

Towards a Comprehensive Policy on Entrepreneurship Education in the European Higher Education

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Mihai Korca

Academy of Economic Studies and Group of Applied Economics, Bucharest

Olav Spilling

Norwegian Institute for Studies in Innovation, Research and Education, Oslo

***Abstract.** The paper discusses policy issues related to entrepreneurship education in higher education and how entrepreneurship education may be related to the science-industry link. The first part of the paper is dedicated to the rationale for fostering entrepreneurship and the entrepreneurial function in the economy of a given country or region. In a second part, the authors comment European events and policy documents on entrepreneurship education in the last twenty years. The most significant drawback is that a specific policy targeting the explicit role of universities in the provision of entrepreneurship education is lacking and that there is a huge interest and potential to its future development. In this context, the authors suggest in the last part of the article strategic and operational measures as parts of a comprehensive policy on entrepreneurship education in the European higher education.*

Key words: entrepreneurship education; entrepreneurial function; science-industry link; education policy for entrepreneurship education.

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JEL Codes: A22, M13, O15.

REL Codes: 4B, 4D.

Introduction

The purpose of this paper⁽¹⁾ is to discuss policy issues related to the provision of entrepreneurship education (EE) by higher education institutions (HEIs). While during the last decade there has been a significant development of entrepreneurship education in general, the policy discussion has addressed to a little extent issues specific to the role of higher education in the provision of EE.

Based on previous state of the art reports⁽²⁾, a picture has emerged of a rather significant potential for further development of EE in terms of quantitative as well as qualitative aspects. The quantitative aspect relates to the number of programs offered at various levels (bachelor, master or doctoral studies) by the HEIs, while the qualitative aspect relays to the ways and means EE is provided and above all, to the need for relating EE systematically to the science-industry link. Apart from a few interesting good practice exceptions, our conclusion is that there is a great potential in most of the institutions providing EE to take more advantage of the potential existing in the science-industry link.

The background for the growing concern about EE is the shared awareness of the importance of entrepreneurship to economic development. However, there are significant differences between countries regarding entrepreneurial activity, and it is necessary to base assumptions about the need for EE on an analysis of the situation of the actual country, its economic performance and qualities of its entrepreneurial function. In our previous paper, we have discussed aspects related to

this by summarising various indicators of relevance to the entrepreneurial function of countries.⁽³⁾

Obviously, the issue of designing programs for individual countries should be related to the specific situation of each country. What may be adequate to do in one country, may not be adequate in another country. A country with a high level of entrepreneurship may have a different need for developing programs for entrepreneurship education than countries with a low level of entrepreneurial activity; and the need for specialising EE may depend on the specific characteristics of the national economies.

In this paper, we summarise the current policy status in the field of EE in higher education, and then we conclude with policy recommendations.

Rationale for fostering entrepreneurship education

In the 1960s and 1970s, large companies dominated the economy, as the size of firms was seen as a means to obtain economies of scale, to encourage and support innovation, research and implementation of new technologies, to enter and dominate foreign markets and to face barriers and regulations.

In the last two decades of the twentieth century, economists acknowledged a reverse trend. Three basic factors offer an explanation for this come back to the Schumpeterian approach of entrepreneurship of the mid 1930s, which is strongly related to the mechanism of economic development and to the process of introducing novelty in the economy:

- The structural changes at the level of companies under the move towards the knowledge driven economy and to larger size of markets;
- The globalisation of markets for goods and services;
- The impact of the modern information and communication technologies (ICT) on goods and services offered to businesses and to the public at large.

More and more large companies rationalise their activities by restructuring, out-sourcing and/or downsizing production. The goal is to give better and more efficient response to the fast changing business environment, to easier react to new business opportunities, to avoid/diminish risks and to offer answers to the challenges in even larger and more sophisticated markets. The enlarged European Union is now an internal market of more than 450 million inhabitants which significantly simplifies and facilitates trading by the removal of trade barriers and by the harmonisation process of market regulations; but at the same time, it enhances competition as the number of companies competing in the single market is now considerably higher in each of its segments.

On the other hand, structural changes in the economy shifted Europe's comparative advantage towards the knowledge-based activities. These develop faster and more effectively in small and medium sized settings. Under such circumstances, the number of businesses increased sharply in all the European countries.

The creation of large free trade areas and the globalisation of markets determined an increased competitive pressure on

manufacturing companies. Their reaction consisted in the shift of production towards cheaper locations and lower labour costs, in diversification and sophistication of the supply (personalised goods and new services to the clients), but also in more investments in new technology aiming at significant increase of productivity.

The new information and communication technologies (ICT) gave rise to new markets, such as personal computers, software and ICT-based services, which dramatically changed management and production processes in virtually all the other industries and led to growth and diversification of the services sector.

According to the *Green Paper on Entrepreneurship in Europe*,⁽⁴⁾ these changes have led to opportunities for new entrepreneurial initiative:

- The increased complexity of production processes requires a variety of specialised inputs;
- The reduced costs of transmitting knowledge across space makes inputs by external providers cheaper;
- Large markets allow firms to specialise for niche goods and services and, at the same time, to operate on a more European or worldwide scale.

Yet, research data show that Europe does not exploit appropriately its entrepreneurial opportunities and potential. Americans were involved in three times more new entrepreneurial ventures than Europeans, according to a 2002 Eurobarometer survey.⁽⁵⁾ “*Europe needs to foster entrepreneurial drive more effectively*” – is said in the above mentioned *Green Paper on Entrepreneurship*.

One of the key factors to speed up the movement towards recovering the existing gap

in terms of entrepreneurial propensity is entrepreneurship education in the initial education and in all formal, informal and non-formal programmes and activities of lifelong learning. The entrepreneurial function of individuals and/or companies is strengthened by quality education and training and good practices in university-industry linkages that encourage intellectual entrepreneurship and the commercialisation of outputs of academic research.

Education and training should contribute to encouraging entrepreneurship by:

- Fostering the right mindset;
- Providing relevant skills for self employment;
- Raising awareness of career opportunities as an entrepreneur.

Entrepreneurship teaching and learning is present in the curriculum of preuniversity education almost everywhere in Europe, but the share of entrepreneurship oriented curriculum is still too small. Teaching about entrepreneurship is rather theoretical, while focus should be on building entrepreneurial attitudes and leadership. There is little use of practitioners – successful entrepreneurs, even successful students – in teaching entrepreneurship. Teachers need to be trained in order to better teach entrepreneurship. Manuals and case studies have to be developed in close connection to the specific needs of each community/region. In this context, we have to remember that “*learning to do*” is one of the four pillars of the education analyzed in the Delors 1996 Report “*Learning: The Treasure Within*”.

“*Learning to do*” gains a special significance in the light of the Lisbon Agenda of the European Commission and in the context of the Bologna Process to enhance the employability of graduates of higher

education. By a closer analysis, the “*Learning to do*” pillar shows three facets that have to be appropriately addressed by universities:

- Firstly, learning to do means acquiring specific (professional) job-skills;
- Secondly, learning to do means acquiring job-related social skills;
- Thirdly, learning to do means to educate students to become agents of change, to be willing to take risks in uncertain situations in order to shape the future.

These three facets of entrepreneurship education in European universities aim at fostering the new mindset of young people. A large range of initiatives have been considered by the universities and by the European Commission to enhance entrepreneurial mindsets and skills: entrepreneurial training and programmes, apprenticeships for students to work with entrepreneurs, inviting entrepreneurs to classrooms and increasing the number of MBA programmes. Intellectual entrepreneurship is becoming for the most dynamic universities now a philosophy of master and doctoral degree education and a framework for a better design of the university-industry link.⁽⁶⁾

In the European higher education systems, the provision of entrepreneurship education registers a large spectrum of experiences. In most of the European countries, entrepreneurship education is mainly offered in schools of economics and business administration and only in a few cases in technical universities or in faculties of sciences. In most of the HEIs it is still neglected that “*Entrepreneurship drives innovation, competitiveness, job creation and growth. It allows new innovative ideas to turn into successful ventures in high-tech sectors and can unlock the personal potential of disadvantaged people to create*

jobs for themselves and find better place in society".⁽⁷⁾ Entrepreneurship is also recognised as a basic skill that should be fostered throughout lifelong learning.

Twenty years of events and policy documents on entrepreneurship education

The awareness at European level of the objectives to be attained through EE and the exchange of good practice between the EU Member States have been initially stimulated by international forums organised in 1998 in Stockholm ("*Training for Start-ups*") and in Baden ("*Training for entrepreneurs*").

The "*European Charter for Small Enterprises*" adopted by the General Affairs Council and endorsed by the Feira European Council in June 2000 has recognised the importance of entrepreneurship as one of the basic skills to be provided through life-long learning. The Charter committed the educational systems throughout European Union to teach business and entrepreneurship at all school levels, and to develop training schemes for managers.⁽⁸⁾

The *Nice/Sophia Antipolis Forum* organised in October 2000 by the European Commission and the French authorities on "*Training for entrepreneurship*"⁽⁹⁾ approached the subject of entrepreneurship from three different perspectives:

- In the educational system, from primary to the tertiary level;
- In the vocational training system;
- In the companies themselves (intrapreneurship).

In the "*Report on the future objectives of the education systems*"⁽¹⁰⁾ adopted by the Education Council on 12 February 2001 and addressed to the European Council, some of

the key areas identified to be dealt with are:

- Links between education institutions and businesses, and
- Development of the enterprise spirit throughout education and training.

During the EU multiannual programme for enterprise and entrepreneurship (2001-2005), following the Lisbon Council (2000), the "*Best procedure project on education and training*"⁽¹¹⁾ has been designed and implemented. As part of the project implementation, a group of experts from all the EU Member States and Norway was set up in order to bring together the existing expertise in the field and to provide information and data on entrepreneurship measures and programmes. A number of relevant aspects have been identified in order to be distinctively addressed:

- Entrepreneurship education in primary and secondary schools;
- Training of teachers on the subject of entrepreneurship;
- Links between schools/universities and businesses aimed at promoting entrepreneurship;
- Entrepreneurship chairs, departments and activities at university level.

One of the tangible outcomes of this project is the report published in 2004 with a collection of 21 cases of good practice under the generic title "*Helping to create an entrepreneurial culture. A guide on good practices in promoting entrepreneurial attitudes and skills through education*".⁽¹²⁾ The cases are proposed as possible models, but the editors recognise that there are certainly many other cases of good practice in the European countries.

In January 2003, the European Commission launched a debate on entrepreneurship policy. The starting point

of this public consultation which included the widest possible range of stakeholders was the publication of the *Green Paper “Entrepreneurship in Europe”*.⁽¹³⁾ By approaching *entrepreneurship as a mindset*, the Green Paper expanded the scope of entrepreneurship policy, beyond levelling out the barriers for business development and growth; in order to get more people interested and equipped to become entrepreneurs.⁽¹⁴⁾ Among the key objectives for entrepreneurship policy, the public debate revealed the need for:

- Training and support services, particularly for new entrepreneurs seen as pre-requisites for entrepreneurs to have the appropriate knowledge and skills to run their businesses. Virtual universities, distance learning, in house training for employees and shared good practice of successful entrepreneurs could provide easy access and effective training;
- Incubators, including those set up in university campuses, seen as important during the first difficult period when mentoring and other support services are welcomed;
- Entrepreneurship education seen as a full part of the school curricula throughout all levels of pre-university education, as entrepreneurial skills are considered as valuable life skills even in other careers than those which are business related;
- Interface between science and business, between universities and industries seen as a factor of commercial success for students, teachers and researchers and as an

opportunity to exploit research results commercially;

- Unlocking the knowledge and expertise held in universities, developing advice on intellectual property rights and improving access to well-equipped incubator space for academics are seen as valuable means to enhance the contribution of higher education institutions to the entrepreneurial mindset of people.

A *Summary Report on the public debate* following the Green Paper was published by the European Commission in October 2003.

One of the responses to the Green Paper is that of dr. Bert Twaalhoven. His *Red paper on Entrepreneurship*⁽¹⁵⁾ is based on the “*Ten Proposals to Accelerate Change in the European Entrepreneurial Culture*” by Professor Juan Roure representing Growth-Plus. Among the various factors that are important for entrepreneurship, the Red Paper mentions the need for promoting EE on a Pan-European level through the following action steps that should be translated into measurable targets and monitored on a yearly basis:

- Teaching the teachers;
- Creating networks between technical schools and business schools;
- Promoting partnerships between universities and businesses.

In February 2004, the European Commission adopted an “*Entrepreneurship action plan*”,⁽¹⁶⁾ which suggested horizontal measures to create a supportive framework for entrepreneurship policy in the EU Member States. The cultural dimension and the need for more supportive measures in all the levels of education are included in

the *European agenda aiming at enhancing entrepreneurship*.

In March 2005, the “*European Youth Pact*”⁽¹⁷⁾ adopted by the European Council mentions as a key element the promotion of entrepreneurship among young people.

In November 2005, the European Commission launched an integrated “*Modern SME Policy for Growth and Employment*”.⁽¹⁸⁾

“*Education and Training 2010 Work Programme*” is the proposal of the European Commission for a *Recommendation on key competences*. Adopted in 2005 by the European Parliament and the Council, this document includes entrepreneurship in a reference framework of eight key competences for lifelong learning, necessary for personal fulfilment, social inclusion, active citizenship and employability.⁽¹⁹⁾

In February 2006, the European Commission addressed to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions a Communication aiming at implementing the Community Lisbon Programme: “*Fostering entrepreneurial mindsets through education and learning*”.⁽²⁰⁾ In the wider context of lifelong learning, this Communication focuses on education from primary school to university, including also secondary level vocational education (initial vocational training) and technical institutions of tertiary level and aims to support EU Member States in developing a more systematic strategy for entrepreneurship education. As the Communication underpins, best practice can be identified in Europe; the challenge is to spread further the existing positive examples.

In October 2006, the European Commission together with the Norwegian Government invited the various actors involved in EE to a *European Conference on Entrepreneurship Education* in Oslo.⁽²¹⁾

Entrepreneurship Education in Europe: Fostering Entrepreneurial Mindsets through Education and Learning. Oslo, 26-27 October 2006, Final Proceedings, also available at:

Through the presentation of 38 cases of good practices from across Europe, the Conference aimed to discuss how to move forward in promoting entrepreneurial education more systematically. The origins of the debate were the recommendations presented in the Commission’s Communication adopted in February 2006. The Conference covered policies and practices in fostering entrepreneurial mindsets of young people through education at all the levels, from primary school to university. Among the concrete proposals and commonly agreed ideas, one can mention:

- A better integration of programmes and activities aiming at entrepreneurship education in the established curriculum;
- The scope of entrepreneurship education goes far beyond training on how to start a business;
- A common European platform in order to help sharing and dissemination of existing projects and teaching material;
- An increased public-private partnership as a means to promote mentoring and/or caching from people with business experience;
- Students should be directly involved in enterprise projects as a complementary means to strengthen entrepreneurship education in higher education.

The high number of ideas advanced by relevant stakeholders from 33 countries during the Conference resulted in a detailed *Catalogue of proposals for action* – the “*Oslo Agenda for Entrepreneurship Education*” – for all the actors involved: the European Commission, national and regional/local governments, educational institutions, NGOs, businesses, pupils and students.⁽²²⁾

The *Oslo Agenda* may be regarded as a „menu of proposals” for how to promote entrepreneurship in society, and with a particular focus on actions that may be taken in the educational system, and it is structured in the following six parts: (A) Framework for political support; (B) Support to Educational Establishments; (C) Support to Teachers and Educators; (D) Entrepreneurship activities in Schools and in Higher Education; (E) Building links and opening education to the outside world; (F) Communication activities.

The items relevant to higher education are in section D:

- Integrate entrepreneurship across different subjects; all faculties/disciplines should develop opportunities for students at all levels to experience entrepreneurship;
- Bring entrepreneurs into the classroom and involve students directly in enterprise projects;
- Increase the production of European case studies;
- Give entrepreneurship more academic esteem;
- Encourage students, graduates and researchers with commercially viable business ideas to develop them into companies;
- Embed evaluation systematically into all programmes.

Although higher education is not specifically addressed in section E, most of the items of that section are also of interest to the provision of EE in HEIs:

- Encourage the creation of learning communities – links between public and private sector;
- Encourage private partners involvement in education for entrepreneurship – funding or in kind contributions;
- Businesses should dedicate part of the staff working time for activities within schools and universities;
- Research on how employers can be better engaged in education;
- Develop pedagogical abilities of entrepreneurs and business people aiming at improvement of classroom activities;
- Conceive, develop and promote a label for “entrepreneurial schools” and “entrepreneurial universities”;
- Build Entrepreneurship Centres at the local level for assisting schools and universities in establishing links with enterprises.

Generally, the *Oslo Agenda* seems to be based on good, qualitative insights on entrepreneurship and pedagogical principles related to entrepreneurship education. However, the approaches suggested in the *Oslo Agenda* are fairly general in nature; to some extent it seems to disregard the importance of relating the strategies to specific aspects of entrepreneurship and the industrial structure of the individual country and region. As we have pointed out in previous sections of this report, there are significant variations between countries (and regions) regarding how the entrepreneurial function is working. A more explicit bottom-

up strategy should be developed in which the specific characteristics of the entrepreneurial function may be an important basis for designing national and regional strategies for entrepreneurship education.

Furthermore, a significant drawback of the current policy framework is that there are made very few distinctions between the role of higher education and the lower levels of the educational systems. Obviously, the role of higher education should be differentiated from that of the lower level institutions, in terms of more specialised programs in the general business related topics as well as the discipline specific issues related to commercialisation; there may be very different challenges faced by an entrepreneur starting up a company based in biotechnology compared to an entrepreneur starting up based on humanistic disciplines. Moreover, as we have pointed out earlier in our discussion, a specific challenge to higher education is to relate EE programs to the science-industry link in a systematic way.

In March 2007 the European Commission raised the idea to launch a *European Forum on Cooperation between Higher Education and the Business Community* as a new contribution to the enhancement of the socio-cultural environment. The *Forum* was seen as an opportunity to encourage partnerships between the “providers” of knowledge, skills and competences and the “users” aiming at supporting each other for the benefice of their own organisations, of their staff and their students, for the benefit of society at large.

The first meeting of the *European University/Business Forum* took place in Bruxelles on 28-29 February 2008. It was in

fact a platform for the exchange of best practice and for the identification of innovative solutions among the around 200 participants. It was organised in plenary meetings and in four parallel workshops:

- *Modernising governance structures within universities.* Focusing on governance reform on HEIs, participants have discussed the introduction of more market-type mechanisms and responsiveness to society’s diverse needs. This includes to increase capacity and to motivate willingness of HEIs to become more involved in a wider range of activities and to involve more stakeholders in modern university governance.

- *Curricular development* in close linkage to the introduction of the three cycle’s university education is also on the agenda of higher education’s modernising reform. Learning outcomes of the various programmes should be relevant for the job market in order to ensure the employability of graduates. The entrepreneurial mindset of students should also be stimulated by offering modules or full programmes dedicated to this issue as self employment is seen as an alternative to getting a job in a company.

- *Continuing education.* There is a growing need for ongoing education to keep the workforce up to date with competitive qualifications for Europe. The fast changing nature of many professions in the context of using modern ICTs, the more highly educated people entering the labour market and the decline of manufacturing jobs are some of the factors which determine an increased need for continuing education all over Europe. Continuing education is also seen as a tool for widening participation and better social inclusion.

- *Mobility* has several meanings in the context of university/business link. It is firstly a tool to promote knowledge and know-how transfer between national and international participants to various cooperation schemes between universities, research institutes and industries. Secondly, it facilitates researchers and post docs to spend time in industry placements. Thirdly, it offers students internship and placement opportunities in companies. All these activities help companies improve their understanding of the types of skills available in the three different cycles of university studies and in the post docs. On the other hand, mobility helps students to understand real working experience and encourages entrepreneurship and innovation.

The feedback received during and after the first *University/Business Forum* demonstrates a high interest of all the stakeholders involved and the initiative to set up this platform for a structured dialogue between the relevant actors was highly appreciated.⁽²³⁾ As follow-up events new thematic fora were scheduled to be organised on *Continuing Education and Lifelong Learning* and on *Curriculum development and Entrepreneurship*.

Policy recommendations

The general conclusion to be drawn from the previous discussion is that there is a great potential for developing EE policy further, at the European level as well as at the country level. A lot is happening in the EE field, and particularly at the level of higher education policy approaches so far are less developed.

The main trends in the development of EE in European universities may be summarised in the following points:

- EE is expanding in volume;
- New target groups are identified. While EE traditionally was based in economics, business administration and technology, programmes now also include target groups belonging to other fields, like the social sciences, the humanities, and creative and cultural disciplines;
- More specialised programmes are developed focusing on specific types of commercialisation activities related to specific disciplines (physics, chemistry, biology, etc.) or specific industrial fields;
- More experience based learning.

In line with these trends, a number of issues may be raised regarding the future provision of EE in higher education and the role of policy related to this.

The basic approach taken here is that the design of policy should be based on a bottom-up perspective, i.e. the need for skills and competences related to entrepreneurship among people with higher education should be based on an analysis of the entrepreneurial function. As discussed, the entrepreneurial function may be characterised in many ways, and the quality of the entrepreneurial function may vary a lot between countries. Thus, the design of EE policy should be based on an analysis of these characteristics and an assessment of what needs for entrepreneurial skills and knowledge that is of importance for the future development of the society.

All the master and doctoral programmes designed by universities to meet new challenges in professional development should train students for multiple career opportunities and hence must adapt and innovate to build up appropriate skills and

generic aptitudes to work in a changing environment. Entrepreneurship education is part of the more comprehensive or lesser extent response offered by universities to the needs of the knowledge society and economy.

In the design of a policy framework at least *five references* should be considered: scale, orientation, pedagogy, specialisation, science-industry link.

The first aspect is the *scale* of providing EE – to what extent should EE be offered at the level of the three study cycles, and to what extent should EE be offered in general or specialised courses? Our recommendation would so far be that EE should be offered at most HEIs at the first cycle (bachelor) level as well at the second cycle (master's degree) level. For groups of students that may be regarded as of specific strategic importance to industrial development, like students in engineering or business administration, a basic (introductory) course to entrepreneurship should be compulsory for virtually all the students, while elective courses should be available for smaller groups.

The second issue is the *orientation* of EE, i.e. to what extent should theoretical or practical approaches be prioritised, and to what extent should teaching be aiming at developing entrepreneurial skills and behaviour. Generally, there should be a mix of approaches, as theoretical knowledge about entrepreneurship may be as important as the practical skills. However, given the information from the country reports, there so far seems to be a bias towards theoretical courses, at least in some countries, which indicate that at least to some extent it is important to develop programmes with stronger emphasis on entrepreneurial skills and behaviour.

The third issue is related to *specialisation*, i.e. what should be the balance between general introductory courses aiming at all students independent of disciplinary backgrounds, and specialised courses focusing on specific issues related to the commercialisation of specific technologies or types of knowledge. Our impression from the country reports is that there currently is a great potential for developing more specialised entrepreneurship programmes. In particular, this seems to be important to facilitate the commercialisation of research output in fields that are recognised of strategic importance to future development of the knowledge driven economy.

The fourth issue is about *pedagogy*, and here there is a strong bias in most entrepreneurship programs of being too traditional and based on lectures and traditional class room teaching. More emphasis should be on designing programs in order to give the students contacts with real entrepreneurs and give the opportunities for working with real cases.

The fifth issue is the relationship between EE and *the science-industry link*. As pointed out above, most HEIs do not organised their entrepreneurship programs so they actively can interfere with ongoing processes of commercialisation and take advantage of opportunities to work with real cases. Thus, there is a great potential for improving EE programs, and given the tendency that most HEIs in the future will be colocated with some kind of technology transfer institution, it should also be relevant for most HEIs to design programmes that are based on close interaction with these institutions.

In addition to these five points, we will also point at gender and regions as important

aspects to consider when designing EE. Generally, there is a strong male bias in entrepreneurial activities, and the share of women taking the role as entrepreneur is generally low, in most countries below 30 percent, and in some countries even below 20. Moreover, there is a significant variation between industries, in some traditionally male dominated industries, the share of female entrepreneurs is extremely low, like in construction and some technology based industries.⁽²⁴⁾

The issue of regions may also be of great importance in some countries, as start-up rates may vary a lot between regions depending on the regions' industrial structure and culture for entrepreneurship. In particular, it may be important to relate entrepreneurship programmes to the specific situation of regional industries and clusters⁽²⁵⁾.

Concluding remarks

The approach taken in this paper may be regarded as a demand-oriented approach in which the need for EE is assessed by taking into account the performance of the entrepreneurial function in each country/region. However, the exercise of summarising the various indicators has revealed some problems related to how to interpret the results. Partly, this is due to conflicting results obtained by similar indicators, partly to the great diversity revealed through the indicators. Thus, the indicators provide no basis for straight forward conclusions regarding the provision of entrepreneurship education, and the examination of the statistical evidence thus has to be supplemented by qualitative

assessments of various aspects of the entrepreneurial function.

Our discussion of the current policy status at the EU-level as well as for Romania and Norway reveals a great potential for further development of policy issues and strategies for the provision of EE by higher education. The policy strategies are very general in nature, there is little discussion on the diversity of countries and regions and how this should be reflected in entrepreneurship programs. And above all, there is little discussion of what should be the specific role of higher education compared to the lower levels of the educational system. Thus, the most significant drawback in the current situation is that a specific policy targeting the explicit role of HEIs in the provision of EE is lacking.

A *first* step in the development of a future EE policy is to raise the issue of what should be the specific role of HEIs when providing entrepreneurship programmes. Given that the pre-university level of the educational systems provide basic knowledge about entrepreneurship as well as the basic skills for operating smaller businesses, the role of higher education should be to offer more comprehensive and specialised programmes to develop competences beyond what is given by the lower level programmes.

An important issue related to this is what should actually be the role of Government policy related to the provision of EE in higher education. As HEIs are autonomous institutions, the role of the Government is mainly to work through incentives. Moreover, as many HEIs are far beyond the Ministry of Education regarding knowledge about entrepreneurship education, the main tasks for policy might be to facilitate

processes of information exchange and to organise some kind of coordinated process in collaboration with the universities in order to clarify the objectives for the future provision of EE.

A *second* step in this process might be to coordinate the efforts of HEIs in developing more specialised strategies for addressing needs for knowledge and competencies both related to various disciplines and to specific target groups. There should be a clear distinction between what is offered at the bachelor level and what is offered at the master level. As many issues related to starting up new firms are general in nature, it seems feasible to offer general introductory courses at the bachelor level which are open to all students, while this may be followed up at the master level with more specialised courses with focus on specific issues related to the actual disciplines.

An important issue for the future development of EE is how to design

programmes to more actively contribute to knowledge transfer and to start-ups of knowledge based firms in fields or disciplines the programmes are focusing on. Moreover, there is generally a great challenge to integrate EE with the science-industry link. The currently more theory oriented educational programmes in entrepreneurship should to a greater extent include issues related to the science-industry interface and the commercialisation of knowledge products.

Programmes offered at the master's degree level should focus on the commercialisation of research output relevant to the specific disciplines, and a more experience based pedagogical approaches should be developed. Europe-wide and in most of the countries there are interesting cases of how this can be organised. The main task for the Government might be to facilitate the dissemination of that information and to provide incentives to HEIs to develop comprehensive programmes for entrepreneurship education.

Notes

- (1) This paper is based on intermediate outcomes of the second phase of the U-Know research project [Understanding the Relationship between Knowledge and Competitiveness in the Enlarging European Union] which is partially financed by the European Commission in Framework Programme 6, Priority 7 on "Citizens and Governance in a knowledge based society." The authors are solely responsible for the contents which might not represent the opinion of the European Commission.
- (2) According to Spilling, O., Pîslaru, D., Sauermann, J. (2007) "State of the Art in Researching Entrepreneurial Education" and Spilling, O. (2008) "Entrepreneurship

education in some European countries", papers presented as parts of the U-Know Project.

- (3) See Spilling, O., Korke, M., Borlaug, S. (2008), "Entrepreneurship Education and the Entrepreneurial Function in Higher Education – Some Reflections on Policy Implications"- part of the U-Know Project.
- (4) Green Paper. Entrepreneurship in Europe, European Commission, Brussels, 2003, COM (2003) 27 final.
- (5) Flash Eurobarometer 134 "Entrepreneurship", November 2002
- (6) See Miclea, M. (2004). "Learning to do" as a Pillar of Education and its Links to Entrepreneurial Studies in Higher Education: European Contexts and

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