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Fostering entrepreneurship through university education and training: Lessons from Massachusetts Institute of Technology

Christian Lüthje
Assistant Professor

Technical University of Hamburg
Institute of Technology and Innovation Management
Schwarzenbergstr. 95, 21073 Hamburg, Germany
luethje@tu-harburg.de

Nikolaus Franke
Full Professor

Vienna University of Economics and Business Administration
Institute of Entrepreneurship
Augasse 2-6, 1090 Vienna, Austria
Nikolaus.Franke@isis.wu-wien.ac.at

Abstract. It is widely accepted that the educational system of universities has to provide an academic environment that is conducive to develop new generations of business founders. To investigate how far entrepreneurship education has developed in Germany we explore entrepreneurial intentions and the perception of entrepreneurial education of students at a major German university and benchmark the results with the situation at Massachusetts Institute of Technology (MIT). The findings indicate that there is a stronger interest to start up high-tech growth companies after graduation among US students. This discrepancy is accompanied by a more favorable assessment of the entrepreneurial education at MIT. Hence, there is strong evidence that entrepreneurial programs at outstanding US universities still can serve as a success model for academic institutions in Germany.

Key words: *entrepreneurship, education, universities, cross-national comparison*

Introduction: The role of university graduates as business founders

In recent years fostering entrepreneurship has become a topic of highest priority in public policy. This trend is due to the widespread recognition that business start-ups are a driving force of economic growth and significant job creation.

Alumni of universities are seen as an important source for future entrepreneurs in dynamic and innovative areas such as information technology and biotechnology. In fact, successful universities in the US underline the important role of academic institutions as catalysts for high-technology start-ups: If the 4.000 companies founded by MIT graduates and faculty formed an independent nation, the companies would make that nation the 24th largest economy in the world (Ayers 1997). Similarly, Stanford University is related with many of the cutting-edge companies in Sillicon Valley (Pfeiffer 1997). Economic studies in different European regions indicate that the impact of universities on company creation can be observed outside the USA as well (Harhoff 1999).

Self-employed, when compared to people in wage and salary employment, have more often a formal education at a university (Robinson and Sexton 1994; Brüderl 1998). In addition, the economic impact of companies founded by university alumni are more significant. Academic entrepreneurs are likely to employ more people than their non-academic counterparts (Dietrich 1999). Richter and Schiller compared academic and non-academic business founders. They show that more than half of the academic entrepreneurs created new ventures in high-tech industries whereas non-academics founded their company mainly in non-innovative production and service sectors (Richert and Schiller 1994). Finally, business founders with university education apparently make higher investments in their business than non-academic entrepreneurs (Richert and Schiller 1994).

Considerable attention has therefore been paid to formal entrepreneurship education at the university level. Public authorities and economic experts stress the importance of promoting aspirations for entrepreneurship among young and highly-educated people. If the business birth rate in any nation can be enhanced by supporting students and graduates in their entrepreneurial activities, it is worthwhile to examine the current status of entrepreneurship education.

The purpose of the present study is to investigate how far the educational situation has developed in German universities. We focus on students‘ plans for founding new businesses and explore students’ assessment of entrepreneurship education and support within their university. The responses of the German students are compared with those of undergraduate and graduate students of the Sloan School of Management at Massachusetts Institute of Technology (MIT). Based on this comparison, we develop suggestions for developing and improving entrepreneurship education programs in German universities.

Literature Review: The impact of education on entrepreneurial propensity

Entrepreneurship education has been intensified in universities during the past four decades. In the sixties, less than ten universities in the USA were teaching in this field, 1990 there were already 400 universities in America active in entrepreneurship education and estimates today exceed 700 universities (Vesper and McMullan 1988; Hills and Morris 1998; Fiet 2001). Many of these academic institutions have established majors on the graduate level or other kinds of concentrations. Entrepreneurship centers have been founded to coordinate the broad array of activities, programs and resources within universities. Very seldom, schools pashed back out of entrepreneurship once they had entered.

This growth in interest and funding is accompanied by an increasing demand for legitimization of entrepreneurship education at the university level. Consequently, the impact of education on the creation of future entrepreneurs and the link between university training and the success of the new ventures have been subject of much discussion in the academic community. A review of the entrepreneurship literature reveals contradictory findings (see for a literature-review Gorman, Hanlon and King 1997). The results suggest to differentiate between general business and specific entrepreneurship education when exploring the role of university programs.

Most of the surveys show that *entrepreneurship* education encourages graduates to start their own business. In an early study, Clark surveyed a sample of students of a medium-sized American university who were enrolled in an introductory entrepreneurship course. He found that almost 80% of these students were considering to setup their own business. These plans were often turned into reality. Three out of four students who reported concrete plans for founding a company in fact started a new venture. Furthermore, 76% of the respondents stated that the entrepreneurship course had a large or very large effect upon their founding decision (Clark, Davis and Harnish 1984). McMullan, Long and Wilson report a high rate of new venture creation among MBA students who attended more than three entrepreneurship-related courses at a Canadian university (McMullan, Long and Wilson 1985). A review of a graduate enterprise program in the UK suggests that the program provided an incentive to more than half of the participants to start their business sooner than intended. Thus, this initiative had an enabling and accelerating impact on the graduates' founding activities. (Brown 1990). Irish students who participated in a student enterprise award indicated that the initiative had a "very important" impact on their subsequent career choice (Fleming 1994). Finally, Vesper and McMullan can show that entrepreneurship courses help alumni to make better decisions in the start up-process (Vesper and McMullan 1997).

A note of caution should be mentioned at this point: A large portion of the cited studies is explorative and based on the analysis of single courses or programs. Very seldom, the surveys include longitudinal data, control groups without entrepreneurship education experience or pre-tests prior to the exposure to courses. In addition, there is still a need for valid empirical measures of education characteristics and educational outcomes (Hills and Morris 1998). Yet, the great majority of empirical findings support the legitimization process of entrepreneurial education. Apparently, entrepreneurial aspiration and success can, in fact, be taught.

Unlike entrepreneurial programs, *general business management* education has no significant influence on entrepreneurial propensity (Hostager and Decker 1999). The findings of a survey with business owners in India suggest that management education is not an important driver of entrepreneurial attitudes (Gupta 1992). Whitlock and Masters can even show that the interest in pursuing self-employment dissipates after visiting general business courses (Whitlock and Masters 1996). Chen at al. surveyed students in different business majors and showed that the number of management courses taken had no effect on entrepreneurial decisions (Chen, Greene and Crick 1998). The findings stress the need for education programs specifically designed to expand students‘ knowledge and experience in entrepreneurship. The content and teaching methods have to be differentiated between entrepreneurship and traditional business courses (McMullan and Long 1987; Vesper and McMullan 1988).

Empirical study: International comparison of the entrepreneurial base in universities

Scope of investigation

The entrepreneurship education in Germany has been intensified in recent years. While only 21 chairs for entrepreneurship had been founded in 1998, this number raised to 42 chairs in 2001 (Klandt and Heil 2001). In addition, several universities designed entrepreneurship education and training programs without establishing dedicated chairs. In 1996, 106 courses in entrepreneurship were offered at 92 German universities (Kofner, Menges and Schmidt 1999). However, experts still see the entrepreneurial activities in outstanding US universities as a benchmark for the educational system in Germany. A recent evaluation of German universities indicates that, although the situation has clearly improved, the teaching and training of students in entrepreneurship are far away from excellent. Only 6 out of the 78 investigated universities offer a good or very good program for entrepreneurial education (Schmude and Uebelacker 2001). Among others, Minsk can show that German universities play a secondary role for the qualification and motivation of future entrepreneurs. The parental background, for instance, is a much stronger impact factor on entrepreneurial propensity than the knowledge and skills that the graduates acquire during their studies (Minks 1998).

Taken together, the latter findings lead to the question whether ”typical” German universities and colleges have reached the status of entrepreneurial support realized in outstanding US institutions. The present survey compares the situation in a major German university with the entrepreneurship education status at Massachusetts Institute of Technology (MIT) by surveying students in both institutions.

Method

The data analyzed in the present study was compiled at a major German university and at MIT in Boston, as stated above, a university that is very successful in fostering new venture creation by faculty and alumni. In both universities we focused on students majoring in business.

The German institution represents a major public university with a wide range of departments and study majors. In a recent survey, the entrepreneurial courses at this university were ranked on the 19th position in a list of 78 German colleges and universities (Schmude and Uebelacker 2001). Hence, this university can be rated as a typical academic institution in Germany offering a representative entrepreneurship program to their graduates. The German students in the present survey were associated with the department for business administration. The sample was drawn from students who attended a major lecture in the business administration curriculum - the course was not related to entrepreneurship. We distributed a written questionnaire and received 312 usable responses.

At MIT, the respondents were chosen from the general population of students at the Sloan School of Management. The sample consisted of 490 people randomly selected from the target population of undergraduate and graduate students. An online-version of the questionnaire was designed and distributed via e-mail. All in all, 143 questionnaires were completed (response rate = 29.2%).

The questionnaire was first designed in German and than carefully translated into English by native speakers. The translation was pre-tested with students from the target population at MIT Sloan School of Management and proved to be comprehensible with minor changes.

Results

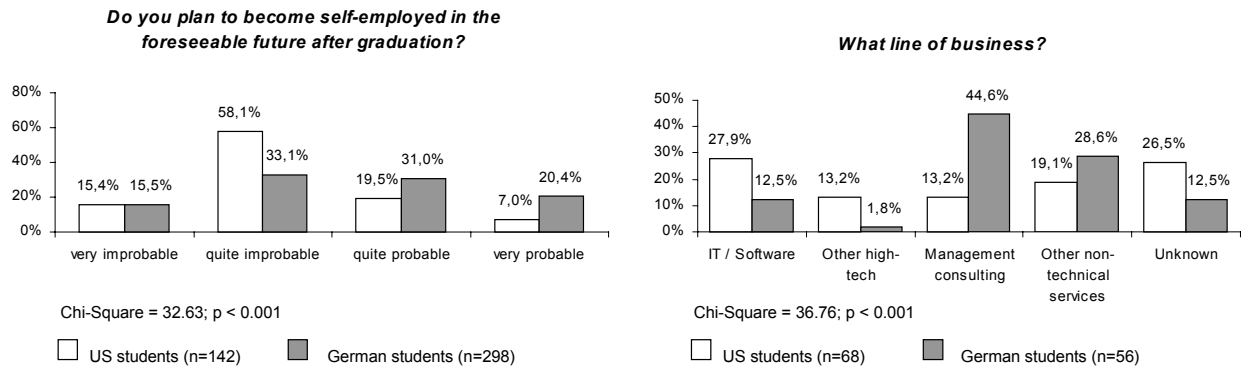
In the following, the research findings are presented in two parts. In the first section we explore students' plans for running an own business. Second, the role of entrepreneurial education is analyzed. We compare how the respondents in both countries evaluate the activities of their university to develop entrepreneurial spirit, knowledge and skills among students.

Students' entrepreneurial activities and plans

The students were asked to indicate whether they were self-employed in the course of study. The result indicates that business students seldom undertake entrepreneurial efforts at universities. Only 7.7% of the MIT sample and 6.2% of the respondents in the German sample are self-employed during their studies.

More significant than the entrepreneurial activities in the course of study is the intention to start a new venture in the foreseeable future after leaving university (see figure 1). In the US sample, more than half of the respondents indicate that they will "quite probably" (31.0%) or "very probably" (20.4%) become self-employed some day after graduation. The fraction of German students who have distinct plans for opening a new business is lower (19.5% quite probably and 7.0% very probably). Entrepreneurial intent is significantly stronger among business students at MIT.

The preferred line of business varied between both sub-samples as well. A large portion of the MIT respondents with high entrepreneurial intent wants to found the new venture in a field of high-technology-27.9% in IT / Software and 13.2% in other high-tech industries such as biotechnology or medical equipment. The students at the German university show a stronger tendency towards traditional management consulting (44.5% versus 13.2% at MIT) and other non-technical services (28.6% versus 19.1% at MIT). These differences are significant on the 1%-level and may be due to differences in the cooperation of business management and engineering departments. The Sloan School of Management is part of a leading technical research institution. Faculty as well as students often have an engineering background and are frequently engaged in cross-disciplinary projects. Departments of business administration in Germany, on the other side, typically have weak links to engineering and natural science departments within the same university.



Characteristics of planned start up

	US students (n=69)	German students (n=73)	Signif. (two-tailed t-test)
Planned time between graduation and founding?	5.1 years	4.3 years	n.s.
Plan to start up new venture in team?	85.1% in team	72.6% in team	n.s.
If yes: With how many partners?	2.7	2.3	n.s.
Aimed no. of employees three years after founding?	97.4	30.3	p<0.001

Figure 1: Entrepreneurial intentions and plans for the time after graduation

The companies, if realized, can be expected to have a significant impact on economic growth and increase in employment. Again, this is particularly true for the American sub-sample (last row in the bottom table in figure 1) . Whereas the students at MIT, on average, aim to employ 97.4 people three years after founding their company, the growth plans of the students in the German sample are less ambitious (30.3 employees).

To summarize, the intention among US students to found a new business, when compared with the plans of their German counterparts, is stronger, more ambitious and to a greater extent directed towards areas of high-technology.

Appraisal of entrepreneurial education and support

Respondents were asked to rate different aspects of entrepreneurial education and support. Again, the findings presented in figure 2 provide indication of a major difference between both sub-samples. Whereas the students at Sloan School of Management assess the conditions at MIT favorably, all the mean ratings of their German counterparts are located on the right side of the five-point rating-scale.

The most striking discrepancy is related with the ”atmosphere” that may inspire graduates to develop ideas for new ventures. Whereas this factor is the highest in the US sample it is the lowest in the German sample. The prevalent atmosphere may be based on several elements of the educational program such as the exposure to role models of entrepreneurship and students’ stimulation around frontier technologies and path-breaking ideas The American business school is apparently better prepared to instill entrepreneurial spirit in its graduates than the German university.

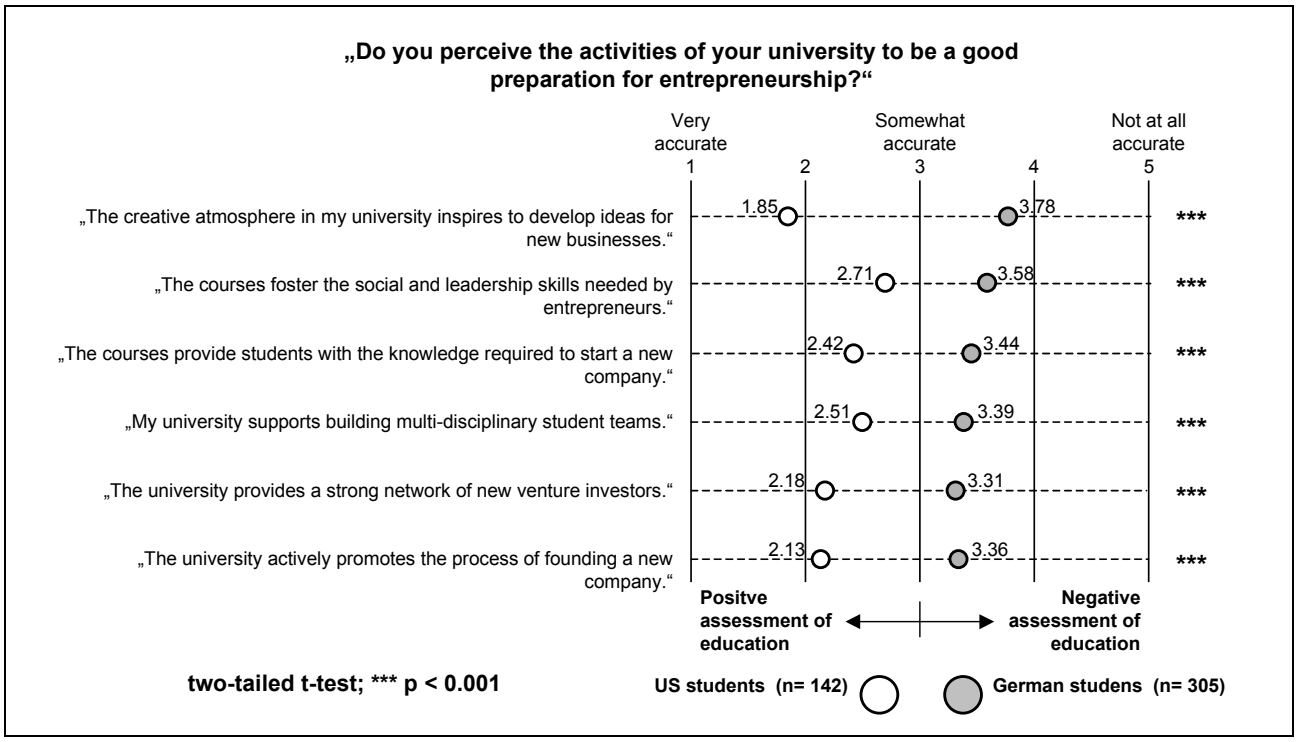


Figure 2: Evaluation of entrepreneurship education and support

There are similar differences with request to the evaluation of courses. The students at MIT believe to a greater extent than the German students that the lectures provide knowledge and skills pertaining to entrepreneurship. Furthermore, the Sloan School of Management seems to support more effectively the interaction of students from different disciplines (science, engineering, management). Finally, the US business school is perceived to be more active in promoting future entrepreneurs in the pre-creation stage.

In order to determine whether these perceptions vary in different stages of the respondents' studies we compared the students who are in the first half of their academic formation with those who are closer to graduation (see table 1).

Among the US students, the assessment of the supporting activities seems to improve in the course of studies. All aspects of entrepreneurial teaching and training are rated significantly more favorable by students who are in the second half of their studies. The Sloan School of Management succeeds step-by-step to convince their students of the high quality of their program. Unlike the US respondents, freshmen and more experienced students in the German university have a similar perception of the entrepreneurship education and support. The students' evaluation does not improve the longer they are exposed to the entrepreneurial activities of their university.

	Average ratings of students in first and second half of studies [a]					
	US students (n = 140)			German students (n = 302)		
	First half	Second half	Sig. [b]	First half	Second half	Sig. [b]
"The creative atmosphere inspires to develop ideas for new businesses."	2.09	1.58	***	3.83	3.75	n.s.
"The courses foster the social and leadership skills needed by entrepreneurs."	2.91	2.50	*	3.52	3.61	n.s.
"The courses provide students with knowledge required to start a new company."	2.61	2.21	**	3.41	3.45	n.s.
"My university supports building multi-disciplinary student teams."	2.62	2.41	n.s.	3.43	3.36	n.s.
"The university provides a strong network of new venture investors."	2.39	1.97	**	3.22	3.36	n.s.
"The university actively promotes the process of founding a new company."	2.46	1.79	***	3.40	3.34	n.s.

[a] *All items measured on five-point rating-scale (1=very true; 5=not at all true)*
[b] *two-tailed t-test for independent samples; *** p < 0.001, ** p < 0.01, * p < 0.05; n.s. not significant*

Table 1: Evaluation of entrepreneurial education in different stages of the studies

Several personality traits have been proven to shape the aspirations to found a company. Empirical research can show that conviction to start up a new venture is to some extent a question of personality structure. The question arises whether the entrepreneurial programs in both universities manage to reach the "right" students, particularly those with a so-called "entrepreneurial personality".

After several preliminary studies involving 139 subjects and serial interviews with experts in entrepreneurship, we integrated the characteristics "risk taking propensity" and "need for independence" into the analysis. Both constructs have frequently been enumerated as part of the "personality" of new venture creators (Brockhaus and Horwitz 1986; Shaver and Scott 1991; Lumpkin and Erdogan 1999). Several items were formulated to measure both constructs, three items for the need for independence and four items for risk taking propensity. An index for both construct was created by averaging the scores of the items (Cronbach alpha= 0.59 and 0.68). Furthermore, we calculated an index for the evaluation of entrepreneurial education and support on the average ratings of the six items in figure 3 (Cronbach alpha=0.87).

The findings in table 2 show that the link between personality and the evaluation of education is quite different in both countries. In the US sample, a high level of risk taking propensity and need for independence is associated with a positive assessment of the entrepreneurship activities. The contrary is true for the German students. It is important to note that the correlation coefficients are rather small and not highly significant. Still, it appears that MIT Sloan School's activities appeal to a greater extent to students with an entrepreneurial personality structure. The German university fails to satisfy mainly the promising students.

	Evaluation of entrepreneurial education and support (index)	
	US students (n = 142)	German students (n = 278)
Risk taking propensity	0.14*	-0.11*
Need for independence	0.10	-0.17***

Positive (negative) correlation coefficient: The higher risk taking propensity / need for independence the more favorable (less favorable) the assessment of entrepreneurial education and support

*Pearson correlation coefficients, two-tailed-test; *** p < 0.01; ** p < 0.05; * p<0.1*

Table 2: Relationship of personality traits and evaluation of entrepreneurial programs

Discussion and implications for the design of entrepreneurship education programs

The present survey provides evidence for a higher entrepreneurial propensity among students at MIT. The planned activities of the students in the US sample focus on dynamic and innovative areas whereas the German students tend towards traditional, non-technical areas. Finally, the US graduates state more ambitious growth plans then the respondents at the German university. This discrepancy is accompanied by a significantly more favorable assessment of the activities to foster entrepreneurial spirit at the Sloan School of Management. German students, when asked to rate the entrepreneurship support of their university, indicate more concerns.

In sum, entrepreneurial programs at outstanding universities in the US still can serve as a success model for academic institutions in Germany. We would therefore like to present elements of educational program designs which have been successfully applied by the MIT Entrepreneurship Center as well as by other leading universities. Our objective is not to provide a comprehensive framework for education in entrepreneurship but rather to raise some critical issues that should be considered when Deans and curriculum managers design new or improved education programs.

Selection of students

An important standard, if not the most important, is that of selectivity in student admission (McMullan and Gillin 2001). Empirical findings indicate that the conviction to start up a new venture is to some extent a question of personality structure and attitude towards entrepreneurship (Brockhaus and Horwitz 1986; Shaver and Scott 1991; Lüthje and Franke 2001). Entrepreneurship education will therefore not have the same effects on all students. It is important to note, that in fact it is possible to educate even students who not initially fulfill the required criteria. However, taking into account restricted education budgets in most public universities in Europe, the stimulating activities should primarily focus on the ”right” students, for instance those with propensity to high risk taking. In the German sub-sample of the present study, the appraisal of entrepreneurship education is negatively associated with those personality traits. Thus, focussing the entrepreneurship education on selected students seems to be a major field for improvement.

Staffing of faculty

Students need ”role models” of successful business practitioners. These key persons might help to establish a stimulating atmosphere for potential entrepreneurs – a factor very negatively rated in the present study by the German students. Exposure to real-world entrepreneurs is likely to support the transfer of tacit knowledge between entrepreneurs and students. By this, the founding of a new business becomes more feasible and desirable for the students (Johannisson, Halvarsson and Lövstal 2001). These practitioners has to be joined by highly respectable academic faculty to ensure that theory-based knowledge and new research findings are integrated into the courses (Vesper and McMullan 1988). At the MIT Entrepreneurship Center, for instance, many courses are taught by teams of one entrepreneur and one academic.

Teaching subjects and educational delivery

The findings of this study show that the German students are less satisfied with the content and the teaching outcomes of entrepreneurship courses than their fellow-students in the US sample. Taking MIT Entrepreneurship Center as a benchmark, initiatives aimed to improve this situation need to encompass several objectives.

Theory-based knowledge

In order to generate theory-based knowledge, it is essential to ground entrepreneurship education on theoretical frameworks and empirical research findings. Students have to be encouraged to apply their theoretical and conceptual knowledge when interpreting text cases, when developing business plans and when implementing new venture projects. Good teaching will help students to use theories as a tool to answer practical questions (Fiet 2001).

Experiential learning and real-world experiences

Involvement in ”hands-on” projects of opportunity identification and new venture creation would be a central part of education programs. In this respect, business plans are an useful approach. They teach the application of theoretical concepts and academic knowledge to business reality (Kelmar 1992). Business plan development at MIT Entrepreneurship Center is supported by other experiential teaching and training activities such as idea competitions, ”warm-up” start ups, industry projects and internships where students are integrated in new business creation of others.

Knowledge about innovative opportunities

Entrepreneurship is characterized by new combinations causing discontinuity. It is therefore fundamental to the subsequent formation of growth companies that the students have access to the forefront of technological development. Engineers and students in natural sciences have to be encouraged to work on technological problems and to emphasize on innovative opportunities. This work can be supported by training activities for opportunity identification (e.g. idea focus groups, contacts with inventors). Students in a business management major should be stimulated to productive interaction with students from technical majors. As it was already stated, this objective is perfectly accomplished by the MIT Entrepreneurship Center by integrating future entrepreneurs from all parts of MIT in cross-disciplinary teams.

Networks and links to industry

The activities of the MIT Entrepreneurship Center and other successful universities outline the necessity to establish strong links between the university and the entrepreneurship community (Leclerc 1985). The more a student moves from entrepreneurial awareness and opportunity identification to concrete activities within the stage of pre-creation the more critical these networks are. The findings of the present survey indicate that the students in the German sample are not satisfied with the ”hands-on” support of their university in the founding process. Fostering contacts with sponsors that can fund, support and coach the process of starting innovative companies should therefore be a major field of faculty management activities.

To conclude, it is important to note that the situation at private colleges and schools in the US will not be fully comparable with the educational scenario in Europe (public versus private institutions, number of students in courses, funding and budgets, environmental founding conditions etc.). Programs for entrepreneurial education and training should therefore not be transferred without taking into account relevant contextual differences. However, as it was already stated, the characteristics of entrepreneurship education programs of successful universities should be taken into consideration in order to improve the situation in German as well as in other European universities. They may help Deans and curriculum managers who accept the critical importance of entrepreneurship as a part of business management education.

References

Ayers, W.M. (1997): MIT: The impact of innovation, BankBoston Economics Department Special Report, Boston.

Brockhaus, R.H. / Horwitz, P.S. (1986) The psychology of the entrepreneur. in: Sexton, D. L./ Smilor, R. W. (Eds.), *The art and science of entrepreneurship*, Cambridge, MA: Ballinger. 25-48.

Brown, R. (1990) Encouraging enterprise: Britain's graduate enterprise program. *Journal of Small Business Management*, 28 (10). 71-77.

Brüderl, J. (1998) *Der Erfolg neugegründeter Betriebe: Eine empirische Untersuchung zu den Chancen und Risiken von Unternehmensgründungen*. 2nd Edition,Berlin: Duncker&Humblot.

Chen, C.C. / Greene, P.G. / Crick, A. (1998) Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Small Business Venturing*, 13 (4). 295-316.

Clark, B.W. / Davis, C.H. / Harnish, V.C. (1984) Do courses in entrepreneurship aid new venture creation? *Journal of Small Business Management*, 22 (2). 26-31.

Dietrich, H. (1999) Empirische Befunde zur selbständigen Erwerbstätigkeit unter besonderer Berücksichtigung scheinselbständiger Erwerbsverhältniss. *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung* (1). 85-101.

Fiet, J.O. (2001) Education for entrepreneurial competency: A theory-based activity approach. in: Brockhaus, R. H. / Hills, G. E. / Klandt, H. / Welsch, H. P. (Eds.), *Entrepreneurship education: A global view*, Hants: Ashgate Publishing Limited. 78-93.

Fleming, P. (1994) The role of structured interventions in shaping graduate entrepreneurship. *Irish Business and Administrative Research*, 15. 146-157.

Gorman, G. / Hanlon, D. / King, W. (1997) Some research perspectives on entrepreneurial education, enterprise education and education for small business management: A ten-year literature review. *International Small Business Journal*, 15 (3). 56-77.

Gupta, A. (1992) The informal education of the Indian entrepreneur. *Journal of Small Business and Entrepreneurship*, 9 (4). 63-70.

Harhoff, D. (1999) Firm formation and regional spillovers - evidence from Germany. *Economics of Innovation and New Technology*, 8. 27-55.

Hills, G.E. / Morris, M.H. (1998) Entrepreneurship education: A conceptual model and review. in: Scott, M. G. / Rosa, P. / Klandt, H. (Eds.), *Educating entrepreneurs for wealth creation*, Hants: Ashgate Publishing Ltd. 38-58.

Hostager, T.J. / Decker, R.L. (1999) The effects of an entrepreneurship program on achievement motivation: A preliminary study, *SBIDA*, San Francisco, CA: Small Business Institute Director's Association, (cited from the internet, http://www.sbaer.uca.edu/Research /1999/SBIDA/sbi28.htm).

Johannisson, B. / Halvarsson, D. / Lövstal, E. (2001) Stimulating and fostering entrepreneurship through university training: Learning within organization context. in: Brockhaus, R. H. / Hills, G. E. / Klandt, H. / Welsch, H. P. (Eds.), *Entrepreneurship education: A global view*, Hants: Ashgate Publishing Limited. 318-340.

Kelmar, J.H. (1992) Business plans for teaching entrepreneurship behaviour. *Education & Training*, 34 (1). 30-32.

Klandt, H. / Heil, H. (2001): FGF-Report: Gründungslehrstühle 2001, Report, FGF Förderkreis Gründungsforschung e.V. (Entrepreneurship Research), Oestrich-Winkel.

Kofner, S. / Menges, H. / Schmidt, T. (1999): Existenzgründungen nach dem Hochschulabschluß, Conference Report, Friedrich-Ebert-Stiftung, Bonn.

Leclerc, W. (1985) Universities and entrepreneurs. *Journal of Small Business and Entrepreneurship*, 3 (2). 41-47.

Lumpkin, G.T. / Erdogan, B. (1999) If not entrepreneurship, can psychological characteristics predict entrepreneurial orientations? A pilot study, *USASBE*, January 14-17, San Diego, CA: United States Association for Small Business Entrepreneurship.

Lüthje, C. / Franke, N. (2001) The "making" of an entrepreneur: Testing a model of entrepreneurial intent among engineering students at MIT, *R&D Opportunity & Technology Entrepreneurship, The R&D Management Conference 2001*, Dublin: National Institute of Technology. 295-306.

McMullan, W.E. / Gillin, L.M. (2001) Entrepreneurship education in the nineties: Revisited. in: Brockhaus, R. H. / Hills, G. E. / Klandt, H. / Welsch, H. P. (Eds.), *Entrepreneurship education: A global view*, Hants: Ashgate Publishing Limited. 57-77.

McMullan, W.E. / Long, W.A. (1987) Entrepreneurship education in the nineties. *Journal of Business Venturing*, 2 (3). 261-275.

McMullan, W.E. / Long, W.A. / Wilson, A. (1985) MBA concentration on entrepreneurship. *Journal of Small Business and Entrepreneurship*, 3 (1). 18-22.

Minks, K.-H. (1998): Das Potential für Selbständigkeit unter Hochschulabsolventen, Report of the HIS Hochschul-Informations-System, Hannover.

Pfeiffer, E. (1997): What MIT learned from Stanford, *Forbes*, August 25, New York. 59.

Richert, J. / Schiller, R. (1994): Hochschulabsolventen als Existenzgründer, Report of the "Deutsche Ausgleichsbank" for the Federal Ministry of Education and Science in Germany, Bonn.

Robinson, P.B. / Sexton, E.A. (1994) The effect of education and experience on self-employment success. *Jounral of Business Venturing*, 9 (2). 141-157.

Schmude, J. / Uebelacker, S. (2001): Vom Studenten zum Unternehmer: Welche Hochschule bietet die besten Chancen?, Report of the Institute for Geography, University of Regensburg, Regensburg.

Shaver, K.G. / Scott, L.R. (1991) Person, process, choice: The psychology of new venture creation. *Entrepreneurship Theory and Practice*, 16 (2). 23-45.

Vesper, K. / McMullan, E.W. (1997) New venture scholarship versus practice: When entrepreneurship academics try the real things as applied research. *Technovation*, 17 (7). 349-358.

Vesper, K.H. / McMullan, W.E. (1988) Entrepreneurship: Today courses, tomorrow degrees? *Entrepreneurship Theory and Practice*, 13 (1). 7-13.

Whitlock, D.M. / Masters, R.J. (1996) Influences on business students' decisions to pursue entrepreneurial opportunities or traditional career paths, *SBIDA*, San Diego, CA: Small Business Institute Director's Association, (cited from the internet, http://www.sbaer.uca.edu /Research/1996/SBIDA/96sbi039.htm).