Description of four Pedagogical Innovations in Entrepreneurship for Higher Education

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ABSTRACT:

In a recently published chapter (Béchard & Grégoire, 2006), we developed an analytical framework that highlights the core characteristics of pedagogical innovations, and the coherence relationships between these characteristics. We also illustrated the import of the framework by analyzing four innovations in entrepreneurship education from four institutions in four different countries: the Oregon State University’s *Austin Entrepreneurship Program* (USA); the *Master in Management Global’s Parcours Entrepreneuriat* from l’Université Paris Dauphine (France); the *High-TEPP* initiative from the Universities of Bamberg, Jena and Regensburg (Germany); and the University of Victoria’s *Entrepreneurship Program* (Canada). In the present Cahier de Recherche, we describe each program in more details, and present the information that was at the basis of our analysis.

**Keywords:** entrepreneurship education; pedagogical innovation; teaching models; programs evaluation; quality of programs; higher education.

RÉSUMÉ :

Dans un chapitre publié récemment (Béchard & Grégoire, 2006), nous avons développé un cadre d’analyse qui met en valeur les caractéristiques de base des innovations pédagogiques, de même que les liens de cohérence entre ces caractéristiques. Nous avons aussi illustré l’apport de ce cadre en analysant quatre innovations pédagogiques dans l’enseignement de l’entrepreneuriat provenant de quatre institutions dans quatre pays différents : le *Austin Entrepreneurship Program* de l’Oregon State University (USA); le *Parcours Entrepreneuriat* du programme de Master en Management Global de l’Université Paris Dauphine (France); l’initiative *High-TEPP* des Universités de Bamberg, Jena et Regensburg (Allemagne); et le *Programme en Entrepreneurship* de de l’Université de Victoria (Canada). Dans ce présent cahier de recherche, nous décrivons de façon détaillée chacun de ces programmes, et présentons l’information qui est à la base de notre analyse.

**Mots clés:** éducation à l’entrepreneuriat; innovation pédagogique; modèles d’enseignement; évaluation des programmes; qualité des programmes; enseignement supérieur.
Description of four Pedagogical Innovations in Entrepreneurship for Higher Education

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INTRODUCTION

In this era of globalization, where local, regional and national economies are becoming deeply interconnected, the teaching of entrepreneurship in colleges, universities and other institutions of higher education is increasingly called upon to help our societies face the challenges of employment and economic development. Echoing this sustained demand for entrepreneurship courses and programs, there is a long tradition of research that measured the emergence of entrepreneurship as a distinctive area of education, both within and outside business schools (e.g., Chusimir, 1988; Katz, 1999, 2003; Plaschka & Welsch, 1990; Robinson & Haynes, 1991; Solomon et al., 2002; Solomon & Fernald, 1991; Solomon et al., 1994; Vesper & Gartner, 1997, 1999; Zeithaml & Rice, 1987). Ever since the pioneering work of Vesper in the early 1970s (e.g., 1974, 1975, 1976, 1982), U.S.-based schools have been among the most active protagonists of this growth in entrepreneurship education – and that even as American scholars continue to debate whether entrepreneurship education has attained satisfying levels of maturity and legitimacy (cf., Katz, 2003; Kuratko, 2005). Yet, the development of entrepreneurship education has been noted across the globe in several countries, including in Argentina (Postigo & Tamborini, 2002), in Canada (cf., Menzies, 2005), in China (Li et al., 2003), in France, Italy and Europe in general (cf., Dubbini & Iacobucci, 2004; Fayolle, 2000; Garavan & O'Cinneide, 1994a, 1994b; Hisrich & O'Cinneide, 1996; Léger-Jarniou, 2005; Wilson & Twaalfhoven, 2005), in Austria, Germany and Switzerland (Klandt, 2004) and in Tunisia (Aloulou et al., 2003) – among others.

While impressive, however, this international interest for introducing entrepreneurship into higher education could lead one to question whether entrepreneurship courses and programs are also growing in quality – the more so as entrepreneurship moves from an intriguing business elective to a central pedagogical focus shared across departments and colleges. As early as 1994, Gartner and Vesper observed that for a field so preoccupied with “newness,” “novelty” and “innovation,” entrepreneurship education was not showing particularly high levels of pedagogical innovation (Gartner & Vesper, 1994). Still today, guest speakers, case studies and
business plan competitions constitute the “bread and butter” of most entrepreneurship education courses, and that both in the U.S. and abroad (cf., Léger-Jarniou, 2005; Solomon et al., 2002: but compare with Menzies, 2005).

Within this general context, published works on the question of innovation in entrepreneurship education have generally been articulated around three poles. One can first observe a series of works describing the details of particular initiatives (e.g., Brown & Puddick, 2002; Feldman, 1995; Low et al., 1994; Robinson, 1996; Sexton & Bowman-Upton, 1987). In turn, this descriptive work has been seconded by a series of calls to expand the reach of entrepreneurship education by adopting particular approaches (e.g., Benson, 1992; Gundry & Kickul, 1996; Honig, 2004; Katz, 1995; Mitchell & Chesteen, 1995), and/or by integrating particular topics into the curriculum (e.g., Fiet, 2001; Hills & Kuhns, 1994; Shepherd, 2004). Finally, one notes a growing number of papers echoing Vesper (1982) original call for scholars to measure the practical outcomes of entrepreneurship education initiatives, and that whether in terms of attitudes and interest toward entrepreneurship (e.g., Clark et al., 1984), teacher/student satisfaction (e.g., Blick, 2005; Boles, 2005; Klapper, 2004, 2005), mode of decision-making (e.g., Harmeling, 2005), and/or number and innovativeness of venture ideas (e.g., DeTienne & Chandler, 2004).

In a recently published chapter (Béchard & Grégoire, 2006), we noted however the dearth of research-grounded discussions on the quality of pedagogical innovations in entrepreneurship education. To address this issue, we drew from the education literature on pedagogical innovation, and developed a research-grounded analytical framework meant to highlight the core characteristics of different types of innovation, and the coherence relationships between these characteristics. We then demonstrated the import of the framework by analyzing four illustrative examples of pedagogical innovations that were developed by prominent entrepreneurship scholars in different institutions of higher education in both North America and Europe. Because of text limitations, however, we were unable to include in that chapter detailed descriptions of each program.

To complement the chapter, we present in this Cahier de Recherche more complete descriptions of the four programs – alongside with our analysis of these programs. We begin by summarizing the analytical framework we introduced in Béchard and Grégoire (2006), and follow with a description the methodological choices that guided our empirical work. We then present the detailed cases upon which we based our analysis.

By highlighting the coherence relationships between the core characteristics of pedagogical innovations – and that in light of relevant theoretical considerations, we seek to provide entrepreneurship educators with concrete tools to reflect upon their own innovative practices, to identify and develop areas where they could innovate, but also to assess the quality of their innovations. More specifically, we aim to formalize scholarly consideration of the internal and external coherence between the various dimensions that characterize different pedagogical innovations. In turn, we hope that the framework and illustrations presented here will encourage entrepreneurship educators not only to continue developing new innovations, but also to conduct scholarly research on innovative practices in entrepreneurship education.
OVERVIEW OF ANALYTICAL FRAMEWORK

At the basis of the analytical framework we developed in Béchard and Grégoire (2006) is the idea that pedagogical innovations do not emerge – and function – as random assemblages of characteristics, but may rather tend to gravitate toward discrete archetypes. In particular, these archetypes are characterized by a high degree of coherence between, on the one hand, the ontological underpinnings and operational components of an innovation (i.e., their teaching and learning underpinnings), and on the other hand, the organizational arrangements and institutional dynamics that support the innovation, in the particular context in which it is taking place. Table 1 synthesizes these analytical considerations. Ultimately, we argued that the degree of coherence between these characteristics could point to the intrinsic quality of an innovation, from a design standpoint (cf., Barnett & Coate, 2005; Hannan & Silver, 2000).

Table 1: Analytical framework

<table>
<thead>
<tr>
<th>Dimensions of analysis</th>
<th>Analytical foci</th>
<th>Indicator variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching and learning underpinnings of</td>
<td>What ontological assumption(s) underpin this</td>
<td>• Educator’s conceptions about teaching</td>
</tr>
<tr>
<td>the innovation (Teaching model)</td>
<td>innovation?</td>
<td>• Educators’ conceptions about themselves and the students</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Educators’ assumptions about the knowledge to be taught</td>
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<tr>
<td></td>
<td></td>
<td>• Teaching goals</td>
</tr>
<tr>
<td></td>
<td>• Knowledge emphasized</td>
<td>• Knowledge emphasized</td>
</tr>
<tr>
<td></td>
<td>• Pedagogical methods and means</td>
<td>• Pedagogical methods and means</td>
</tr>
<tr>
<td></td>
<td>• Forms of evaluation</td>
<td>• Forms of evaluation</td>
</tr>
<tr>
<td>Contextual factors</td>
<td>What kind of arrangements supports this innovation at</td>
<td>• Degree of academic autonomy</td>
</tr>
<tr>
<td>that participate in the development and</td>
<td>the institutional level?</td>
<td>• Particular mission of the institution</td>
</tr>
<tr>
<td>implementation of an innovation</td>
<td></td>
<td>• Structural mechanisms of coordination</td>
</tr>
<tr>
<td>(Support infrastructure)</td>
<td>• Institutional practices regarding the allocation</td>
<td>• Institutional practices regarding the allocation of resources for</td>
</tr>
<tr>
<td></td>
<td>of arrangements supports this innovation at the</td>
<td>developing and sustaining pedagogical initiatives</td>
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<tr>
<td></td>
<td>education system level</td>
<td>• Degree of institutional autonomy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Degree of centralization of education system</td>
</tr>
<tr>
<td></td>
<td>• Presence of national policies towards innovation</td>
<td>• Presence of national policies towards innovation and</td>
</tr>
<tr>
<td></td>
<td>and entrepreneurship</td>
<td>entrepreneurship</td>
</tr>
</tbody>
</table>

RESEARCH METHOD

To maximize the external relevance of our illustrations, we focused on entrepreneurship programs that have received particular awards, that have been heralded as examples of pedagogical excellence and innovation in their community, and/or that have been successfully transferred to other institutions of higher learning. These external marks of distinctions – often based on peer evaluation – were important to ensure that the pedagogical innovations we focused on were particularly important and significant. At the same time, we also strived to have representative cases from different national education systems, and articulated at different institutional levels. Table 2 lists the principal sources we consulted to identify innovative entrepreneurship programs in institutions of higher education.
Table 2: Consulted sources to identify innovative entrepreneurship programs in higher education

<table>
<thead>
<tr>
<th>Source</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lists of recipients of pedagogical awards</td>
<td>Academy of Management’s Entrepreneurship Division Awards (<a href="http://www.usfca.edu/alev/aom/AwardWinnerList.htm#Teaching">http://www.usfca.edu/alev/aom/AwardWinnerList.htm#Teaching</a>)</td>
</tr>
<tr>
<td></td>
<td>USASBE’s entrepreneurship education awards (<a href="http://www.usasbe.org/about/awards/model.asp">http://www.usasbe.org/about/awards/model.asp</a>)</td>
</tr>
<tr>
<td></td>
<td>…</td>
</tr>
<tr>
<td>Websites listing best practices</td>
<td>USASBE’s innovative practices (<a href="http://www.usasbe.org/knowledge/innovation/index.htm">http://www.usasbe.org/knowledge/innovation/index.htm</a>)</td>
</tr>
<tr>
<td></td>
<td>USASBE’s syllabus exchange (<a href="http://www.usasbe.org/knowledge/syllabus/index.htm">http://www.usasbe.org/knowledge/syllabus/index.htm</a>)</td>
</tr>
<tr>
<td></td>
<td>…</td>
</tr>
<tr>
<td>Research databases</td>
<td>ERIC (<a href="http://www.eric.ed.gov/">http://www.eric.ed.gov/</a>)</td>
</tr>
<tr>
<td></td>
<td>…</td>
</tr>
<tr>
<td>Research publications about such programs</td>
<td>Academy of Management Learning and Education</td>
</tr>
<tr>
<td></td>
<td>International Journal of Entrepreneurship Education</td>
</tr>
<tr>
<td></td>
<td>…</td>
</tr>
<tr>
<td></td>
<td>IntEnt Conference Proceedings</td>
</tr>
<tr>
<td></td>
<td>…</td>
</tr>
</tbody>
</table>

Having identified a number of innovations, we set out to distinguish them on the basis of the indicators highlighted in our analytical framework (see Table 1 above). To do so, we examined publicly available information from the web sites describing each initiative, as well as from secondary data such as articles describing the contexts in which these initiatives took place. We then followed Miles and Huberman’s (1994) recommendations, and went back and forth between our examination of the data and our analytical framework. In turn, these iterations allowed us to identify a first set of four archetypes, each exemplified by a particular pedagogical innovation that had been successfully implemented in a particular institution. Interestingly, variations along each dimension of analysis allowed us to contrast different types of innovations taking place in widely different education systems, and that across different countries in North America and Europe. The four programs thus identified are:

1) The *Austin Entrepreneurship Program* at Oregon State University’s (USA);

2) The *Master Management Global’s Parcours Entrepreneuriat* at l’Université Paris-Dauphine (France);

3) The *EXIST High Tech Entrepreneurship Postgraduate Program*, as implemented at the Universities of Bamberg, Jena and Regensburg (Germany); and

4) The *Entrepreneurship Program* at the University of Victoria (Canada).

To develop our analysis, we created comprehensive descriptions of each of these innovations—an approach typical of standard case analysis (cf., Eisenhardt, 1989, 1991). Table 3 lists the source material consulted in order to construct these cases. We both worked together to identify
what were the core characteristics of the innovations we considered: seen in this light, the results presented below emerged through an open form of inter-rater agreement.

Once we had generated a first draft of each illustration, we contacted one of the educators who was or had been involved in the innovation. Each of these ‘primary informants’ read the relevant case, provided additional insights, and validated the final version that we used in our final analysis. Naturally, we want to express all our gratitude to these informants for the help they so generously offered us.

Table 3: Source material for each case

<table>
<thead>
<tr>
<th>Name of program / Institution</th>
<th>Source material</th>
</tr>
</thead>
</table>
| **Austin Entrepreneurship Program**  
Oregon State University’s (USA) |
http://www.bus.oregonstate.edu/programs/austin_entrep.htm (as of September 16th, 2005)  
Primary informant: Dr. Justin Craig (Justin.Craig@bus.oregonstate.edu)  
Relevant background material: (Crespo, 1999; Katz, 2003; Kuratko, 2005; Lynch, 2005) |
| **Master Management Global Parcours Entrepreneuriat**  
Université Paris-Dauphine (France) |
http://www.dauphine.fr (as of December 1st, 2005)  
Primary informant: Dr. Catherine Léger-Jarniou (catherine.leger-jarniou@dauphine.fr)  
| **EXIST High Tech Entrepreneurship Postgraduate Program**  
Universities of Bamberg, Jena and Regensburg (Germany) |
http://www.exist.de/ (as of April 1st and September 16th, 2005)  
http://www.exist-hightepp.de (as of April 1st and September 16th, 2005)  
Primary informant: Dr. Holger Patzelt  
| **Entrepreneurship Program**  
University of Victoria (Canada) |
http://business.uvic.ca (as of April 3rd and September 16th, 2005)  
Primary informant: Dr. Boyd Cohen (bcohen@business.uvic.ca)  
Relevant background material: (AUCC, 2001; Beaulieu & Bertrand, 1999; Menzies, 2004, 2005; Menzies & Gasse, 1999; Mitchell, 2003; Mitchell & Chesteen, 1995; Mitchell et al., 2000) |

RESULTS AND ANALYSIS

To illustrate how the analytical framework developed above allows for distinguishing between different types of pedagogical innovation in entrepreneurship education, the following sections describe the characteristics of the four entrepreneurship education programs identified above. Table 4 summarizes the particular characteristics of each program in light of the analytical framework we developed in Béchard and Grégoire (2006).
<table>
<thead>
<tr>
<th>Archetype</th>
<th>Sustaining a community of (entrepreneurship) learners</th>
<th>Developing one’s entrepreneurial spirit</th>
<th>Developing an academic expertise in entrepreneurship</th>
<th>Developing one’s entrepreneurial competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program</td>
<td>Austin Entrepreneurship Program</td>
<td>Master Management</td>
<td>EXIST High Tech Entreprenariat</td>
<td>Entrepreneurship Program</td>
</tr>
<tr>
<td>Institution (Country)</td>
<td>Oregon State University’s (USA)</td>
<td>Université Paris-Dauphine (France)</td>
<td>Universities of Bamberg, Jena and Regensburg (Germany)</td>
<td>University of Victoria (Canada)</td>
</tr>
</tbody>
</table>

Dimensions of analysis

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</tr>
</tbody>
</table>

Teaching model: demand

Teaching = to provide environment that enables knowledge appropriation by students' activities
Teacher = facilitator, tutor
Students = participants
Content is primarily defined by students’ needs vis-à-vis entrepreneurship

Teaching goals: Helping students develop basic learning skills / Fostering students development and personal growth
Pedagogical means emphasizing individual exploration
Omnipresence of activities of communication and discussion
Formative means of evaluation

Teaching model: demand-competence

Teaching = to provide environment that enables knowledge appropriation by students / to organize students’ activities
Teacher = facilitator, tutor
Students = participants
Content is primarily defined by students’ needs vis-à-vis entrepreneurship, and by problems to be solved by competent actors in real-life situations

Teaching goals 1: Helping students develop basic learning skills / Fostering students development and personal growth
Teaching goals 2: Helping students develop higher order thinking skills / Preparing students for jobs/careers
Pedagogical means emphasizing communication and knowledge production
Summative and formative forms of evaluation

Teaching model: supply-competence

Teaching = to impart (scholarly) information, but also to make learning possible
Teacher = presenter, but also adviser (coach)
Students = active participants in the development of their knowledge
Content is primarily defined by scholarly research in the relevant discipline, but by the particular problems faced by science entrepreneurs

Teaching goals 1: Teaching students facts and principles of the subject matter / Providing a role model for students
Teaching goals 2: Helping students develop higher order thinking skills / Preparing students for jobs/careers
Pedagogical means emphasizing discussion, and production of knowledge
Evaluation emphasizes performance in authentic situations

Teaching model: competence

Teaching = to make learning possible
Teacher = coach, developer
Students = active participants in the development of their knowledge
Content is primarily defined by the problems to be solved by competent actors in real-life situations

Teaching goals: Helping students develop higher order thinking skills / Preparing students for jobs/careers
Pedagogical means emphasizing discussion, and production of knowledge
Evaluation emphasizes performance in authentic situations

Contextual anchors

<table>
<thead>
<tr>
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<td>University of Victoria (Canada)</td>
</tr>
</tbody>
</table>

High degree of Faculty autonomy
Integration with network of supporting Department and Services allows for a campus-wide initiative
Consistent with comprehensive mission of University
Built on traditions of Fraternity and Sorority residences on U.S. campuses

Average degree of Faculty autonomy
Emphasis on cross-functionality, teamwork, use of business professionals and integration with business community all consistent with University’s orientations

Average degree of Faculty autonomy
Existing ties between universities and businesses

High degree of Faculty autonomy
Close-knit team of entrepreneurship scholars who worked together to develop and implement innovation
What kind of arrangements supports this innovation at the education system level

<table>
<thead>
<tr>
<th>Benefited from high level of institutional autonomy / decentralized system of education</th>
<th>Relative to other institutions in French system, historically benefited from a higher degree of autonomy</th>
<th>Supported by recent policies towards innovation and entrepreneurship as means to foster economic development</th>
<th>Supported by recent policies towards innovation and entrepreneurship as means to foster economic development, particularly with respect to science-based entrepreneurship</th>
<th>Exhaustive approach benefited from organizational culture that emphasized and supported this kind of innovation (e.g., coop programs)</th>
</tr>
</thead>
</table>

**Type 1: The Austin Entrepreneurship Program at Oregon State University (USA)**

The U.S. system of higher education is extremely developed, both in terms of its geographical coverage, and in the diversity of its offering. Within this system, about 60% of U.S. institutions of higher education are public. But compared to institutions of higher education in other countries, U.S. public institutions are managed in a very decentralized way by their respective government. While the level of financial support offered by the State varies, it is student tuition, private donations, grants, advertising revenues and rights from sports competitions and other merchandise, and royalties from technology transfers and other licensing activities that ultimately provide the resources for day-to-day operations. At the same time, colleges, departments and ultimately, the educators themselves enjoy a wide degree of autonomy in defining the curricula – and their pedagogy. Interestingly, it is in the United States that one finds the largest number of entrepreneurship courses and programs, first in schools of business and engineering, but increasingly in other schools and colleges as well (Katz, 2003; Solomon et al., 2002).

Within this general context, Oregon State University (OSU) is a component of the State of Oregon’s network of public universities and colleges. A land-grant, sea-grant and space-grant institution principally located in Corvallis, south-west of Portland, OSU offers programs in agricultural sciences, business, education, engineering, forestry, health and human sciences, liberal arts, oceanic and atmospheric sciences, pharmacy, science, and veterinary medicine. The University serves more than 19,000 students from all 50 U.S. States and some 80 countries. While the majority of students are enrolled at the undergraduate level, 3,500 are pursuing graduate studies.

Beginning in the Fall of 2004, the College of Business and College of Engineering combined their efforts with University Housing and Dining Services (UHDS) to launch the Austin Entrepreneurship Program (AEP). One of the distinguishing features of this program is that instead of focusing solely on discrete courses and electives, it is physically embedded in a student residence – the Weatherford Hall – which is specifically tailored for those students with a noted and active interest in entrepreneurship. Boosted by a generous donation from a local family of entrepreneurs (Ken and Joan Austin), the Weatherford building now comprises student accommodations for up to 289 residents, two business incubators, a café, a boardroom, a library, two suites reserved for visiting entrepreneurs and executives, two classrooms, academic offices, and an apartment for a Faculty-in-Residence, all that in a highly networked high-technology environment. By embedding the program’s activities into a distinctive physical space
(Weatherford Hall has long been considered a campus “icon”), OSU aims not only to develop entrepreneurship among its students and Faculty, but also to foster OSU’s technology transfer towards the State of Oregon’s different industries, and ultimately contribute to the State’s economic development.

Building on this unique facility, the Austin Entrepreneurship Program places community learning at the forefront of its pedagogy. As the authors of the program argue: “Students (…) learn valuable life skills through the inherent nature of living with 290 individuals from diverse backgrounds and different aspirations. Learning to live with a roommate, negotiating community conflicts, networking with fellow students, and serving their community by providing leadership and direction are just a few ways in which students will build their competencies (http://www.weatherfordacademy.com/index.php?option=com_content&task=view&id=12&Itemid=31).”

Participation in the program is open to all students on the campus. And indeed, the 289 male and female students who take part in the program (the gender mix is close to 50-50) come from virtually all disciplinary majors offered on the Corvallis campus.

More specifically, the AEP community offers three levels of involvement to its participants. By definition, all residents are granted the title of Weatherford Affiliate – which acknowledges their selection by a formal application process, and their individual commitment to engage in the Weatherford curriculum and in the community life of the residential college. Whether undergraduates or graduates, second year residents are offered the possibility of serving as Weatherford Associates – which implies added responsibilities as informal leaders, opportunities to develop skills in group facilitation, team development, leadership and mentoring, as well as additional interactions with industry leaders and faculty.

In support of this community-learning environment, several entrepreneurs, business professionals and other innovators visit the students throughout the academic year, and that to discuss entrepreneurship-relevant topics. As noted above, there are even apartments reserved for such visitors, along with several meeting rooms and a variety of other spaces for informal discussions, chats and other ‘fireside’ conversations. In addition, an entrepreneurship professor resides permanently in the building with his/her spouse and family. Each week, this Faculty-in-Residence holds a short seminar on a particular topic, and serves as an informal mentor towards the students. Several other professors and instructors from the business and engineering schools are involved in the teaching of other entrepreneurship courses, including those leading to the Entrepreneurship minor of the Bachelor of Commerce. They also act as mentors to the student-residents.

The management of the program is assumed by a Director, who is supported by an advisory board of local entrepreneurs and business people – all volunteers – who helps in curriculum development, networking, and the search for financial support. One must also note the implications of OSU alumni in the financing of the feasibility and business plan competitions. While the program is a campus-wide initiative, it remains primarily associated with the College of Business.
On the pedagogical front, the AEP’s community-learning approach is embedded in both a formal and an informal curriculum. The formal curriculum consists of an entrepreneurship minor. The minor includes a number of business prerequisites (accounting, law, finance, venture finance, marketing), and three entrepreneurship courses: introduction to entrepreneurship, venture management, and a new venture lab where students develop a full-fledge business plan.

In parallel, the team of academics and professionals at the helm of the AEP has gone to great lengths to ‘structure’ their informal curriculum. Building on the notion that considerable learning can occur outside the classroom (and consistent with the community learning approach embedded within the Weatherford residential college), the team developed a web-based interactive curriculum. This interactive curriculum is known as the AEP-T.I.C.K. – after the four areas of competencies that the program fosters (i.e., Teamwork, Individual development, Community building, and entrepreneurial Knowledge). Through this informal curriculum, students in the program are offered a variety of activities, from formal presentations by visiting entrepreneurs to informal chats with their peers, from content-focused seminars to process-oriented exchanges with a mentor, or from group projects with their peers to individual research activities. As they take part in these activities, students are invited to develop an online portfolio, where they individually reflect on what they want to achieve, their experience, and what they are getting out of it. “In this way, says one of the Faculty involved, students’ learning objectives can be clearly stated and tracked as they build competencies in the T.I.C.K. areas (…), and submit their progress to Faculty for approval (Justin Craig: personal communication).” Ultimately, students ‘graduate’ from the program with a collection of artifacts that document their unique learning and development while at OSU.

Interestingly, similar efforts are now being implemented on other U.S. campuses (e.g., the Creativity, Innovation and Entrepreneurship Learning Community at Syracuse University’s Whitman School of Management - http://whitman.syr.edu/eee/campus/cie/index.asp).

From the perspective of our analytical framework, OSU’s Austin Entrepreneurship Program proceeds primarily from a ‘demand’ model of teaching (Béchard & Grégoire, 2005). In this model, educators conceive teaching essentially in terms of developing and supporting an environment that enables the appropriation of relevant knowledge by the students (Kember, 1997), or as “organizing students’ activities” (Ramsden, 2003). Such conceptions are particularly manifest in statements about the Weatherford residential college being designed as a physical arena where learning is taking place 24/7, both inside and outside the classroom. By extension, the presence of a Faculty-in-residence and of professional visitors suggests that educators conceive of their role as that of ‘facilitators and tutors’ (Kember, 1997). More importantly, the programs’ overall design and learning activities demand that educators pay attention not so much on transmitting formal academic knowledge, but on how they can best help each and every student develop their particular potential with respect to entrepreneurship. This is particularly explicit in the four areas of competencies that Austin Program’s informal curriculum emphasizes (i.e., Teamwork, Individual development, Community building, and entrepreneurial Knowledge). Here again, this conception of the knowledge to be taught in terms of students’ personal needs with vis-à-vis entrepreneurship is in line with ontological conceptions associated with the demand model.
Building on the ontological conceptions described above, the OSU program places a particular emphasis on learning outcomes of social and personal development (cf., Groebe, 1994; Pontecorvo, 2003), or of ‘fostering students’ personal development and growth’ (Angelo & Cross, 1993). In line with these teaching objectives, the entire program is meant to encourage as many interactions as possible, not only between a variety of ‘educators’ and students, but also between the students themselves. In the same spirit, the program relies on pedagogical means emphasizing individual exploration (e.g., portfolio of individual reflections) and in the omnipresence of activities of communication and discussion (e.g., roundtables, fireside chats, individual exchanges with mentors, etc.). One also notes the use of formative means of evaluation (e.g., portfolio, mentoring) – again a staple of the ‘demand’ model. Through it all, OSU’s program relies on learning environments of communications. It is through all these interactions that students are expected to develop their entrepreneurship-relevant skills and knowledge.

As a campus-wide initiative meant to foster entrepreneurship, technology transfer and economic development for the State of Oregon, the program is well integrated within its supporting networks, both internally – i.e., between the schools, colleges, administrative and support units (e.g., the Housing and Dining Services), and externally – e.g., with the implications of local entrepreneurs, alumni, etc. At the same time, the program’s targeting of students across all disciplines appears in line with the OSU’s comprehensive mission. The program also benefits from the decision latitude, which in the U.S. decentralized system of education as well as in the American culture, allows for such local initiatives to emerge and strive. It is also striking that as a campus residence, the Austin Program builds on a long established tradition of Fraternities and Sororities – the ubiquitous ‘Greek’ system of students associations found on most American campuses.

In the end, what transpires from this case is a pedagogical innovation where the ontological and operational underpinnings of the program are not only coherent with one another, but also with the particularities of the context in which the innovation is taking place. It makes sense that OSU’s Austin Entrepreneurship Program took the form it took. At the same time, the framework we develop here suggests that the success of the OSU program lies not only in its particular characteristics, but also in how these various characteristics form a coherent whole.

**Type 2: The Parcours Entrepreneuriat at l’Université Paris-Dauphine (France)**

The French system of higher education is both heterogeneous and complex. It is heterogeneous in the sense that one can find a large variety of public and private institutions side-by-side, often with offerings in the same disciplines. Yet, the French system is also complex because of the large variety of academic paths students can follow within – and between – these different institutions. The symbolically subtle yet professionally important differences of status between some of the national Universités and Grandes Écoles also add to this complexity. To be admitted to the Grandes Écoles, for instance, students must successfully pass the relevant ‘National Concours’ – a formal examination conducted at the end of two years of preparatory classes in a general subject (e.g., humanities, sciences, business administration, engineering, etc.). By contrast, admittance to the Universités is not based on the National ‘Concours’ results, but simply on students’ individual achievements in obtaining the relevant diploma. The Grandes Écoles also tend to be specialized around particular topics and disciplines, while the Universités
tend to offer programs across several areas. In addition, similar programs on similar topics can be located in a wide range of institutions of higher education, from relatively autonomous academic units – such as the ‘Unités de recherche et de Formation’ the ‘Instituts Universitaires de Technologie’, the ‘Instituts Universitaires de Formation des Maîtres’, and some ‘Instituts d’Études Politiques’ (IEP), to the more formally organized Grandes Écoles and Universités.

A further characteristic of the French system of higher education is that it remains highly centralized. For instance, several decisions remain the direct responsibility of French Government authorities, from school’s organizations of their curriculum to the hiring and promotion of academics within the entire system of education – all that regardless of whether the institutions are private or public (Saporta & Verstraete, 2000). Taken as a whole, then, the French education system is thus characterized by a highly hierarchical and centralized structure, built by successive additions of programs and schools in response to arising needs (Fayolle, 2000).

For its part, l’Université Paris-Dauphine was established in 1968, first as a ‘centre universitaire’ and two-years later as a full-fledged public université. Reflecting to a certain extent the social and cultural upheaval of the period, Paris-Dauphine benefited early on from a wide autonomy in its pursuit of scientific and pedagogic innovations – elements that still today, are said to be part of the Université’s ‘distinct identity’ (http://www.dauphine.fr/; cf., Dauphine en bref; Il était une fois Dauphine). Having been granted the status of ‘grand établissement’ in February of 2004, Paris-Dauphine actively pursues a tri-partite mission emphasizing ‘research, general, and continuous education.’ More importantly, the Université has put forth a series of five broad objectives that are meant to orient its actions, including:

1) Mastering the multidisciplinary nature of one’s field of study;
2) Systematically building on research conducted in highly recognized labs;
3) Professionalizing the curriculum, in the sense of courses leading to decision and management responsibilities in organizations of various types;
4) Relying on small-group pedagogical methods from the beginning of each course of study;
5) Positioning the Université as a European and International reference within its relevant domains


Located on the western side of Paris (16ème), Paris-Dauphine currently serves more than 9,000 students, 1,300 of which in programs of continuous education, and some 630 in research-oriented Doctoral programs. Owning in part to the numerous exchange agreements signed by the Université over the years, foreign students account for 23% of the student population. In terms of curriculum, programs are offered in economics, political sciences, sociology, law, mathematics, computer sciences, decision sciences, and business management. This offering is supported by more than 400 academics and some 570 professional consultants.

Within this context, Paris-Dauphine has been the very first institution of higher education in France to offer a program in entrepreneurship – in 1989 (Léger-Jarniou, 2005: 341).
program consisted of a 1st year Master’s specialization offered to those students interested in “working in small-businesses, working as consultants, or pursuing entrepreneurship projects of their own” (http://www.dep.dauphine.fr/pages/ece/ece5.htm). More than 400 students have graduated from the program since its inception. Furthermore, an ‘Entrepreneuriat et Création d’Entreprise’ Resource and Competence Centre has been established in 2000 (http://www.dep.dauphine.fr/pages/ece/progr.htm) – echoing the increased support of the French government towards entrepreneurship education initiatives.

In 2005, however, it is an external change that brought a new wave of innovation at Paris-Dauphine: the need to adapt the Université’s programs to the European Credit Transfer System (ECTS). Developed in 1989 within the Erasmus programs, and established with the Bologna Process agreements of 1999 and the Zurich Conference on Credit Transfer and Accumulation of 2002, the ECTS “is a student-centered system based on the student workload required to achieve the objectives of a programme of study (http://www.hrk.de/de/download/dateien/ECTSUersguide_en_Februar2005.pdf: p. 4).” In practice, the ECTS aims to facilitate students’ comparison – as well as their increasing movements – between courses and programs offered by different institutions, across all countries of the European Union (Eurydice, 2005). At the same time, the Bologna reforms contribute to make the French programs and institutions of higher education more similar to those of other countries (Léger-Jarniou, 2005: 333).

Among other impacts, the ECTS provided the impetus for revising the Paris-Dauphine entrepreneurship program. Now known as the Master Management Global Parcours Entrepreneuriat, the new program has kept the overarching goal of the old program, and which was not so much to lead to the creation of new ventures as to develop students’ entrepreneurial spirit. In the words of the specialization’s authors:

“The program aims to foster and develop students’ entrepreneurial spirit, and that to enable them to pursue international careers in small innovating structures, in high-potential ventures, in large corporations, in new firm creation or in the renewal of existing ones. In this light, the program responds to the needs of firms that orient their operations towards a cross-functional mode of project management. Managing these cross-functionalities requires a well-developed entrepreneurial spirit, and demands of managers to be both autonomous and accountable. To this effect, the program aims to develop student’s base knowledge of entrepreneurship concepts, and of the tools associated with the entrepreneurial processes, know-how about this process, and personal knowledge about entrepreneurial behaviors.” (translated from: http://www.dep.dauphine.fr/pages/ece/plaquette%20Master.pdf)

Building on this general orientation, the program is not only targeting master-level students in management, but is also available to master-level students in applied economics, in engineering or other sciences and disciplines, as well as to foreign students of the same level.

By comparison to other programs in other institutions, admission to the entrepreneurship specialization is in itself demanding. Owing to the graduate nature of the program, interested individuals must submit: 1) a motivating letter stating their domains of interest and professional
projects; 2) a copy of their resume; 3) an official transcript of their grades; and 4) a 10-page essay on one of three topics: the evolution of entrepreneurs’ image in France (and abroad), the reality and relevance of entrepreneurship support; and the practice and outcomes of project management. An individual interview is conducted with the top candidates, after which a jury of Faculty communicates their decision to the candidates. In the first year of the revised program (2005-6), 18 students were admitted on 65 applications.

Once admitted, students must follow some 32 ECTS, including six core courses of four ECTS each (fundamental concepts in entrepreneurship; project management; entrepreneurial behavior; entrepreneurial marketing; entrepreneurial finance; negotiation and communication), and two choices between a) a series of courses on international entrepreneurship (one four-ECTS course among five, three courses being offered in English); and b) a series of courses on business and taxation law (for four ECTS in total). Standard methods of evaluation in those courses include participation, formal examinations and the writing and presentation of team-based term papers focusing on entrepreneurship problems. As the Director of the program emphasized, “these term papers count for a large part of students’ grades: the objectives are to make students work in teams, to help them learn how to present their work orally and in written form, and to debate their observations in class (translated from Catherine Léger-Jarniou, personal communication).”

But over and above these courses, the program distinguishes itself by two longer and more demanding pedagogical activities. The first of these activities is a two-month business-plan workshop that counts for 18 ECTS. While supported by a team of faculty, mentors and business consultants who provide advice and guidance, students work in teams of three to develop and complete a business plan for a ‘real-life’ entrepreneur. This aspect of working for a practicing entrepreneur is an important one, as it marks an important difference with the previous program. In years past, students were working on projects that they had thought of themselves. In the new program, the team of Faculty and professionals call on entrepreneurs to submit proposals, and select the projects on which their students will work. As the Director of the program observed, some of the student-driven projects were not always “realizable”: in the new version, the projects submitted by outside entrepreneurs are consistently more “serious” (translated from Catherine Léger-Jarniou, personal communication).” After two months of team work, supported with tutoring from business professionals and consultants, each team must present its business plan orally in from of a panel of experts (faculty, business professionals, consultants and entrepreneurs). Through developing and defending this business plan, students are expected not only to become more familiar with the particular demands, stages and characteristics of entrepreneurial endeavors, but also to develop their own entrepreneurial spirit.

The second of these longer and more demanding activities consists of a six-month entrepreneurship internship, to be realized under supervision in France or abroad. Examples of internship include accompanying a young entrepreneur in his/her effort to establish a new venture; internship within a structure or institution of support to new firm creation; internship within a bank of financial institution offering specialized services to entrepreneurship, internship within a high-potential venture, etc. Regardless of the type of internship, students must write and defend a report of their experience.
While the administration and pedagogical organization of the program is undertaken by a team of officials and Faculty, teaching responsibilities are assumed equally by academics and business professionals, notably consultants and entrepreneurs. In line with the university-wide orientations listed above, such partnership fosters the program’s anchoring within its relevant professional, social and economic environments (http://www.dep.dauphine.fr).

At the same time, it is important to highlight that Paris-Dauphine is still embedded in a French education system highly centralized – with several academic, administrative and professional decisions made by public officials at the Ministère de l’Éducation Nationale et de la Recherche et Technologie (Saporta & Verstraete, 2000). Within this context, however, Paris-Dauphine may indeed have benefited from more latitude than other French institutions in developing pedagogical innovations. For instance, one must recall that as recently as the late 1990s, entrepreneurship education was generally seen as poorly developed in France (cf., Béranger et al., 1998; Mortier, 1996). Since then, however, a series of initiatives have been undertaken, some by entrepreneurship professors (e.g., the 1998 founding of l’Académie de l’Entrepreneuriat, cf. http://www.entrepreneuriat.com/), but also several at the level of public and education policy, all launched by relevant governmental authorities (cf., Klapper, 2005: 190; Léger-Jarniou, 2005: 337). As a result, entrepreneurship education has rapidly become an ‘enjeu d’intérêt national’ – prompting Léger-Jarniou to observe that the teaching and learning of entrepreneurship in the French system of higher education “(has) gone from the emergence to the growth phase (Léger-Jarniou, 2005: 347).”

From the perspective of our analytical framework, the new Parcours Entrepreneuriat at l’Université Paris-Dauphine proceeds primarily from a hybrid form incorporating elements from both the ‘demand’ and ‘competence’ models of teaching (Béchard & Grégoire, 2005).

On the one hand, the program espouses a number of conceptions associated with the competence model. This is particularly evident in the general orientation of the program (cf., http://www.dep.dauphine.fr/pages/eee/plaquette%20Master.pdf): to the extent that entrepreneurial ventures in small or large firms imply a “cross-functional mode of project management,” it becomes important that students develop the knowledge, abilities and general attitude associated with such mode – including “a well-developed entrepreneurial spirit”, but also their “autonomy” and “accountability.” Seen in this light, the content of the program is in large part defined by the complex problems to be solved by competent actors in real-life situations. On the other hand, educators in the program are called upon to highlight the parallels between the different disciplines and the practical demands of entrepreneurship – a conception of teaching that is perhaps closer to that of the ‘facilitator’ and ‘coach’ associated with the demand model of teaching (Kember, 1997). This is notable, for instance, in the consulting work that both precedes and supports the two-month long business plan project. Through their tutoring work, educators in the program effectively organize students’ learning activities (Ramsden, 2003).

The same merging of the demand and competence model can be observed at the level of the operational characteristics of the program. Through its stated objective of developing the students’ ‘entrepreneurial spirit’ – i.e., their general attitude towards entrepreneurship-related careers and activities, the new Parcours Entrepreneuriat at l’Université Paris-Dauphine places a particular emphasis on learning outcomes of personal development (Groebe, 1994).
program also fosters the development of students’ communication skills, notably through the emphasis of teamwork and the oral defense of business plans in front of a panel of experts. While the difference is subtle, the program is closer to teaching goals like ‘helping students develop basic learning skills’ and ‘fostering their personal development and growth’ – two teaching goals clearly associated with the demand model (Angelo & Cross, 1993) – than to a goal like ‘helping students develop higher order thinking skills’ – which is more squarely articulated in terms of the competence model. At the same time, the program makes use of a conjunction of pedagogical means, some associated with the ‘demand’ model (e.g., teamwork; internship), but others more closely associated with the ‘competence’ model. This is notably the case for the business plan seminar, which is anchored on real-life, authentic projects – even if in this particular case, the projects do not originate from the students themselves. While summative exams remain used in most of the programs’ formal courses, the reliance on personal portfolio adds a formative dimension. The focus on authentic problems faced by real-life entrepreneurs also adds a dimension that is closer to the competence model. We thus observe that the hybrid conceptions that underpin the program also find coherent expressions in the operational characteristics of the program.

At the institutional level, one remarks that the emphasis on cross-functionality and teamwork, the use of business professionals as active participants in the program, and integration with the business community are all consistent with the general orientations explicitly stipulated in the University’s mission (http://www.dauphine.fr/: cf., Dauphine en bref; Il était une fois Dauphine). It is also relevant to note that relative to other institutions in French system, the University and its Faculty have historically benefited from a higher degree of autonomy – a fact that has allowed them to be among the pioneers of entrepreneurship education in their country. At the same time, however, one observes that these efforts have also been supported by recent governmental policies towards innovation and entrepreneurship as means to foster economic development (cf., Klapper, 2005: 190; Léger-Jarniou, 2005: 337).

Here again, what transpires from this case is a pedagogical innovation squarely meant to develop one’s entrepreneurial spirit. More importantly, our analysis shows how the teaching and learning underpinnings of the innovation are highly coherent with the particularities of the context in which the innovation is taking place. For instance, there are subtle but important differences between the programs at Oregon State and Paris-Dauphine – even if both build on assumptions and practices generally associated with the ‘demand’ model. If the former emphasizes first and foremost the development of social and communication skills (with some aspects of personal development), the latter is more squarely focused on personal development, notably in terms of attitudes towards entrepreneurship. If communications skills are also important, they nonetheless come in second place. In turn, however, these subtle differences are supported by different set of pedagogical means and methods. Yet, we also observe that this emphasis on developing the students’ entrepreneurship spirit is directly in line with current perspectives on entrepreneurship and innovation in France. From an analytical standpoint, the framework developed above helps to bring forth these subtle yet important differences.

Type 3: The EXIST High Tech Entrepreneurship Postgraduate Program in Germany

From the early 1990s on, Germany has experienced increasing economic difficulties. In addition to the globalization of economic exchanges, the challenges of integrating the western and eastern
states into a single country have contributed to diminish the competitiveness of German enterprises, leading to increased unemployment. Recognizing the low levels of entrepreneurial drive associated with very bureaucratic support infrastructures for existing and potential entrepreneurs, but also with a noted lack of research and education efforts on the topic of entrepreneurship (Achtenhagen & zu Knyphausen-Aufseβ, 2002: 300), the Bundesministerium für Bildung und Forschung (Federal Ministry of Education and Research) introduced a series of policy measures.

Placing a particular attention on the economic contribution of small enterprises in the domains of high technology, the German government articulated its efforts along two axes involving institutions of higher education. The first program sought to finance research chairs in entrepreneurship and establish a critical mass of academic experts in the domain – contributing in this way to augment the institutional legitimacy of entrepreneurship in academic circles. For its part, the second program aimed more specifically at facilitating technology transfers from universities, and that as a means to stimulate the economic development of Germany’s various regions. This second program is known under the acronym EXIST – University-based start-up program (from the German Existenzgründungen aus Hochschulen). Several initiatives have been put forward within this program. A particularly interesting one in terms of pedagogical innovation in entrepreneurship education is the EXIST High TEPP (for High Technology Entrepreneurship Postgraduate Program).

Central to the High TEPP initiative is a four-fold mission, which includes:

1) “Establishing a culture of entrepreneurship within (the) education, research and administration of German institutions of higher education;

2) Transferring research results into commericial (sic) products and services;

3) Developing the potential of business ideas and entrepreneurs within universities and research institutes; and

4) Increasing the number of newly founded innovative, technology-based start-up companies with the final aim to create and secure new jobs (Achtenhagen & zu Knyphausen-Aufseβ, 2002: 302).”

At a more pragmatic level, however, the program aims to address “(the) deficit in research and education of entrepreneurship (that) can still be observed at German universities (Achtenhagen & zu Knyphausen-Aufseβ, 2002: 300).” In other words, the ultimate objective of the program is to contribute to the development of entrepreneurship firms in Germany: but the more immediate outcome is to create a new generation of Ph.D.-educated Faculty qualified to conduct research on entrepreneurship, and teach courses focused on entrepreneurship.

Over and above these particular objectives, what truly distinguishes the three-year High TEPP initiative is its interdisciplinary nature, where post-graduates from management sciences and business economics work side-by-side with post-graduates from the computer, natural and life sciences. Indeed, one key activity of the program is to place business, economics and computers graduates in ‘bootcamp’ internships lasting several weeks at a time, directly in the labs of seed-stage science-based and technology-oriented companies. For their part, science-trained
graduates must attend economic and business management training programs. This cross-disciplinary approach is particularly novel in the German education system. As one of the program participants remarked, “two of the students who did their PhD in business administration had their (masters) diploma in biology and chemistry, respectively. In Germany, this is much less common than say, in the U.S. (Holger Patzelt, personal communication).” Through such cross-discipline learning activities, the High TEPP program aims to develop participants’ ability to fully appreciate (and understand) the multi-dimensionality of the challenges faced by emerging science-based ventures.

Building on such activities, students in the program must also take part in a ‘hands-on’ business-plan seminar. Instead of framing this business-plan as a classroom exercise, however, the seminar is conducted in ‘real-life’ professional environments, with the ‘real-life’ projects of partner firms and associated labs. The following quote illustrates some of the key education parameters that define this element of the program:

“(An) important factor is the degree to which students are involved into the seminar – in this case they do not passively consume lectured information, but they are encouraged to learn through interaction with the professor and coaches, and thus go through a practice-oriented training process. The learning process is further enhanced by attributing an important role to the students in identifying the relevant problems, their analysis and solution, instead of giving pre-set and structured problems to the students. Effective entrepreneurship education requires not only the classroom teaching of factual knowledge and limited skills, but also the stimulation of creating new ventures, managing these successfully and increasing the capacities of the entrepreneurs to pursue greater successes. (…) For the field of entrepreneurship, it has been shown that students demand teachers with practical experience in the field, more than in other business subjects (cf., Hills, 1988). Being involved in coaching the venture teams is (thus) an important step on this road (Achtenhagen & zu Knyphausen-Aufseß, 2002: 308-9).”

Consistent with its aims to develop research expertise on the topic of entrepreneurship, participants in the program are actively involved in conducting research projects leading to presentations at academic conferences and the redaction of research articles. In parallel, students usually spend several months in entrepreneurship doctoral programs at a university abroad (an element that is a common component of business and economics programs in German-speaking Europe).

With respect to its organization, it is relevant to recall that the High TEPP initiative emerged from a competition proposal submitted to the Federal Ministry of Education and Research by three academics from three different universities: Professor Dodo zu Knyphausen-Aufseß (Business Administration / Univ. of Bamberg); Professor Michael Dowling (Innovation Management / Univ. of Regensburg); and Professor Stephan Diekmann (Molecular Biology / Univ. of Jena). Interestingly, this inter-university nature of the program is not a random quirk: starting in the late 1990s, the Federal Government in Germany began to substitute its historically-centralized approach to funding entrepreneurship education initiatives with a more decentralized approach emphasizing the development of regional centers of excellence. At the
same time, Federal authorities began to hold national competitions for projects proposals: in turn, “(a) typical prerequisite for these proposals is the co-operation between different partners, who otherwise might have never exchanged their views on how to foster entrepreneurial activities in (their) region (Achtenhagen & zu Knyphausen-Aufseß, 2002: 302).”

In the particular case of the High TEPP initiative, however, the choice of partners is also related to the particular strengths of each university, and that with respect to the domains of life-science and information technologies – two domains that are deemed prototypical of high growth industries, and where entrepreneurial activities have historically been salient. In practice, this inter-university structure aims to supplement economic development efforts at the regional level with synergies between the universities, and with the scientific/commercial expertise these universities can tap into. Founded in 1647, the Otto-Friedrich-Universität Bamberg serves some 8,800 students in the city of Bamberg, in the Bavarian region of Regierungsbezirk (North Bavaria). For its part, the Friedrich-Schiller-Universität in Jena is the largest university of the State of Thüringen (central Germany), and the only one with a medical school. Founded in 1558, it currently serves some 18,000 students. While efforts to found a university in eastern Bavaria date as far back as 1487, Universität of Regensburg only began its operation in 1967, but now serves upward of 17,000 students. In spite of their historical differences, all three universities are located in poles of technological expertise, particularly in the domains of life sciences and information technology. For instance, the Otto-Friedrich-Universität Bamberg has a well-renowned department of business informatics, and benefits from its proximity to the city of Erlangen and its medical engineering firms (notably Siemens). The same two industries are also well represented in the Regensburg area. For its part, Jena has historically been a regional pole of research and commercial activities in the domains of optics, bioinstruments and biomolecular research.

Starting with some 18 candidates in 2000, the program was never meant to be a permanent feature of German efforts in entrepreneurship education. In fact, later rounds of the program only included two of the three original partners (Bamberg and Regensburg). In more ways than others, the program was meant to be a punctual effort to jumpstart other initiatives – and notably, to increase the amount of research, teaching, consulting and new venture formation activities that are performed within German universities. Already, there is evidence that entrepreneurship education in Germany’s system of higher education is increasing (Klandt, 2003, 2004). Within this context, the High TEPP program is particular not only in the fact that it is specifically articulated at the highest level of graduate and post-graduate education, but also in that it is formally and explicitly built on cross-disciplinary bases.

From the perspective of our analytical framework, Germany’s High TEPP initiative proceeds from a hybrid form incorporating elements from both the ‘supply’ and ‘competence’ models of teaching (Béchard & Grégoire, 2005). On the one hand, the program’s emphasis on graduate seminars to develop high-level knowledge about entrepreneurship research is closest to the ‘supply’ model, where emphasis is placed on the transmission of abstract knowledge from expert-scholars to their apprentices. In this context, teachers are the ‘presenter’ who ‘impart information’ to students who are the ‘recipients’ of that knowledge. More importantly, the knowledge being taught is formal and abstract – as opposed to being taught ‘in context’. Furthermore, this knowledge is primarily defined not by the personal needs of students vis-à-vis
entrepreneurship, but by scholarly research on the topic. But this is hardly surprising – as the program is meant to develop academic expertise on the topic.

On the other hand, it is interesting to observe that at the operational level, the program’s cross-disciplinary internships and business-plan exercises are more squarely aligned with a competence model, in that students are directly confronted with the real-life problems of science-based entrepreneurship, as these are taking shape in real-life businesses. This is evidenced in the cross-disciplinary internship. In line with the ontological assumptions of the competence model, students are seen as active participants in the construction of their knowledge (Piaget, 1952): this is most notable in quote reported above from one of the program’s initiators.

“(An) important factor (in the program) is the degree to which students are involved into the seminar – in this case they do not passively consume lectured information, but they are encouraged to learn through interaction with the professor and coaches, and thus go through a practice-oriented training process. The learning process is further enhanced by attributing an important role to the students in identifying the relevant problems, their analysis and solution, instead of giving pre-set and structured problems to the students (Achtenhagen & zu Knyphausen-Aufseß, 2002: 308-9).”

Accordingly, teachers work as coaches that contribute to “make learning possible (Ramsden, 2003).” More importantly, students’ knowledge is developed in situ (Brown et al., 1989), through one’s interaction with real-life constraints and influences (Vygotsky, 1996). In the end, it is through the integration of theoretical knowledge relevant to academic research and practical experience of entrepreneurship that the High TEPP post-graduates at the Universities of Bamberg, Jena and Regensburg are expected to develop the kind of scholarly expertise in entrepreneurship that the program is meant to foster.

Given the ultimate objectives of the High TEPP initiative (i.e., to develop academic expertise on entrepreneurship as a means to foster economic development), as well as the role historically played by the central government in Germany’s centralized system of education, it is no surprise that this particular innovation took place in the context of a government program. As we noted above, this public-policy impetus also favored (and supported) the articulation of the program as a multi-institution effort. Within the universities themselves, this high-level support may have played a role in encouraging some measure of collaboration between departments / disciplines that could have had little contacts otherwise. Likewise, it may have contributed to send powerful signals in academic circles to the effect that entrepreneurship research and education was legitimate. Given the institutional, cultural and socio-economic antecedents to the innovation, this level of government engagement may have been necessary to jumpstart the program. Yet, it is important to highlight that the proposal itself originated from specific Faculty who were directly aware of the particular challenges of entrepreneurship education in the German context.

As with the other cases, what transpires from this illustration is that the various characteristics of this pedagogical innovation tend to gravitate towards logically consistent arrangements of teaching and learning underpinnings, development aims and demands, and contextual drivers. In other words, the High TEPP initiative can be seen as a coherent whole, where the different components of the innovation work together – and can be understood as such. As we will
discuss below, these consistencies may have important implications for the overall quality of pedagogical designs, and their ultimate effectiveness.

**Type 4: The *Entrepreneurship Program* at the University of Victoria (Canada)**

The Canadian system of higher education is governed in a largely decentralized manner. Whereas each province and territory has developed its system of higher education around particular structures (education is an area of provincial responsibility), it remains that from sea to sea, all Canadian universities share common organizing principles. Whether public or private, or even when part of a larger network, for instance, each institution is managed locally, and that in light of a largely consensual tripartite mission: teaching, research, and contribution to the community. Several types of offering and status are possible within this system, from primarily undergraduate institutions to full-fledged doctoral research universities, and including specialized colleges and affiliated technical and professional schools. Whereas older institutions have generally stemmed from private and community initiatives, some provinces have seen the establishment of public network of institutions, notably to establish campuses and foster higher education in regions that are far from the urban centers of the south. Whether private or public, however, Canadian institutions of higher education receive comparable levels of public financing, and derive a large part of their operating budget from public funds. While differences exist between provinces, the general intent remains to keep student tuition relatively low, and thus make higher education accessible to the largest number of people possible.

Like in most industrialized countries, the teaching of entrepreneurship in Canadian institutions of higher education has experienced a tremendous growth, with the numbers of courses offered at the undergraduate and graduate levels increasing by some 353% between 1979 and 1999 (cf., Menzies, 2004).

While Victoria is the capital city of the province of British Columbia – the westernmost province in Canada, the city is not located on the mainland, but on a large island off the Pacific coast. Given its particular location, the University of Victoria (UVIC) could have operated in the shadow of the much larger universities located in Vancouver – in particular the University of British Columbia and Simon Fraser University. With its 18,000 students grouped around ten different Schools, Colleges and Faculties, however, the University is internationally recognized for its innovative programs, as well as for its interdisciplinary and international initiatives. For instance, UVIC operates Canada’s third-largest co-operative education program – where students in more than 40 program areas intersperse semesters of academic studies with semesters of relevant (and paid for) work experience. Within this context, UVIC’s Faculty of Business offers undergraduate and graduate programs in management (including electives in all the major business disciplines), as well as specialized concentrations in hospitality management, international business, and entrepreneurship.

More so than entrepreneurship programs at other universities, UVIC’s entrepreneurship program is firmly grounded in entrepreneurship research, and particularly in this case, on research in entrepreneurial cognition (e.g., Mitchell, 2003; Mitchell *et al.*, 2000) and sustainable development (e.g., Cohen, 2006; Cohen & Winn, 2006). Stated succinctly, Mitchell and colleague’s research builds on the idea that one of the key challenges of entrepreneurship is to
enact transactions that would otherwise fail – because of bounded rationality, opportunism and asset specificity (transaction costs). In turn, the research proposes that entrepreneurs tackle this challenge by mobilizing three types of cognitions (sic): 1) planning cognitions – “which are mental models that help individuals develop analytical structures for solving previously unstructured problems;” 2) promise cognitions – “which are mental models that promote trustworthiness in economic relationships;” and 3) competition cognitions – “which are mental models that can create sustainable competitive advantage (Mitchell, 2003: 187-9).” Starting in the mid-1990s, UVIC’s scholars combined their efforts to design and implement an entire entrepreneurship program meant to foster such planning, promise and competition cognitions among their students – cognitions that can be conceived in terms of three dimensions of entrepreneurial expertise.

More recently, the program evolved to directly incorporate sustainable entrepreneurship, broadly defined as the identification and exploitation of opportunities which lead to ‘triple bottom line benefits’ (social, environmental, and economic) for the venturer, the community where it operates, consumers and other stakeholders including the environment (cf., Cohen et al., 2006). The mastery of cognitive and sustainable development concepts is fostered in part by the students’ reading of relevant research papers as part of their preparation for classes.

Note that while Professor Mitchell left the University of Victoria at the end of the 2004-5 academic year, Faculty at UVIC’s School of Business continue to develop and teach the program along the principles derived from research on entrepreneurial cognition. Through it all, the program has remained the responsibility of management and entrepreneurship faculty (initially with Professors R.K. Mitchell and E.A. Morse, and more recently, with Professors B. Cohen and M. Fern). Yet scholars from other departments are also actively involved in the development and implementation of the program (notably Professor J.B. Smith from marketing). This core team also benefits from the support of adjunct instructors with professional experience in entrepreneurship.

In practice, UVIC’s Entrepreneurship Program is articulated around six undergraduate courses and three graduate modules, all taught as a single highly-integrated effort spanning the last semester of each program. Indeed, the faculty team-teach the courses and only utilizes one syllabus, and one course-pack. The six undergraduate courses include:

1) Sustainable new venture strategy (a course meant to develop student’s sustainable competition skills);
2) Venture marketing expertise (a course meant to develop students’ promise skills in particular);
3) Venture planning / finance expertise (a course meant to develop student’s planning skills in particular);
4) Acquiring expert venture cognitions (a course focused on the nature of entrepreneurial expertise);
5) Legal issues in management; and
6) The portfolio practicum.
The three graduate modules include similar content elements grouped under the labels ‘global entrepreneurship concepts,’ ‘relationship marketing skills,’ and ‘sustainable entrepreneurship thinking.’

The portfolio practicum is an activity that lasts for the entire duration of the entrepreneurship specialization (two semesters of course interspersed by a semester of coop work, or of studies abroad). Students are asked to create (and maintain) a personal portfolio where they reflect upon the knowledge, skills and competencies they are meant to develop. All students must ultimately defend their portfolio in front of a panel of academic experts, educators and business professionals.

Through this series of integrated courses, UVIC’s educators aim to go beyond traditional activities (such as the realization of a business plan), and focus instead on ensuring that students be able to transfer their learning to other situations, and particularly situations of change that may call for entrepreneurial initiatives. To do so, UVIC’s program explicitly emphasizes its reliance on activities of ‘meaningful experiential learning’ – where students experience what it is to be an entrepreneur, as opposed to being taught about other entrepreneurs. For instance, the undergraduate program begins with an activity meant to allow students to ‘live’ for themselves some of the particular challenges of starting a new business.

*The Innovation Project™ is an experiential immersion activity where students, in teams of four or five, have 10 days to create as much economic profit or socio-environmental value as possible through an entrepreneurial activity of their choice, risking only $5 of start-up capital. Students report back in 10 days to explain what they did, how much profit or value they generated and what they learned from the experience.*

http://business.uvic.ca/008_BComHome/4669_InnovationPro.html

Thanks to the support of Peter Thomas, a local entrepreneur, UVIC’s Faculty of Business has run this innovative activity for more than eight years now.

In terms of its pedagogy, the program’s characteristics include an individualized approach with each student (e.g., the portfolio practicum), the complete integration of all courses within an overarching curricular design and concurrently, the immersion of students through situated activities of meaningful learning – such as real projects in the community, and the elimination of the traditional grading system in favor of one which focuses on the mastery of five learning outcomes: a) first order thinking (i.e., creating value in lieu of profit maximization); b) triple bottom line value creation (i.e., social, environmental and economic); c) personal effectiveness; d) knowledge-based leadership; and ultimately, e) the potential to be an entrepreneur within five years of graduation. The following illustrates the program’s approach to evaluation.

“Our grading system uses ‘P, P-minus and P-plus’ – where ‘P’ stands for professional. We removed the emphasis on A, B, C, etc. because we felt that students should focus on learning the content, and on developing concept mastery / internalizing the material, rather than focus on grade outcomes. At the end of the term, the P-marks are accumulated and converted to a letter grade – allowing
us to meet University requirements). (Within each learning activity), we also have lots of optional assignments now including a “design-your-own” option in order to allow students the opportunity to focus on their own individual learning styles and desired outcomes (Boyd Cohen, personal communication).”

In parallel, scholars from the UVIC’s Entrepreneurship team have also developed a series of proprietary online tools to help would-be entrepreneurs evaluate their entrepreneurial readiness, and evaluate the value-creation potential of their proposed business – as well as how they could increase this potential. Through it all, emphasis is placed on the cognitive development of students (particularly in terms of procedural knowledge, skills and abilities). Ultimately, the program aims to equip its graduates with the lifelong learning means to develop their own entrepreneurship expertise – and that whether to start their own business, to contribute to the growth of established businesses, or to create value in other contexts such as not-for-profit organizations.

For all its innovating efforts in entrepreneurship education, UVIC’s Faculty of Business has received numerous national and international awards, including the 1999 ‘Innovation in Entrepreneurship Pedagogy’ Award from the Academy of Management’s Entrepreneurship Division, and the 2000 ‘Model Undergraduate Program’ Award from the United-States Small Business Association. The Entrepreneurship Program was also ranked by Canadian Business as the #1 MBA in Canada for entrepreneurship in 2001. Owning to the vagaries of professional careers, the UVIC program now provides the foundation for entrepreneurship programs at the University of Ontario’s Ivey School of Business (http://www.ivey.ca/default.htm), as well as for a campus-wide initiative at Texas Tech University (http://www.ronaldmitchell.org/courseindex.htm).

From the perspective of our analytical framework, UVIC’s Entrepreneurship Program proceeds primarily from a ‘competence’ model of teaching (Béchard & Grégoire, 2005). This model builds on the idea that students are active participants in the co-construction of their knowledge, skills, and other abilities (Piaget, 1952). Accordingly, learning is most efficient when students must address meaningful real-life problems and situations (Brown et al., 1989; Vygotsky, 1996). In such a model, educators essentially conceive teaching as an effort to make learning possible, and that in ways that emphasize the entire system of interactions between context and content, teacher and student. Such a conception is manifest in UVIC’s integrative approach, where the program’s different elements are taught as one overarching course. It is also manifest in UVIC’s efforts to articulate the program’s content in terms of entrepreneurship-relevant practices, issues and other models that were scientifically documented. At the same time though, this scientifically-documented knowledge to be taught is not defined in an abstract de-contextualized way (as it would be in a formal lecture on the topic). Rather, this knowledge to be taught is conceived in light of the concrete problems and challenges that real-life entrepreneurs must face.

Building on the ontological conceptions described above, the UVIC program places a particular emphasis on learning outcomes of cognitive development. These include the mastery of both declarative and procedural knowledge. Declarative knowledge is notably emphasized via surveys of relevant research findings. Likewise, the development of procedural knowledge is organized via the development of students’ entrepreneurial cognitions (sic) – defined as sets of rules, routines, heuristics and other mental models about relevant aspects of entrepreneurship.
Ultimately, the program aims to help students develop higher order thinking skills that could prove useful in their professional life – a goal that is directly in line with a competence model (Angelo & Cross, 1993). In much the same spirit, the program relies on pedagogical means emphasizing experimentation and knowledge production. This includes for instance the Innovation Project™ described above. One also notes the use of performance and attainment-based forms of evaluation – again a staple of the ‘competence’ model. In such forms of evaluation, emphasis is placed not so much on the retention of formal knowledge or on the acquisition of particular skills or abilities, but on the mastery/internalization of a hierarchy of progressively more and more complex learning outcomes. In this case, this hierarchy includes the mastery: a) first order thinking (i.e., creating value in lieu of profit maximization); b) triple bottom line value creation (i.e., social, environmental and economic); c) personal effectiveness; d) knowledge-based leadership; and ultimately, the potential to be an entrepreneur within five years of graduation. In the end, it is through the solving of meaningful real-life problems that students are expected to develop their competencies at mobilizing the learning resources (e.g., knowledge, skills, abilities, networks, etc.) necessary to face these problems.

As a highly-integrated research-grounded initiative, UVIC’s program is primarily supported by a close-knit team of entrepreneurship scholars who worked together to develop the different components of the program, and to implement them successfully. At the same time, this exhaustive approach benefited from an organizational culture which both at the University and College-level, readily emphasized (and supported) this kind of innovation. On the one hand, it allowed the school to differentiate its curriculum offerings with respect to larger schools on the mainland. Indeed, the innovation appeared well in-line with the university’s existing efforts in cooperative education. On the other hand, the innovation’s integration of sustainable development issue was also in line with some of the issues that were salient not only in the socio-economic context of Vancouver Island and British-Columbia, but also all along the West Coast.

Here again, what transpires from the case is a pedagogical innovation where the teaching and learning underpinnings of the innovation are highly coherent with the aims and demands of the program, and with the particularities of the context in which the innovation is taking place.

**DISCUSSION**

At the basis of this chapter was the observation that in spite of the emerging thread of works proposing new means and approaches to the teaching of entrepreneurship in higher education, little had been done in entrepreneurship education to draw from the extensive research literature on pedagogical innovation, and that to better understand how different characteristics of pedagogical innovation ‘work’ together to form coherent wholes. As a result, few formal means were available to make sense of the various characteristics and influencing factors that distinguish different pedagogical innovations – let alone to assess the quality of these innovations from a design standpoint.

With that respect, our research shows that between the pressure for the standardization of education practices and the apparent diversity of pedagogical initiatives, one can identify discrete archetypes of pedagogical innovations in entrepreneurship education. More importantly, the analytical framework developed and illustrated above highlights that pedagogical innovations do
not emerge – and function – as random assemblages of characteristics. Instead, they tend to gravitate toward discrete configurations of characteristics with high levels of internal coherence.

In our empirical work, we identified four such archetypes in four different institutions of higher education from four different countries:

- A program focused on sustaining a community of entrepreneurship learners – the *Austin Entrepreneurship Program* at Oregon State University (USA);
- A program focused on developing one’s entrepreneurial spirit – the *Master in Global Management’s Parcours Entrepreneuriat* from l’Université Paris Dauphine (France);
- A program focused on developing one’s academic expertise in entrepreneurship – the *EXIST High Tech Entrepreneurship Postgraduate Program* from the Universities of Bamberg, Jena and Regensburg (Germany);
- A program focused on developing students’ entrepreneurship competence – the *Entrepreneurship Program* from the University of Victoria’s College of Business (Canada).

More importantly, however, the analytical framework we developed in this chapter allowed us to show that across all four archetypes, the teaching and learning underpinnings of an innovation were not only coherent with themselves, but they were also in line with the organizational arrangements that supported the innovations – as well as with larger institutional and contextual dynamics.

For instance, the *Austin Entrepreneurship Program’s* fostering of a community of entrepreneurship learners is anchored on a series of assumptions associated with a demand model, where teaching is meant to facilitate the appropriation of knowledge, skills and abilities that are primarily defined in light of students’ personal and social development needs with respect to entrepreneurship. At the same time, these assumptions find concrete echoes in the program’s reliance of pedagogical means that emphasize personal exploration, discussion and experimentation. But more importantly, we observed that these pedagogical characteristics of the OSU innovation are well supported by the relatively high degree of autonomy enjoyed by U.S. academics and universities, by the traditions of student residences on U.S. campuses, but also by the program’s integration within an institutional network of Department, Schools, supporting services, and local entrepreneurs.

In similar fashion, *Master in Global Management Parcours Entrepreneuriat’s* focus on developing students’ entrepreneurial spirit rests on assumptions from both the demand and competence model. For instance, the knowledge-to-be-taught is defined in light of both the students’ personal needs with respect to entrepreneurship (in this case, their general attitudes towards entrepreneurship-related careers and occupations), as well as in light of the cross-disciplinary nature of the real-life problems faced by entrepreneurs. In turn, the program relies on pedagogical means of personal exploration and experimentation that are typical of the demand model, but that also approach the performance-in-real-life-situations that are more typical of the competence model. At the same time, we noted that Paris Dauphine’s focus on developing students’ entrepreneurial spirit also emphasized cross-functionality, teamwork, the
use of business professionals and the integration with the business community – elements that are directly consistent with the University’s explicitly stated orientations. Moreover, we observed that if Paris Dauphine has historically benefited from a relatively high degree of institutional autonomy (at least within the French system of higher education), the entrepreneurship program benefited from recent government policies towards innovation and entrepreneurship.

In the same vein, the High Tech Entrepreneurship Postgraduate Program’s focus on developing academic expertise in entrepreneurship is anchored on ontological assumptions and pedagogical means that draw from both the supply and competence model of teaching. In turn, this approach encouraged students to integrate highly abstract knowledge defined by scholarly research on entrepreneurship, with an interdisciplinary understanding of the real-life challenges faced by high-tech entrepreneurs. But as with the other programs we reviewed, we saw that the German innovation’s focus on developing academic expertise in entrepreneurship well anchored in a series of contextual dynamics and structures. For instance, it proceeded from a series of government initiatives – an observation that is in line with the relatively centralized nature of the German system of higher education. At the same time, the inter-disciplinary nature of the program was directly coherent with the government’s focus on science-based entrepreneurship – just as the inter-university structure of the program was encouraged by government authorities.

And consistent with its objectives of developing its students’ entrepreneurship competence, the Entrepreneurship Program at the University of Victoria was built on a conception of teaching and where the knowledge to be taught is primarily defined by the problems and challenges faced by entrepreneurs, and where teaching is seen as ‘making learning possible.’ In turn, the program mobilized pedagogical means and methods that made students experiment these problems and challenges in situations that are as close as possible to those of real life entrepreneurs. But more importantly, we noted the extent to which the University of Victoria’s focus on developing the entrepreneurship competence of its student benefits from the support of a tightly-knit team of entrepreneurship scholars – a fact that allows them to structure the program as a highly-integrated effort. At the same time, this exhaustive approach appeared directly coherent with an organizational culture, which both at the University and College level readily emphasized (and supported) this kind of innovation.

Through it all, the framework we developed in this chapter – and the results we discussed above – suggest that pedagogical innovations in entrepreneurship education imply at least three axes of coherence:

- A first axis of coherence between the ontological assumptions that underpin an innovation and the innovation’s operational elements (i.e., a coherence within the teaching model(s) that underpins an innovation);
- A second axis of coherence between the kind of arrangements that support the innovation at the institutional and education system levels;
- And a third axis of general coherence between the teaching model(s) underpinning an innovation, and the kind of arrangements that support it at the institutional and education system levels.
CONCLUSION

What are the core characteristics of pedagogical innovations in entrepreneurship education? And more importantly, what makes a pedagogical innovation in higher education ‘work’? In this chapter, we highlighted that the degree of coherence between an innovation’s teaching and learning underpinning on the one hand, and its organizational, institutional and contextual anchors on the other, may ultimately point to the quality of that innovation, from a design standpoint. Doing so, our work contributes to ongoing academic conversations about the intrinsic quality of programs and innovations in entrepreneurship for higher education. On that basis, we offer the view that as entrepreneurship moves from an intriguing business elective to a central pedagogical focus shared across departments and colleges, the challenge faced by entrepreneurship educators is less and less one of legitimacy, and more and more one of quality. Seen in this light, drawing attention to the multi-level coherence between the core characteristics of pedagogical innovations provides a practical means to address this issue of quality.
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