learner-centred enterprise programme.

The hic et nunc Teaching Framework

Inspired by the literal Latin conversion of the term, here and now, the hic et nunc framework encourages and enables each individual student to learn in their here and now (Whitehead, 1929), accommodating the development of differing interpretations of the required learning topics. A key factor in the learning process has been the provision for continuous student reflection (Tyler, 1949) related to the repeated learning activities that occur during the fortnightly workshops. Over time the learning activities have evolved to include games, case study discussion, workshop presentations and reflective journals that are all tied to the topics introduced cumulatively throughout workshops. The configuration of the learning activities is illustrated in Figure 1 below.

Figure 1 – The *hic et nunc* framework



The purpose of the learning activities developed and continually refined is to accelerate the "process of changing the behavior patterns … [of the students] … using behavior in the broad sense to include thinking and feeling as well as overt action" (Tyler, 1949, pp. 5-6). There are two specific aims of the program. One relates to assisting students to be capable of making the journey from student to graduate entrepreneur and the other (more general) aim relates to helping the students develop the attributes of a reasonable adventurer. Heath (1964) defines the reasonable adventurer as a graduated student capable of making his or her own opportunities for satisfaction. A disposition argued within this paper to be a necessary pre-condition for engaging in entrepreneurial behaviours.

The Courage to teach … and learn

It has been argued that teaching is a unique profession (Parker 1997, p. 17). That when we as educators despair, teaching may become a "daily exercise in vulnerability". That as a consequence, we may disconnect ourselves from our students, and even our subjects to reduce such vulnerability. That we may be reduced to play acting the educators' role. The wonderful insights of Parker, in his discussion of the courage that is required to teach effectively fail to incorporate the role of student vulnerability into the process of learning. Weimer (2002, p. 26) states that educators "are motivated to control because teaching makes us vulnerable". Attention has previously been given to the potential fragility of the learning environment that students may encounter, and the ensuing uncertainty that may be introduced into their learning experiences (Barnett and Coate, 2005). However, the benefits of purposefully introducing uncertainty into the learning environment to increase the nature of student vulnerability have received little attention as a means of achieving good educational outcomes.

Baxter-Magolda (2004) argues that a fundamental transformation within me epistemological, interpersonal, and intrapersonal assumptions is required for each student to develop into an adult capable of self-authorship. It has been the experience of the author, that such transformation may indeed be facilitated positively by the creation of a learning environment within which students embrace higher degrees of vulnerability. That the role of the educator is to lead by example and demonstrate their willingness to be vulnerable to the student body. That in doing so, a pathway to a 'neutral space' is created, a space where mutual respect is developed and shared and friendships are developed through which meaningful educational processes can be shared. A space where the students themselves are the teachers, and therefore engaged in the "highest form of understanding" (Boyer, 1990, p. 23).

Self-observed comments

The most obvious observation that can be made regarding the process of student learning (via the hic et nunc processes) is that the personal development of individual students would seem closely related to their intellectual advancement. Returning to Heath's (1964) concept of the reasonable adventurer, his six specific attributes are readily observable as pivotal factors through which student learning is advanced. The students are comfortable and alternate between being a believer and a sceptic. The degree to which they shift from exploring the application of knowledge to applying knowledge is determined to by the stability of the context they bring to the classroom to refer their knowledge acquisition to. As the students advance through several units and are exposed to new events and contextual issues, they are continually confronted by the need to reconsider the manner in which they have reconciled knowledge to their past contextual frames.

Another factor that is very obvious is the degree to which close friendships are formed. Friendships that enable individual students to discover the individuality of others. Friendships that provide a medium through which prior perceptions of oneself, may be altered through an appreciation of the individuality of others. Also, the experiential nature of the learning process provides an increased reliance on judgement and intuition as an avenue towards self reflection. Typically, as that length of time that students are engaged in the process increases, so does their tolerance of ambiguity. Students tend to be prepared to suspend judgement until they themselves have gathered sufficient information to reach a final decision. Exposure to the views and understanding of other students provides a valuable means of increasing their breadth of interest. Lastly, and the infusion of humour throughout the entire process provides a means of students being capable of being sensitive towards others across conflicting circumstances.

Students tend to progress along the different personal development trajectories, depending upon the nature of their learning personality. Those students that demonstrate more confidence tend to leap in and learn via a reflective process that enables them to discover what opportunities they have overlooked or underestimated. Those students that tend to be highly competitive tend to find that they are locked out of an opportunity to engage with others in a meaningful and purposeful way. Finally, though students that are either less motivated, are not as confident as others in cohort, tend to progress in smaller increments of advancement. Regardless of which one of these three learning personalities students display, the assessment processes used within the hic et nunc the process provide both space and support for the personal development of each and every individual student.

The challenge of creating a learning environment in which vulnerability is present, is made all the more difficult by the fact that students become comfortable being uncomfortable. One student recently commented and that he felt there were two different kinds of vulnerability within the hic et nunc learning environment. The first was the physical vulnerability, where involvement in group activities may require individuals to engage in some physical form of activity that they may have previously considered quite risky. The second kind of vulnerability that he noted was a form of mental vulnerability. For example, the use of a humorous context to demonstrate an understanding of theory in a final exam situation. He made the following comment:

By encouraging people to take risks and make themselves vulnerable, it actually makes it safer to take risks and then you decrease vulnerability. In this sense, you can't push the limits when the limits aren't there to begin with (anonymous student comment no. 1).

The central proposition argued in this paper is as follows; The degree to which both students and facilitators are vulnerable to each other will positively impact upon the nature of learning outcomes. Within this proposition, is the suggestion that a learner centered environment will be a space of continual renewal. A space in which knowledge is a temporary phenomenon, and where learning is an evolutionary process directly related to the nature of feedback that is accessible to both parties. Where the primary aim is to acquire wisdom, or put simply, to ensure that knowledge is used in a productive manner.

In search of evidence

It would seem that student progression and success within this process are linked to how they view the degree of risk they since in the learning environment. Given the exploratory and reflective nature of this paper, three initial postulates are presented as a means of providing evidence for the underlying proposition presented above. Mahoney (2003) argues that one's confidence in the existence of causal factors increases when we are able to find evidence via postulates linked to a proposition. The challenge in this process is that at this point in time, a leap of faith is needed to suggest a causal factor (i.e. vulnerability). The initial postulates are also never directly tested, nor is the proposition as it relates to events that while observed, have already taken place.

Postulate 1: Students will progressively gain confidence during their engagement with the hic et nunc teaching process, thereby reducing their sense of vulnerability.

Postulate 2: group work will provide an efficient means for students to engage in a process of sense making and confidence building.

Postulate 3: the process of overcoming perceived vulnerability will lead to higher levels of student confidence that may aide their learning in other subject areas.

The following comments illustrate the way in which students view vulnerability and how any such vulnerability may influence their learning outcomes:

I am no longer uncomfortable with how I feel, and I think the concepts are coming together for me and I have an idea as to where I am heading. This process has been an interesting one for me as each week we have gone off and participated in our group work, and we have gained the knowledge together, and then presented it to the greater group, and it is my feeling that you cannot present something well unless you know 'a bit about it' which I think as a group, we are all gaining that knowledge (anonymous student comment no. 2).

I felt very uncomfortable giving presentations and I still do to some extent. Presentations are now getting to the stage were other class members are very confident and come up with such good ideas it is hard to keep up. I still feel that the format of giving presentations is a great way to learn because it forces people to know the topic before teaching it to others (anonymous student comment no. 3).

I feel that this subject – in the way its run, organised and structured is really really good. I can honestly say that this subject has been my favourite; I am feeling motivated to participate and do the work given to us more than the other subjects I'm currently studying this semester. I'm feeling very comfortable and happy with the way our group are doing. We all get along really well, have lots of fun and get the work done co-operatively. At the very beginning I felt a little uncomfortable with the presentations, as the group was brand new, and it takes a while to feel and act yourself. I didn't enjoy out first 2 presentations, but now I look back and think, yes, that uncomfortableness helped me learn more effectively because you always have to start somewhere. We started out a little bit shy towards each other and therefore didn't throw around many good ideas etc, but as soon as the uncomfortableness was less, we had a great time making movies (anonymous student comment no. 4).

I have to say the uncomfortableness created from this class has stressed me out a little bit but on the other side of it, over the semester it has worried me less and less to the point where I actually try to do more in other classes so in terms of that, this class has given me more confidence for both entrepreneurship and other classes (anonymous student comment no. 5).

Overall whenever there has been uncomfortableness surrounding the presentations, meetings and team work I have found that it has actually helped. Odd really as I didn't think it would, but it has, and it seems to make me more eager to get on with it too. I do hope that the whole team feel good about the process, for me a big part of working in a team is about knowing that everyone is happy and wanting to contribute. In the end being out of my comfort zone has done me good and made me more willing to participate
(anonymous student comment no. 6).
I feel stress and anxiety of not knowing what's going to happen and in the game for example the outcome depends on how everybody else is playing. In real life, not knowing everything is always present and by forcing me to reflect upon this has made me more open to the thought of that it is ok to not always know these things and it is not always a sign of weakness (anonymous student comment no. 7).
In regards to presentations I felt very uncomfortable. So uncomfortable that I considered dropping the subject in order to avoid having to stand up in front of the class and possibly if not probably make a fool of myself. This uncomfortableness has eased somewhat since then. But it still forces me to care more about the quality of work presented because if it is no good then it's not just you that knows its crap its all my peers as well. In fact, I think that I have probably worked harder and in turn learnt more….not necessarily more effectively though (anonymous student comment no. 8).
The above comments tend to suggest a level of initial support for the three initial postulates. The next step in developing and outcomes explanation of the past events observed and related to the hic et nunc teaching process is the development of more postulates. That is beyond the scope of this first initial exploratory paper. This paper will conclude with a discussion of the unique contribution that enterprise education potentially may make within the domain of higher education.

Enterprise education, spillover benefits?

The context of enterprise education discussed thus far is based upon two important facts. The first is that in the subject area as described here, is related to business creation, and the personal development of individual students vis-a-vis entrepreneurial behaviour. The second fact is that the students are co-creators of the curriculum. Both issues are significant and argued to be important factors with regard the eventual student learning outcomes. Let us consider that these two issues from the perspective of business education in general.
Business education tends to focus on the maintenance and control of organisational resources. Enterprise education tends to focus on the creation of entities that will eventually be managed and controlled by the practices that are the focus of business education. As has previously been outlined by Jones (2005), a natural synergy exists between enterprise education, personal development, and the development of employability skills. This argument is based upon the notion that enterprise education tends to be a very experiential process within which both knowledge and skills are simultaneously developed.

In contrast, business education, like many subject areas in higher education plays host to many prescriptive and normative theories that are taught against sterile contexts that all too frequently are too distant from the students' personal experiences. As a result, while students may learn about specific strategies that may be applied in specific situations, they may never learn how to strategize. Given the temporary nature of strategy, there is a value in being able to strategize, yet this skill remains generally unlearnt.
Within the hic et nunc learning framework, students also perform the role of co-architect of the learning environments within which they learn. From this perspective, it is the students' habits of thought that are altered to advance their ability to succeed in their learning environments. This process assumes that students develop the means challenge their own "assumptions about the nature, limits, and certainty of knowledge" (Baxter Magolda, 2004, p. 16). That they are capable of constructing their own meaning of their learning experiences. When the hic et nunc process is repeated across workshops, it gives rise to knowing being associated with action (King and Kitchener, 1994), leading to upward pressure being placed on the learning environment. This pressure in turn acts to threaten the potential attainment of a constructively aligned stable curriculum.

With reference to the highly seminal paper on learning and evolution by Hinton and Nowlan (1987), this suggests that the predicament that both the lecturer and the student face is like searching for a needle in a haystack. There is no optimal path to conduct such a search, only helpful voices in the dark that guide our search. For the students emersed in the hic et nunc process, that voice has been frequent formative and summative feedback. For the facilitator, voice has been regular feedback from the students related to all aspects of the learning environment they interact with.

It is this deeper level of student engagement that occurs naturally in a highly learner-centered, experiential learning environment that matters most. Allowing students to learn through and for, rather than about particular subject matter (Gibb, 2002), invites students to be critical architects of their future engagement with the learning process. The inevitable consequence of such proactive engagement is that good learning practice has the opportunity to spillover into both other forms of current and future study. This is one of the potentially unique advantages of enterprise education. In endeavouring to exposure our students to the entrepreneur's way of life, we grant them a licence to obtain a higher trajectory of individual learning. To allow them to recognise that the manner in which they progress from start to finish is not determined entirely by their skills of memory, but rather by their ability to reflect, persist, and react. The process of trial and error learning takes centered stage as uncertainty and ambiguity become commonplace and the cumulative development of knowledge and skills acts to eliminate error. At any point in time, the objectives of the students, the learning group and specific elements of the hic et nunc process are under threat. That which adds value will be retained and that which does not is eliminated over time.

Conclusion

This paper has sought to discuss the possible flow on benefits that enterprise education may contribute to the underlying processes of student learning in the higher education context. Using the hic et nunc learning framework as an example of experiential education, the issue of vulnerability has been discussed from the perspective of both the educational facilitator and the student. Whilst the processes discussed provide for high degrees of student freedom, the issue of friendships developed within the learning environment is also argued to be important in allowing students to cope with being vulnerable.

Throughout the above discussion, the importance of developing a curriculum through which freedom is provided to students to fail, recover, and make sense of their tasks has been highlighted. The use of frequent assessment processes provides the means of discipline through corrective behaviours can be conceived. Importantly, this requires the facilitator to ignore any predisposition towards automatically adopting a prescribed text unless it proved the best means of assisting students to achieve the learning outcomes associated with the process. Learning outcomes that must be determined before any text is considered. Therefore, the facilitator is the creator of learning outcomes, learning activities, and assessment procedures. Over time, students may well play an important co-creation role in the refinement of the curriculum. Around and through this very point, the quality of entrepreneurship educators is determined. The literature is very clear (Gibb, 2002) that entrepreneurship education is not just an extension of management education. That it should not be taught from a traditional lecture-centered perspective. So, the argument presented here is that quality entrepreneurship educators are entrepreneurs who provide a role model for their students. They demonstrate persistence, tolerance of ambiguity and creativity in the way they approach curriculum development. Most importantly, they are life-long learners who encourage student involvement in this process.

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Entrepreneurship Education in Turkish Universities

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Abstract

Entrepreneurial education and teaching became an important factor in the business world. Entrepreneurial education provides individuals with the ability to recognize opportunities, self-esteem, knowledge and skills to act on them. It is getting more important to get the proper entrepreneurship education. Therefore, the business schools with entrepreneurship education should meet this challenge. The purpose of this study is to find out, describe and explore the characteristics and contents of the programs of entrepreneurship education in Turkish governmental and private universities.

Keywords

EntrepreneurshipEducation, Turkey, Universities, Curriculum

Introduction

As globalization, technological and environmental changes are gaining more importance in this competitive world, companies should spend much more effort to survive. At the global level, the reduction of trade barriers and the reality of the Europe currency, together with the advancements in telecommunications, technology and transportation, all combine to provide more opportunities, as well as more uncertainty in the world (Henry, Hill and Leitch, 2005). In this changing world, less resources and increased unemployment, there is a higher need for new ventures and obviously entrepreneurs and it is getting more important to get the proper entrepreneurship education and teaching methods.

Entrepreneurship education

Entrepreneurship has been a charming research field among economists and scholars worldwide for a long time. This prolonged and heightened interest in entrepreneurship is prompted by several factors. First, for developed economies, entrepreneurial activity (new venture formation) is a mean of revitalizing stagnated economies and of coping with unemployment problems by providing new job opportunities. Moreover, it is accepted as a potential catalyst and incubator for technological progress, product and market innovation (Mueller and Thomas, 2000; Jack and Anderson, 1999). However, it has a more critical role for economies of developing countries since entrepreneurship is seen as an engine of economic progress, job creation and social adjustment. Thus, small business growth/new business formation is widely encouraged by national economic policies to stimulate economic growth and wealth creation.

At this point entrepreneurship education and teaching became an important factor in the business world. Hansemark also mentioned that entrepreneurship education is an important element in a venture support system (Hansemark, 1998). By this common driving force, there is currently a great deal of activity in the field of entrepreneurship education in universities and colleges throughout the world (Gibb, 1993; Koh, 1996; Hansemark, 1998; Thompson, 1999; Jones and English, 2004). As a result of this force, there has been a rapid progress of enterprise education and an increase in the number of entrepreneurship teachers, academics, courses and programs offered at all levels of the education system. There is an emergence of a supporting infrastructure in the educational system and an increase in the number of private providers of enterprise training (Hytti and O'Gorman, 2004).

USA seems to take the lead in entrepreneurship education. As entrepreneurial education has become one of the hottest topics at U.S. business and engineering schools, the number of schools teaching a new-venture or similar courses has grown from few to hundreds in last 20 years. According to Brockhaus, one of the first courses, in entrepreneurship or small business, was offered at the Harvard Business School in 1947 (Kirby, 2004). The first academic courses in entrepreneurship were offered in the early 1960s followed by a period of rapid growth from 1965 to 1975 (Sexton and Bowman, 1986). As Kuratko (2003) noted in his study, the number of colleges and universities that offer entrepreneurship courses has grown from a handful in 1970s to more than 1600 in 2003. In a similar vein, by 2000 business and entrepreneurial development had been listed as one of the four strategic goals for British universities

(Kirby, 2004). In sum, literature comprises studies emphasizing that entrepreneurship and small business education have been rapidly promoted in education institutions in European, Asian and African countries (Brockhaus, 1991; Gibb, 1993; Ronstadt, 1987; Koh, 1996; Hytti and O'Gorman, 2004).

In parallel with this peaking entrepreneurship movement throughout the world, Turkey has also witnessed an increasing interest in entrepreneurship fields both among academic scholars, government policy makers and business leaders. Historically, due to lack of qualified entrepreneurs and capital accumulation, during the first decades of modern Turkish Republic, a state-initiated economic policy was implemented with state-owned enterprises playing a leading role, particularly in the industrial sector (Gürol and Atsan, 2006). Since 1980s, a major shift in the economic development strategy took place in Turkey. Conservative economic mindset has changed to a rapidly growing free market economy. The importance of entrepreneurship and small business to the economy is now widely recognized and provided with national incentives by prevailing governments. A government institution, the Small and Medium Enterprise Development Agency (KOSGEB) undertakes a leading role in promoting and developing national entrepreneurship movement in 1990. In 2004, one of the private universities opened a family business and entrepreneurship center to make researches, publications and consulting. As Finkle, Kuratko and Goldsby noted, universities can enhance their budgets through the development of new entrepreneurship centers or expansion of their existing entrepreneurship center. Entrepreneurship centers can be an excellent source of revenue for a university through donations, endowments, external programming, grants, academic programming, and commercialization of technology (Finkle, Kuratko and Goldsby, 2006).

Entrepreneurship education programs and curriculum

In the USA, entrepreneurship programs have been launched at prestigious institutions such as Harvard, Stanford, Northwestern and the University of Chicago. In 1999, there were 170 American universities offering courses in entrepreneurship. (Jones and English, 2004) The entrepreneurship education program generally emphasizes learning entrepreneurship and how to manage small business. (Kirby, 2004) Traditional business education programs, although well attended, have come under criticism for failing to be relevant to the needs of the changing business environment (Jones and English, 2004). An excellent overview of the developing nature of curriculum within entrepreneurship education is made by Brown (2000), who cites several contributors (Noll, 1993; Kourilsky, 1995; Gottleib and Ross, 1997; Bechard and Toulouse, 1998; Roach, 1999). Students today are demanding integrated programs that teach practical skills for starting and expanding business enterprises. The skills taught in traditional business education programs are needed by entrepreneurs as well, but that curriculum generally addresses important functions of running a business rather than the elements

of creating one (Jones and English, 2004). According to Gibb, the contract between the university and the student is generally about knowledge and not personal development. The teacher's job is to gain the acceptance of the students of the learning contract, and to determine which competences the students must acquire. The teacher is still responsible for defining the curriculum and to function as a coach rather than spend his time and efforts evaluating the students' performance (Blenker, Dreisler and Kjeldsen, 2003). The psychological literature suggests that entrepreneurs possess certain characteristics or traits such as, risk-taking ability, need to achievement, locus of control, desire for autonomy, deviancy, creativity and opportunitism and intuition (Kirby, 2004). According to Sexton and Bowman, if entrepreneurship students should be expected to possess same psychological characteristics, as practicing entrepreneurs, it should be possible to develop and construct syllabi that take these unique characteristics into count. But in reality those characteristics are generalized (Sexton and Bowman, 1984). According to Gürol and Atsan's findings, the development of entrepreneurial characteristics should be in the curriculum of entrepreneurial educational programs (Gürol and Atsan, 2006).

Effective curriculum components differ depending to some authors. Kourilsky (1995) places necessary curricular components into three groups as opportunity recognition, the marshaling and commitment of resources and the creation of an operating business organization. Amar Bhide and Myra Maloney Hart at the Harvard Business School focus on three main concepts in their entrepreneurial courses as evaluating opportunities, securing resources and growing and sustaining the enterprise (Gottleib and Ross, 1997). Noll's (1993) recommendations for entrepreneurial education are designed to serve as a curricular guideline for all age and education levels as defining entrepreneurship, completing a self-assessment, creating an idea, developing the business plan (including marketing, financial projection and organizational plan, running the business and environmental, political and international issues). Kimberly Roach lists knowledge of the characteristics of an entrepreneur, ability to recognize business opportunities, basic skills and knowledge to create an effective, feasibility plan for a business venture, ability to identify the various business entry strategies available to entrepreneurs, and understanding of the skills needed and means available to collect the market information needed to evaluate the feasibility of a new business concept objectives for her entrepreneurial course at North Georgia Technical Institute (Celcee Kauffman Center, 2000)

The three general categories provided by Kourilsky and Bhide and Maloney are similar in their intent to look at entrepreneurial education as teaching the skills to develop a small business enterprise. The recommendations by Noll and Roach focus more on the characteristics needed to be a successful entrepreneur -- the skills that can be applied to entrepreneurial enterprises whether in business, government or the social arena. Variations of these objectives are taught in high schools as part of the business education programs, in community colleges, in four-year universities and in graduate schools of business in the United States and abroad (Celcee Kauffman Center, 2000). In Turkey, entrepreneurship education is mostly taught at university level when comparing to United States and Europe. While setting-up the structure of entrepreneurship education program, it should include; building an entrepreneurial mind-set, the use of guest lecturers, education training of teacher-entrepreneurs, the availability of internships or practical experience, ongoing relations with the business community,

the use of role models, the development of student personalities, experimental approach to education, and the extent to which teachers have an entrepreneurial background (Entrepreneurship Education at Universities Report, 2004). In the entrepreneurship education program, besides improving the curriculums, it is important to design the teaching methods according to the audience at different levels of audience.

Aims of the study

As the authors of this study are lecturing entrepreneurship courses at their universities, it is observed that students are generally trained in entrepreneurial issues like; characteristics of entrepreneurs, small business and family business, women entrepreneurs, creativity and innovation, business plan etc. However, as Kirby (2004) states that the successful entrepreneurs should have a set of personal skills, attributes and behaviors. It is identified that the entrepreneurship education programs and their curriculums at the universities are mostly unique and do not cover skill development for making a successful entrepreneur.

The aim of this study is to find out and describe the entrepreneurship education in Turkish Universities, and to explore the characteristics and content of the programs of entrepreneurship education in Turkish governmental and private universities.

In this study, first 68 government and 30 private universities were examined. It seeks to determine the characteristics of entrepreneurship educational programs including the course structure, institutional characteristics and the level (undergraduate or graduate) and type (elective or compulsory) of the courses. After the data collected, the courses evaluated by content analysis. The primary outcome of the research is to draw the profile of entrepreneurship education programs in Turkish universities.

Limitation of this study

The data are reached via university web sites, e-mail and phones to the departments and instructors. In the following period detailed interview to the instructors of those 98 universities from different parts of Turkey will be done.

Research methodology

To better understand how entrepreneurship issues are taught in management programs, an e-mail survey was sent to all Turkish management departments. The list of departments was taken from the Association of Turkish Higher Education (YOK). A total of 98 instructors, department heads or chairs received the invitation to complete the survey. In many cases, the survey was sent to the instructor responsible for teaching in the area of entrepreneurship in the

department. If an appropriate contact could not be found after a search of the departmental website, the head or chair was contacted. Moreover, as a second channel to reach the entrepreneurship instructors, the mail survey was sent to the national management and organization web network as well. The contacts were asked a series of questions regarding the availability of an entrepreneurship course for management students and the general content of such a course. A total of fifty-seven instructors/departments responded to the survey, resulting in a response rate of about 59 percent. Table 1 lists all of the schools that were included in the survey.

Table 1. Survey Respondents

İstanbul University	Sabancı University
Akdeniz University	Kırıkkale University
Yıldız Technical University	İstanbul Ticaret University
Fırat University	Ege University
Erciyes University	Gaziantep University
Anadolu University	Gebze Higher Technology Institute
Süleyman Demirel University	Hacettepe University
Atatürk University	İzmir Ekonomi University
Osmaniye Korkut Ata University	Kadir Has University
Atılım University	Kafkas University
Beykent University	Kültür University
Başkent University	Mustafa Kemal University
Boğaziçi University	Niğde University
Çanakkale Onsekiz Mart University	Pamukkale University
Çukurova University	Sütçü İmam University
Dicle University	Trakya University
Doğuş University	Zonguldak Karaelmas University
Bilecik University	Fatih University
Dumlupınar University	Haliç University
Çağ University	Kocaeli University
TOBB University	Sakarya University
Okan University	Afyon Kocatepe University
Abant İzzet Baysal University	Uludağ University
Dokuz Eylül University	Muğla University
Ankara University	Mersin University
Yeditepe University	Bilkent University
Galatasaray University	Maltepe University
Yaşar University	Gazi University
Çankaya University	

The fifty-seven entrepreneurship educators/departments who responded, all of them have an entrepreneurship course offered in their curriculum. From those departments, fifty offered an undergraduate degree, eighteen offered a master degree, six offered a doctoral degree and one offered a two-year degree as an entrepreneurship course. Moreover, twelve departments offered both undergraduate and master degree while two departments offered undergraduate, master and doctoral degree at the same curriculum.

The undergraduate courses, thirty-eight instructors responded that their programs require the course and twelve responded that it is offered as an elective. From the master courses, five instructors responded that their programs require the course and thirteen responded that it is offered as an elective. From the doctoral courses, only one course is a required one, all others are elective.

Analysis of entrepreneurship course syllabi

A content analysis of 36 syllabi was done. The authors collected the syllabi from contacted instructors

who teach entrepreneurship courses. For the most part, the syllabi reflect courses taught during 2007. We focused on course objectives and course content. Table 2, 3 and 4 lists the undergraduate, master and doctoral course titles included in the analysis, respectively.

Table 2. Undergraduate Course Titles

	Respondents
Entrepreneurship and Small Business Administration	19
Entrepreneurship	24
Small and Medium Sized Enterprises (SMEs)	8
Entrepreneurship and Innovation	1
Entrepreneurship and Private Enterprise Forming	1
Entrepreneurship Skills	1
Entrepreneurship and Organizational Culture in Businesses	1
Entrepreneurship and Competition	1
Entrepreneurship, Family Businesses and Institutionalization.	1
Global Competition and SMEs	1
Development of Business Plans	1
Entrepreneurship Strategy	1
Entrepreneurship and Leadership	1
Entrepreneurship and Business World	1

Table 3. Master Course Titles

	Respondents
Entrepreneurship	4
Entrepreneurship and SMEs	2
Small and Medium Sized Enterprises (SMEs)	2
The foundations of Entrepreneurship theories	1
Organized Entrepreneurship	1
Entrepreneurship Theory	1
Entrepreneurship and Family Business Life Cycle	1
Entrepreneurship and Organizational Culture in Businesses	1
Entrepreneurship and Family Business	1
Strategic Entrepreneurship	1
Entrepreneurship Theories and Practices	1
Entrepreneurship and Innovation	1
SMEs and Cost Border Ventures	1

Table 4. Doctoral Course Titles

	Respondents
Entrepreneurship	3
Entrepreneurship and SMEs	1
Entrepreneurship Theories and Practices	1
Institutional Entrepreneurship and Strategic Innovation	1

Course content

A content analysis of syllabi is challenging due to the wide variation in the level of detail provided by instructors. Some specify course objectives and learning points in addition to readings and assignments. Others are more generally focused on topic titles only. Lengths vary from a few pages to around five pages. Nevertheless, this analysis provides a glimpse into the specific topics covered in entrepreneurship programs.

To ensure data reliability, the course contents were coded simultaneously but independently by two academicians who have previous coding experience for some other studies, including one of the authors. First, practice codings were conducted to refine the categorization. After the pretest showed acceptable coding reliability, both judges coded 36 documents in the sample. The judges began with an initial scoping of each syllabus and developed eight themes that seemed to be prevalent across courses. They then developed sub themes based on more detailed reading of each syllabus.

Overall inter-coder reliability was %99, which was perfect. The differences between coders among all items were then discussed until final consensus was reached. The mutually agreed results were used for the analysis.

Table 5 illustrates these themes and the results of the content analysis of the syllabi. Table 5 shows that the entrepreneurship basics including the definition, entrepreneur characteristics are covered in every course. Another theme receiving broad coverage includes small and medium sized firms topics. This includes classifications, functions and the problems SMEs experience. Others include business plan and market entrance strategies theme. Themes receiving less coverage in these particular entrepreneurship courses include theories of entrepreneurship, entrepreneurship typologies and innovation and invention themes.

Table 5. Themes covered in entrepreneurship courses

Theme	Courses
I. Entrepreneurship Concept	
Definition	36
Characteristics	36
Culture	10

II. Theories of Entrepreneurship	4
III. SMEs	
Classifications	17
Functions	16
Problems and solving ways	13
IV. Business Plan	12
V. Market Entrance Strategies	
Franchising	11
New Venture Start-Up	15
Buy-Out	5
VI. Innovation and Invention	7
VII. Entrepreneurship Typologies	
Women Entrepreneurs	4
Social Entrepreneurship	1
Family Businesses	6
Intrapreneurship	6
VIII. Entrepreneurship in Turkey	7

Course objectives

Course objectives are generally similar across syllabi. The bulk of the courses include the objectives listed in Table 6.

Table 6. Course Objectives

-Encourage and motivate students to be entrepreneurs and to establish their own ventures
-Assess the role and importance of entrepreneurship and SMEs on economy.
- Equip students with fundamental knowledge and skills of entrepreneurship
-Provide theoretical and practical background for students who wants to be entrepreneur

Summary of the results

Based on the instructor survey and analysis of course syllabi, results indicate that most students have access to a broad range of entrepreneurship topics within management departments. Coverage of the entrepreneur and entrepreneurship concepts, SMEs and preparing business plans are the fundamental tools of entpreneurship and this basic knowledge appears to be included in most entrepreneurship curricula.

However, other specific topics that are also important to a comprehensive understanding of entrepreneurship, including innovation and invention, entrepreneurship typologies, theories of entrepreneurship and entrepreneurship in Turkey topics, receive limited coverage in most entrepreneurship curricula. Only two of the thirty-six curricula included theoretical issues, fundamental background that is important for future scholars. These particular survey results which were reinforced by the analysis of course syllabi show that in master and doctoral degrees dept analysis of entrepreneurship is needed. Moreover, issues such as historical progress, current level and future prospects of entrepreneurship in Turkey would provide students a better understanding of the importance and role of entrepreneurship for national development.

Although students may have access to an entrepreneurship course and a broad range of concepts, it is not a required course in most departments. Students can progress through their management courses without exposure to much of this knowledge. Furthermore, those students that do take courses outside of management departments are learning these basic entrepreneurship concepts, but not necessarily in the context of management issues or problems. This complicates the issue and makes it difficult to fully understand the extent of students' exposure to entrepreneurship topics.

Conclusion

After the transition to free market economy in 1980's, in Turkey, there is a high increase in entrepreneurial activities. The need for entrepreneurial education has also accelerated. According to Global Entrepreneurship Monitor 2006 report, the typical Turkish entrepreneur is male, aged 25-34, with at least a primary secondary education, in the middle income bracket. From the research results, people in Turkey who have attained higher levels of education tend to be more opportunity-driven entrepreneurs (GEM, 2006). Evidence from the research results, the responsibility of the universities expanded and differentiated.

From our research results the entrepreneurship education is mostly given to business students. The entrepreneurship courses that are given in those universities should not only be for business students but also for students from other departments. By making this course elective for all the students will be much more effective. The lecturers and the departments should benchmark the materials, resources, syllabi of the universities that are concentrated on the subject to reach the global standards.

As we mentioned before, in Turkey, one of the private universities opened a family business and entrepreneurship center to make researches, publications and consulting. Since 2004, they are organizing a national conference on family business with a limited number of tracks on entrepreneurship but there are no special conference organized on this subject in Turkey. There is a high need for specific entrepreneurship conference and publications to share and discuss special issues on entrepreneurship. Government's support and regulation policy will be a great concern for improvement.

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