Archetypes of Pedagogical Innovations for Entrepreneurship in Higher Education: Model and Illustrations

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ABSTRACT:

Observing the dearth of research-grounded discussions on the quality of pedagogical innovations in entrepreneurship education, and more specifically, on what makes pedagogical innovations ‘work’, we develop an analytical framework that highlights the core characteristics of pedagogical innovations, and the coherence relationships between these characteristics. We illustrate 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). By analyzing these cases, we show that from the diversity of initiatives in entrepreneurship education, one can identify at least four archetypes of innovative practices. More importantly, we develop a research-grounded framework that can be used to study the similarities and differences between different pedagogical innovations in entrepreneurship education, but also to evaluate their degree of internal coherence. In turn, we provide a practical tool for entrepreneur educators to reflect upon their own innovative practices.

Keywords: Entrepreneurship education; pedagogical innovation; theoretical framework; quality of programs; higher education.

RÉSUMÉ :

Constatant le peu de recherches qui mettent l’accent sur la qualité des innovations pédagogiques dans l’enseignement de l’entrepreneuriat et plus spécifiquement sur les meilleures pratiques, nous développons un cadre théorique qui met en valeur quelques caractéristiques fondamentales des innovations pédagogiques ainsi que la cohérence entre ces dites caractéristiques. Nous illustrons notre conceptualisation en analysant quatre innovations en enseignement de l’entrepreneuriat issues de quatre pays différents : le Oregon State University’s Austin Entrepreneurship Program (Etats-Unis); le Management Global’s Parcours Entrepreneuriat de l’Université Paris-Dauphine (France); le High TEPP des Universités Bamberg, Jena et Regensburg (Allemagne); le Entrepreneurship Program de l’Université de Victoria (Canada). En analysant ces cas, nous mettons au jour quatre archétypes de l’enseignement en entrepreneuriat. De façon plus importante, nous développons un cadre conceptuel qui s’appuie sur les derniers travaux en innovation pédagogique qui permet d’étudier non seulement les ressemblances et les différences entre les expérimentations pédagogiques en entrepreneuriat mais aussi d’évaluer leur degré de cohérence générale. Cette démarche fournit ainsi un outil pratique aux formateurs pour réfléchir à leurs propres pratiques innovantes.

Mots clés : Éducation à l’entrepreneuriat; innovation pédagogique; cadre théorique; qualité des programmes; enseignement supérieur.
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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. While impressive, however, the 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.

Within this general context, we note however the relative dearth of research-grounded discussions on the quality of entrepreneurship education initiatives, and more specifically, on what makes pedagogical innovations ‘work’. This is not to say that entrepreneurship education scholars have not drawn attention to this concern. For instance, Block and Stumph (1992) called for better understanding the needs of different groups enrolled in entrepreneurship classes and training programs, and for crafting evaluation criteria in light of these needs. Observing that criteria for determining what is high-quality in entrepreneurship education were ‘rather fluid and indeterminate’, Vesper and Gartner (1997) proposed using the systematic approach developed with the Malcom Baldrige National Quality Award. For their part, Béchard and Toulouse (1998) encouraged scholars to qualify their evaluation of the quality and effectiveness of different entrepreneurship programs by considering the pedagogical objectives they pursued. But in spite of these repeated calls, there has been little research discussions on the design of sound pedagogical innovations in entrepreneurship education, and little research on the characteristics of successful / less successful pedagogical innovations.

The consequences of this situation are manifold. For instance, innovators are left without practical means to assess the design of their pedagogical initiatives before their actual implementation – a problem equally faced by program directors and other authorities. On their part, scholars have little means to formally compare the similarities and differences between different pedagogical innovations, and study the reasons why some innovations might be more germane / efficient in some contexts, or for some particular purposes. Without the means to understand what makes particular innovations work, it also becomes more difficult for educators to build on the successful innovations developed by their colleagues in other institutions. As a result, we argue that without a research-grounded understanding of how the various components of pedagogical innovations relate to one another, progress in entrepreneurship education remains severely impeded.

To address this issue, we draw from the education literature on pedagogical innovation to develop a research-grounded analytical framework that highlights the core characteristics of different types of innovation, and the relationships between these characteristics. We then show
that from the diversity of initiatives in entrepreneurship education, one can identify at least four archetypes of innovative practices, each with its own set of characteristics and particularities. We demonstrate the import of the framework with illustrative examples of pedagogical innovations that were developed by prominent entrepreneurship scholars in different institutions of higher education in both North America and Europe. In each case, external reviewers, education experts and/or professional associations have recognized the particularly innovative character of these programs. But at the same time, the intrinsic features of each innovation – and what makes it so well adapted to its particular context – has not always been underlined, and that especially in light of scholarly knowledge about pedagogical innovation.

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 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.

THEORETICAL DEVELOPMENTS

A framework to highlight the core characteristics of pedagogical innovations

In order to develop an analytical framework that would enable us to understand how the different characteristics of pedagogical innovations in entrepreneurship education can work together to form coherent wholes, we turned to the education research literature on pedagogical innovation. More specifically, we began with an epistemological review of this literature. In this review, Béchard (Béchard, 2006) analyzed the convergence (and divergence) between the 63 most-cited works among some 23715 references cited in 1335 articles published in three education journals over a 25-year period: Innovative Higher Education (to capture the contribution of the U.S. education literature), Res Academica (to capture the contribution of the French-speaking literature), and Studies in Higher Education (to capture the contribution of the Anglo-Saxon literature). An attentive reading of these works revealed that across different research approaches and traditions, pedagogical innovations are often studied in terms of two related dimensions:

1) An understanding of the teaching and learning underpinnings of each pedagogical innovation;
2) An understanding of the contextual factors participating in the development and implementation of each pedagogical innovation.

Building on this review, we developed the framework synthesized in Table 1, which serves to organize different characteristics of pedagogical innovations in terms of the above two
dimensions. We describe the analytical foci and relevant indicators for these dimensions in the paragraphs below.

**Table 1: Analytical framework**

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

**Teaching and learning underpinnings**

A first dimension of the framework relates to the *teaching and learning underpinnings* implicit in each pedagogical innovation. From an analytical point of view, this dimension comprises two related foci: the ontological assumption(s) that underpin an innovation, and the operational elements that characterize this innovation. The focus on ontological assumptions refers to educator’s conceptions about teaching, their conceptions about themselves and the students, and their assumptions about the knowledge to be taught. For its part, the focus on operational elements refers to the teaching goals pursued with an innovation, the kind of knowledge that is emphasized, the pedagogical methods and means that are utilized, as well as the forms of evaluation that are associated with an innovation.

In theory as in practice, however, the two foci of ontological assumptions and operational elements are highly related, and form two sides of a single coin i.e., an educator’s *teaching model*. The relevance of teaching models comes from observations that experienced educators generally practice their craft within some overall set of guiding conceptions and principles (cf., Anderson, 1995; Joyce & Weil, 1996; Kember, 1997). In turn, these guiding conceptions and principles form a basis upon which educators articulate their teaching practice – a point that we recently expanded upon in a chapter on teaching models in entrepreneurship education.
“Teaching models form a bridge between educators’ knowledge, conceptions and beliefs about teaching, and their teaching behavior per se. On the one hand, teaching models are influenced by individual characteristics from gender to abilities and attitudes to past experiences, by the discipline one is educated in, by the discipline one is teaching, and by a range of departmental and institutional factors (cf., Neumann, 2001; Singer, 1996). On the other hand, teaching models influence lecturing styles (cf., Robertson, 1999; Saroyan & Snell, 1997), which in turn influence students’ learning approaches and ultimately, learning outcomes (cf., Kember & Gow, 1994). In practice, these causal considerations suggest the importance of maintaining an optimal degree of coherence between one’s conceptions and beliefs about teaching, and one’s behavior vis-à-vis a given pedagogical situation (cf., Murray & MacDonald, 1997; but see also Biggs’ 1999 notion of ‘constructive alignment’).” (Béchard & Grégoire, 2005: 107-8)

In the chapter cited above, we noted that entrepreneurship educators could articulate their teaching in terms of various models, including the supply model, the demand model, the competence model, and at least two hybrid possibilities (cf., Béchard & Grégoire, 2005). We further specified how educators’ conceptions found relevant echoes in concrete pedagogical elements. In turn, these observations pointed to a number of variables upon which teaching models could be distinguished.

For instance, the supply model focuses on the transmission of knowledge, skills and other abilities from the educator to the learner. In this model, teaching is conceived as “impacting information” (Kember, 1997), or as “telling a story” (Ramsden, 2003). Teachers are conceived as ‘presenters’ of information, and students as more or less passive ‘recipients’ of that information. From a supply model standpoint, the knowledge to be taught is primarily defined by scholarly research in the discipline. At the operational level, the supply model is associated with teaching goals such as ‘teaching students facts and principles of the subject matter’ and ‘providing a role model for students’ (Angelo & Cross, 1993). At the same time, the supply model often finds its expression in pedagogical means such as lectures, reading print material, watching/listening audio-visual documents, etc. Evaluation tends to be summative that is, focused on assessing the student’s retention of the knowledge imparted.

For its part, the demand model focuses on answering the learning goals, motives and needs of the students. Within this model, teaching is conceived as the construction of an environment dedicated to the appropriation of the knowledge taught (Kember, 1997), or as “organizing students’ activities” (Ramsden, 2003). Teachers are conceived as ‘facilitators’ and ‘tutors’ – while students are seen as active participants in their learning. From a demand model standpoint, the knowledge to be taught is primarily defined by students’ needs with respect to a given domain of activity. At the operational level, the demand model is associated with teaching goals such as ‘helping students develop basic learning skills’ and ‘fostering their personal development and growth’ (Angelo & Cross, 1993). In practice, the demand model is often associated with pedagogical activities emphasizing exploration, discussion and experimentation (such as library, web and other interactive searches, lab experimentation, field trips, simulations, group discussions, etc.). Evaluation tends to proceed from a formative perspective, whereby students are asked to reflect upon their own learning.
As its name suggests, the *competence model* aims to develop students’ competences, that is, their knowledge of how to solve complex problems by mobilizing the relevant knowledge and abilities (cf., Le Boterf, 1998). Within this model, teaching is conceived as an interactive process between teacher and students (Kember, 1997), or as “making learning possible” (Ramsden, 2003). Teachers are conceived as ‘coaches’ and ‘developers’ – while students are seen as individuals who actively construct their knowledge through their interaction with their educator(s) and peers. From a competence model standpoint, the knowledge to be taught is primarily defined by the complex problems to be solved by competent actors in real-life situations. At the operational level, the competence model is associated with teaching goals such as ‘helping students develop higher order thinking skills’ and ‘preparing students for jobs/careers’ (Angelo & Cross, 1993). In turn, the competence model is often associated with activities of communication (e.g., seminars, presentations, debates) and knowledge production (e.g., essays, animation, modeling, portfolios), generally performed in contexts as closed as possible to practical situations. Accordingly, evaluation generally centers on students’ abilities to address complex real-life problems.

In practice, educators may also draw from more than one model, and so hybrid forms between the above three models are also possible (Béchard & Grégoire, 2005: 117-9). That being said, education research on teaching models has shown that the pedagogical practices of educators tend to be anchored on consistent sets of ontological assumptions. It thus follows that discrete forms of pedagogical innovations should also be associated with particular teaching models. Indeed, this proposition forms an inherent part of our analytical framework, and of the empirical analyses reported below. But we also propose that this dimension of teaching model will also work hand-in-hand with other dimension characterizing a particular innovation.

*Contextual anchoring*

The second dimension of the framework relates to the context of the innovation, and more specifically, those contextual factors that anchor an innovation, and influence its development and implementation. From an analytical point of view, this dimension comprises two related foci: the kind of arrangements that supports an innovation at the institutional level, and the kind of arrangements that supports it at the level of the education system.

At the level of institutional support, scholars have observed that a number of variables could affect the emergence, development and successful implementation of an innovation. For instance, institutions differ in the degree of autonomy that Faculty have: in turn, these variations influence the nature, reach and frequency of pedagogical innovations that will be undertaken in different institutions (Boyer, 1990). Likewise, the particular mission of an institution – whether imposed or self-defined – can encourage (or inhibit) pedagogical innovation within its walls (Hannan & Silver, 2000). Different structural mechanisms of coordination will also enable different types of innovations (Fanghanel, 2004; Trowler et al., 2005). To the extent that different departments regularly work together on collaborative projects, for instance, it becomes more likely that innovations will also take place at the campus-wide level. Conversely, innovations will tend to be anchored at the department level in institutions that have less frequent collaborations between departments. In addition, it is relevant to highlight that different institutions have different practices regarding the value given to pedagogical initiatives, and
notably in terms of the allocation of resources for developing and sustaining pedagogical initiatives. Naturally, these variations in institutional practices have also been shown to influence the type and occurrence of pedagogical innovations (Donald, 1997; Donnay & Romainville, 1996). As with other dimension in our framework, we argue that variations between different innovations in terms of the institutional factors that enable it will not occur independently of one another, but will tend to work hand-in-hand around discrete configurations.

The same general argument can be made at the level of the larger education system. For instance, different countries vary in the degree of autonomy they give institutions of higher education when it comes to concrete articulation of their courses, programs, and curriculum (Crespo, 1999). This may be evidenced, among other things, in the occurrence of national policies towards higher education, or in the degree of centralization of decision in a country’s education system. Here again, education scholars have shown that the degree of institutional autonomy and centralization of the education system influence the nature, reach and occurrence of pedagogical innovation in higher education (Dearing, 1997). With respect to entrepreneurship education, we also note that the presence of national policies towards innovation and entrepreneurship also seem to play an important role in fostering entrepreneurship education initiative (Wilson & Twaalhoven, 2005) – and the more so when decisions relative to higher education are already centralized (Léger-Jarniou, 2005).

As with the other dimension, our argument is that these contextual factors may not be independent of one another. More importantly, we argue that they work together to foster discrete types of pedagogical innovations in entrepreneurship education.

In search of different archetypes of pedagogical innovation in entrepreneurship education

At a higher level, the two dimensions of teaching and learning underpinnings and contextual anchors point to several variables that may characterize different types of innovation. As we highlighted throughout our description of the framework, however, education research suggests that there should be a high degree of coherence between those characteristics (Fanghanel, 2004; Trowler et al., 2005). In other words, pedagogical innovations may not emerge – and function – as random assemblages of characteristics, but may rather tend to gravitate toward discrete archetypes. Ultimately, these considerations suggest 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) – an observation to which we will return in the conclusion of our text.

Before discussing such implications, however, we use the framework developed above to highlight the distinguishing characteristics of four different pedagogical innovations in entrepreneurship education. Doing so, we illustrate how the framework can help one make sense of the diversity of pedagogical innovations in entrepreneurship education, and point to the particular relationships of internal and external coherence upon which these innovations are built. In the next section, we briefly present the methodological choices that guided this empirical work.
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>) &lt;br&gt; 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>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>) &lt;br&gt; 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>Research databases</td>
<td>ERIC (<a href="http://www.eric.ed.gov/">http://www.eric.ed.gov/</a>)</td>
</tr>
<tr>
<td>Research publications about such programs</td>
<td>Academy of Management Learning and Education International Journal of Entrepreneurship Education IntEnt Conference Proceedings</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 websites 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>
<thead>
<tr>
<th>Name of program / Institution</th>
<th>Source material</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Austin Entrepreneurship Program</strong></td>
<td><a href="http://www.bus.oregonstate.edu/programs/austin_entrep.htm">http://www.bus.oregonstate.edu/programs/austin_entrep.htm</a> (as of September 16th, 2005)</td>
</tr>
<tr>
<td>Oregon State University’s (USA)</td>
<td>Primary informant: Dr. Justin Craig (<a href="mailto:Justin.Craig@bus.oregonstate.edu">Justin.Craig@bus.oregonstate.edu</a>)</td>
</tr>
<tr>
<td></td>
<td>Relevant background material: (Crespo, 1999; Katz, 2003; Kuratko, 2005; Lynch, 2005)</td>
</tr>
<tr>
<td><strong>Master Management Global Parcours Entrepreneuriat</strong></td>
<td><a href="http://www.dauphine.fr">http://www.dauphine.fr</a> (as of December 1st, 2005)</td>
</tr>
<tr>
<td>Université Paris-Dauphine (France)</td>
<td>Primary informant: Dr. Catherine Léger-Jarniou (<a href="mailto:catherine.leger-jarniou@dauphine.fr">catherine.leger-jarniou@dauphine.fr</a>)</td>
</tr>
<tr>
<td><strong>EXIST High Tech Entrepreneurship Postgraduate Program</strong></td>
<td><a href="http://www.exist.de/">http://www.exist.de/</a> (as of April 1st and September 16th, 2005)</td>
</tr>
<tr>
<td>Universities of Bamberg, Jena and Regensburg (Germany)</td>
<td><a href="http://www.exist-hightepp.de">http://www.exist-hightepp.de</a> (as of April 1st and September 16th, 2005)</td>
</tr>
<tr>
<td></td>
<td>Primary informant: Dr. Holger Patzelt</td>
</tr>
<tr>
<td><strong>Entrepreneurship Program</strong></td>
<td><a href="http://business.uvic.ca">http://business.uvic.ca</a> (as of April 3rd and September 16th, 2005)</td>
</tr>
<tr>
<td>University of Victoria (Canada)</td>
<td>Primary informant: Dr. Boyd Cohen (<a href="mailto:bcohen@business.uvic.ca">bcohen@business.uvic.ca</a>)</td>
</tr>
<tr>
<td></td>
<td>Relevant background material: (AUCC, 2001; Beaulieu &amp; Bertrand, 1999; Menzies, 2004, 2005; Menzies &amp; Gasse, 1999; Mitchell, 2003; Mitchell &amp; Chesteen, 1995; Mitchell et al., 2000)</td>
</tr>
</tbody>
</table>
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 above. Given the limited space available in this chapter, however, we report below only the synthesis of our analyses, for each program. A full description of these programs is available free of charge as a Cahier de Recherche from the Rogers-J.A.-Bombardier Chair of Entrepreneurship at HEC Montréal (http://web.hec.ca/creationentreprise/CERB/) and/or by contacting one of the authors (Grégoire & Béchard, 2006).

Table 4: Four archetypes of pedagogical innovation in entrepreneurship education

<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 Global Parcours Entrepreneuriat</td>
<td>EXIST High Tech Entrepreneurship Postgraduate Program</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:

<table>
<thead>
<tr>
<th>Teaching and learning underpinnings</th>
<th>Teaching model: demand</th>
<th>Teaching model: hybrid demand-competence</th>
<th>Teaching model: supply-competence</th>
<th>Teaching model: competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>What ontological assumption(s) underpin this innovation?</td>
<td>Teaching = to provide environment that enables knowledge appropriation by students / to organize students’ activities</td>
<td>Teaching = to provide environment that enables knowledge appropriation by students / to organize students’ activities</td>
<td>Teaching = to impart (scholarly) information, but also to make learning possible</td>
<td>Teaching = to make learning possible</td>
</tr>
<tr>
<td>Students = facilitator, tutor</td>
<td>Teacher = facilitator, tutor</td>
<td>Teacher = facilitator, tutor</td>
<td>Teacher = presenter, but also adviser (coach)</td>
<td>Teacher = coach, developer</td>
</tr>
<tr>
<td>Content is primarily defined by students’ needs vis-à-vis entrepreneurship</td>
<td>Students = participants</td>
<td>Students = participants</td>
<td>Students = active participants in the development of their knowledge</td>
<td>Students = active participants in the development of their knowledge</td>
</tr>
<tr>
<td>Content is primarily defined by students’ needs vis-à-vis entrepreneurship, and by problems to be solved by competent actors in real-life situations</td>
<td>Content is primarily defined by the problems to be solved by science entrepreneurs</td>
<td>Content is primarily defined by scholarly research in the relevant discipline, but by the particular problems faced by</td>
<td>Content is primarily defined by the problems to be solved by</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>science entrepreneurs</td>
<td></td>
</tr>
<tr>
<td>Archetype</td>
<td>Sustaining a community of (entrepreneurship) learners</td>
<td>Developing one’s entrepreneurial spirit</td>
<td>Developing an academic expertise in entrepreneurship</td>
<td>Developing one’s entrepreneurial competence</td>
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</tr>
<tr>
<td>What operational element(s) characterize this innovation?</td>
<td>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</td>
<td>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 means of evaluation</td>
<td>Teaching goals: Helping students facts and principles of the subject matter / Providing a role model for students Teaching goals 1: Helping students develop higher order thinking skills / Preparing students for jobs/careers Pedagogical means emphasizing the transmission and reproduction of knowledge, but also creation of new knowledge</td>
<td>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</td>
</tr>
<tr>
<td>What kind of arrangements supports this innovation at the institutional level?</td>
<td>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</td>
<td>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</td>
<td>Average degree of Faculty autonomy Existing ties between universities and businesses</td>
<td>High degree of Faculty autonomy Close-knit team of entrepreneurship scholars who worked together to develop and implement innovation</td>
</tr>
<tr>
<td>Contextual anchors</td>
<td>Benefited from high level of institutional autonomy / decentralized system of education</td>
<td>Relative to other institutions in French system, historically benefited from a higher degree of autonomy Supported by recent policies towards innovation and entrepreneurship as means to foster economic development</td>
<td>Supported by recent policies towards innovation and entrepreneurship as means to foster economic development, and particularly with respect to science-based entrepreneurship Inter-university collaboration strongly encouraged at the governmental level</td>
<td>Exhaustive approach benefited from organizational culture that emphasized and supported this kind of innovation (e.g., coop programs) Innovation is in line with UVIC’s differentiation advantage relative to other Canadian universities</td>
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Type 1: The *Austin Entrepreneurship Program* at Oregon State University (USA)

Beginning in the Fall of 2004, the College of Business and College of Engineering at Oregon State University 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 an interest in entrepreneurship. Through this anchoring on a distinct physical space, the Austin Entrepreneurship Program effectively aims to sustain a community of entrepreneurship learners.

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 (cf., Grégoire & Béchard, 2006). 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)

L’Université Paris-Dauphine has been the very first institution of higher education in France to offer a program in entrepreneurship – as early as in 1989 (Léger-Jarniou, 2005: 341). 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). 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 addition to a series of formal courses, the program also includes two more demanding activities. In the first, students work in teams of three to develop, complete and defend a business plan for a ‘real-life’ entrepreneur. The second activity consists of a six-month entrepreneurship internship, to be realized under supervision in France or abroad. In both case, the aims remain to develop students’ general attitude towards entrepreneurship and entrepreneurship-related careers.

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/ece/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 (Groeb, 1994). The 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., team work; 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/](http://www.dauphine.fr/): cf., *Dauphine en bref*; *Il était une fois Dauphine*). As we documented elsewhere (cf., Grégoire & Béchard, 2006), 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**

Recognizing the low levels of entrepreneurial drive associated with very bureaucratic support infrastructures for existing and potential entrepreneurs, the German Bundesministerium für Bildung und Forschung (Federal Ministry of Education and Research) introduced in the late 1990s / early 2000s a series of policy measures, and notably to address “(the) deficit in research and education of entrepreneurship (that) can still be observed at German universities (Achtenhagen & zu Knyphausen-Aufseß, 2002: 300).” Among these measures, the EXIST High Tech Entrepreneurship Postgraduate Program aimed to develop academic expertise in entrepreneurship through a new generation of Ph.D.-educated Faculty qualified to conduct research on entrepreneurship, and teach courses focused on entrepreneurship. Interestingly, the program emerged from the collaboration of academics from three different universities in Bamberg, Jena, and Regensburg. But 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.

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 the following quote, expressed by 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 (1962)). 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 documented elsewhere (cf., Grégoire & Béchard, 2006), 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)**

Firmly grounded in research on entrepreneurial cognition (e.g., Mitchell, 2003; Mitchell et al., 2000) and sustainable development (e.g., Cohen, 2006; Cohen & Winn, 2006), the undergraduate and graduate concentrations in entrepreneurship offered at the University of Victoria’s College of Business focus specifically on developing their students’ entrepreneurship competence.
Through a series of six undergraduate courses and three graduate modules, all taught as a single highly-integrated effort spanning the last semester of each program, 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.

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 (1962)). 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™ – “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 (http://business.uvic.ca/008_BComHome/4669_InnovationPro.html).” 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 (cf., Grégoire & Béchard, 2006). 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.

**Theoretical significance**

Research in higher education has long underlined the importance (and effectiveness) of coherence in pedagogical innovation. For instance, the works of Biggs (1999) and Ramsden (2003) have demonstrated the importance of aligning one’s evaluation of students’ learning and achievement with the pedagogical objectives pursued within a program. More specifically, they emphasized how this ‘constructive alignment’ maximized students’ engagement and perseverance vis-à-vis the material, and increased the likelihood of long-term durable learning.
In parallel, several education scholars have emphasized how successful innovations tended to be supported by a host of contextual factors. For instance, Fanghanel and colleagues focused on the role of academic departments in encouraging pedagogical innovations (Fanghanel, 2004; Trowler et al., 2005). They observed that as they occupy a meso-level position between the educators and the university as a whole, the heads of academic department exert a critical role in fostering (or in inhibiting) pedagogical innovations. In the same vein, a large survey conducted by Hannan and Silver (2000) with 225 pedagogical innovators in 15 British institutions of higher education showed how an institutional culture that encourages pedagogical innovation and provides the necessary resources and rewards to their initiators could be highly important. At the same time, these authors highlighted that different types of innovations – whether they are isolated, guided or directed – need support infrastructures that are also different. For his part, Donald (1997) conducted several interviews with deans and presidents in U.S. universities, and confirmed the importance of organizational decisions to encourage the development of successful pedagogical innovations – i.e., innovations that improve students’ learning.

Our research contributes to these two streams of research by emphasizing the coherence between the first levels of coherence. More specifically, we explored the extent to which successful initiatives in entrepreneurship education rest on a high-level coherence between the teaching and learning underpinning of these innovations (their so-called pedagogical characteristics), the organizational structures and arrangements that support these innovations, and the large institutional and social context – such as the education system – in which these initiatives are taking place. Seen in light of this coherence, education research on the characteristics of successful pedagogical innovations implies two fundamental points. First, determining the quality of a program remains a question of evaluating the quality of students’ learning outcomes. Yet, education research suggests that the more programs are conceived and implemented in coherent fashion, the more durable tend to be the students’ learning (Barnett & Coate, 2005). Second, the quality of programs demands that this question of coherence be approached not only in terms of teaching and learning underpinnings taken in isolation, or in terms of contextual factors alone, but in terms of how the two dimensions feed one another. In this sense, the general coherence we sought to highlight in this chapter points not only to the quality of an innovation from a design standpoint: it ultimately points to the quality of students’ learning outcomes.

Interestingly, similar calls for considering issues of coherence can also be found in the entrepreneurship education literature. Among others, Block and Stumpf (1992) encouraged entrepreneurship educators to pay attention to the needs of their students. For their part, Gorman and colleagues (1997) drew attention to aligning entrepreneurship education efforts with the particular markets these efforts are meant to serve (e.g., formal education students, out-of-school individuals, existing business owners/managers, etc.). More formally, Béchard and Toulouse (1998) highlighted the necessary links between the general objectives of a program, and its pedagogical constituents. At the level of support infrastructure, recent edited books by Kyrö and Carrier (2005) and Schmitt (2005) attest the attention given by entrepreneurship education scholars for the coherence between pedagogical innovations in entrepreneurship and its organizational, institutional and contextual anchors.
What the present work adds to this literature is a more extensive, research-grounded framework to consider these issues of coherence within particular innovations in entrepreneurship education. In turn, this framework provides concrete means to ‘think about’ the various components of pedagogical innovations. At a first level, we must recognize that the archetypes described above may not always and necessarily be observable in pure forms. In practice, some innovations may be more typical than others. By extension, there could be hybrid innovations with characteristics from two or more archetypes. Nevertheless, we contend that the framework developed above remains a useful tool to efficiently identify key characteristics of particular pedagogical innovations, and that in ways that are theoretically consistent with the research literature on innovation in education.

In turn, these theoretically-consistent considerations offer bases to define evaluation criteria that takes into account the parallels between an innovation’s teaching and learning underpinnings, the learning aims it pursues, the demands it places on the educators, and the contextual factors and dynamics that are antecedent to the innovation. As a result, it is perhaps more advisable to develop innovations that are coherent with one’s particular context than to try copying innovations that have been successful elsewhere without at least questioning their applicability. Indeed, the research literature on higher education demonstrates that in spite of the globalization of markets and economies, national systems of higher education remain highly differentiated, as they each retain particular political, economic, cultural and other institutional characteristics (Borrero Cabal, 1995).

Limitations and avenues for future research

Naturally, the above developments, analyses and findings are not exempt from some limitations. At a methodological level, for instance, we did not strive to conduct an exhaustive analysis of a representative sample of innovation programs, but rather concentrated on illustrative examples of particular archetypes. As a result, it is likely that other archetypes of pedagogical innovation in entrepreneurship education could be identified.

Because our aim was more exploratory than demonstrative, we did not try to establish the reliability of our analyses by using multiple coding procedures with blind/independent coders and inter-judge measures of reliability. In the same vein, the study’s indicators for each dimension of analysis were theoretically-consistent, but only loosely defined. That being said, our work always proceeded by iterative consensus, first between ourselves as we went back and forth between the theory, our framework, and the illustrations, and second, as we worked with key informants to develop the illustrations. As a result, the work reported above still meets preliminary tests of face validity.

Seen in light of these observations, interesting opportunities for future research would include validation studies of the analytical framework (particularly with more articulate indicators and more elaborate analysis procedures). Furthermore, interesting opportunities for future research would lie in more exhaustive repertories of the various types of innovation that are currently being championed, along with the distribution of different types within and between particular cultural, institutional and national contexts. In practice, such research efforts could build on
published comparative research in education focusing on international differences (e.g., Clark, 1998, 2004).

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.
BIBLIOGRAPHY


