ENTREPRENEURSHIP EDUCATION LITERATURE IN THE 2000S

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ABSTRACT

There seems to be a gap in the literature on entrepreneurship education that prevents it from making stronger contributions towards practice. This study addresses this issue by reviewing the state of the art about entrepreneurship education through the analysis of the contributions made over the 2000s.

Theoretical contributions on entrepreneurship education have been increasing and improving in terms of scope and methodology, but there still seems to be a lack of articles that expand knowledge by simultaneously making new theoretical propositions and testing those propositions in new experimental settings

Articles centered on the development of methods, programs, and frameworks often reflect experiences that are context-specific; empirical validation, when offered, is usually limited to those specific contexts. Theory-building and theory-testing are rooted in single paradigms, limiting the generation of more complete and eclectic knowledge. Entrepreneurship education seems to be more focused on what works in the classroom than on developing cutting edge theoretical contributions. Several lines of inquiry are proposed in order to push the boundaries of existing paradigms and trends and improving practice through theory-building.

The present work contributes to the literature by providing an overview of the current state of the field, highlighting main trends and gaps. The application of a taxonomy based on the Business and Management literature to analyze theoretical contributions in the field of entrepreneurship education is original and can provide a means for evaluation of progress in the field over time

INTRODUCTION

Entrepreneurship education has progressed in great strides and has spread widely around the world in recent decades. This proliferation has been supplemented by increasing diversity in pedagogic approaches and an increasing number of courses addressing special subjects within the entrepreneurial process (Vesper and Gartner, 1997; Katz, 2003). Entrepreneurship is now a well-established academic discipline (Gartner and Vesper, 1994; Fiet, 2000b) and a legitimate course of study (Vesper and Gartner 1997; Katz, 2003).

Theory-building and its role in the advance of entrepreneurship education has been a longstanding concern in entrepreneurship education research, as emphasized by several authors (e.g. Sexton and Bowman, 1984; Hills, 1988; Katz, 2003). Theory-building is the process by which theoretical contributions are generated, tested and refined (Gioia and Pitre, 1990). Theoretical contributions are one of the frequent prerequisites of top-tier journals and are fundamental to the advance of the field.

Whetten (1989) highlights the importance of theory in challenging and advancing scientific knowledge and guiding research, and contends that "the theory development process and criteria for judging theoretical contributions need to be broadly understood and accepted so that editors and contributors can communicate effectively" (Whetten, 1989: 495). Over the years there have been a number of efforts to communicate the ingredients for a good theoretical contribution in the field of management, and different frameworks and writings have been put forward. Significant contributions include: Whetten (1989); Van de Ven (1989); Eisenhardt (1989); Gioia and Pitre (1990); Weick (1995); Kilduff (2006); Colquitt and Zapata-Phelan (2007); Rindova (2008); and Corley and Gioia (2011).

Gioia and Pitre (1990) presented different approaches to theory-building, founded on different paradigms, earlier proposed by Burrel and Morgan (1979). Kuhn (1970), Burrel and Morgan (1979) emphasized the importance to use several paradigms to analyze the organizational phenomenon, avoiding a biased vision of the reality. Béchard and Grégoire (2005) emphasize the lack of established paradigms in the early stages of theory development in the field of entrepreneurship. Ireland et al. (2005), claim that, in general, entrepreneurship research is characterized by low paradigm development. In turn, Busenitz et al. (2003: 237), referring to research into multiple fields in entrepreneurship, conclude that "no powerful unifying paradigm exists, nor do multiple coherent points of view." Weick (1995) argues that in low paradigm fields of research it is sometimes difficult to build theory and, most important, to discern whether the work produced is theory.

On the other hand, literature reviews are important to organize and analyze recent research and also to reflect about the course of future developments, such as Dainow (1986) and Gorman et al. (1997) emphasize. However, there have been no impactful literature reviews on entrepreneurship education over the last decade. It seems, therefore, a good time to provide a analysis of the progress in the field, focusing on the analysis of theoretical contributions produced. In an attempt to close existing gaps that prevents this literature from making stronger contributions towards practice, we develop this study, by reviewing the state of the art in theory-building about entrepreneurship education, through the analysis of the contributions made over the last decade, following several author's contributions and appeals (e.g. Whetten, 1989; Van de Ven, 1989; Fiet, 2000a, 2000b; Rindova, 2008). This study also attempts to anticipate future problems by identifying the main gaps in the literature, and offers some suggestions for future challenges or avenues for further research.

Some recent works have analyzed trends in theory-building in management sciences and proposed different frameworks of analysis. For instance, Colquitt and Zapata-Phelan (2007) look at articles published in the Academy of Management Journal (AMJ), while Corley and Gioia (2011) analyze literature from the Academy of Management Review (AMR). Despite the fact these analyses are based on wider time periods, this paper uses a different approach, focusing on the last 11 years (due to the significant developments in entrepreneurship education on the last decade); applying those frameworks to entrepreneurship education research; and, extending the analysis to a much wider range of journals.

The paper is organized as follows. First the elements of theory-building that guide the analysis are briefly discussed; second, the methodological approach is presented; third, a typology of contributions is established; fourth, the content of theoretical contributions is analyzed; and finally, results are discussed and conclusions are drawn, as well as the implications and limitations of the study are discussed, suggesting avenues for future research.

ELEMENTS FOR AN EXAMINATION OF CONTRIBUTIONS

Although there are many definitions of the concept of theoretical contribution, there is no universal definition. According to Corley and Gioia (2011: 15), "the idea of contribution rests largely on the ability to provide *original insight* into a phenomenon by advancing knowledge in a way that is deemed to have *utility* or usefulness for some purpose." This study builds upon Rindova's (2008: 300) definition: "What makes a contribution novel is not that no one in the field ever thought about a given idea but that the idea is articulated, organized, and connected in a way that suggests new directions for researchers who, hopefully, are already thinking about it."

In order to analyze and assess theoretical contributions, this study produces a taxonomy built upon contributions and frameworks published in the AMR and AMJ, which are among management's leading conceptual journals in the Web of Science Journal Citation Reports for 2011, both in terms of impact factor and article influence score.

Taxonomy

Colquitt and Zapata-Phelan (2007) develop a taxonomy that is applied to the theoretical contribution of empirical articles. This taxonomy is based on two dimensions – theory-building and theory-testing – and encompasses five categories: "reporters", "testers", "qualifiers", "builders", and "expanders". The quotation marks are henceforth dropped from the text when referring to these categories.

Reporters have low levels of theory-building and theory-testing, and are usually related to replications of conflicting findings in past research. Testers have high levels of theory-testing and low levels of theory-building, and test existing theory in different contexts or samples. Qualifiers have moderate levels of theory-testing and theory-building, and qualify relationships or processes established in past research. Builders have high levels of theory-building and low levels of theory-testing, and include inductive studies that develop new constructs, relationships or processes. Builders can also include hypothetical-deductive studies that analyze a relationship that has not been analyzed before. Expanders have high levels of theory-building and theory-testing, focusing on constructs, relationships or processes that have not yet been theorized, while also testing existing theory. Builders, testers, and expanders make greater theoretical contributions when compared to reporters and qualifiers, whose theoretical contributions are lower.

Colquitt and Zapata-Phelan (2007) use this taxonomy to analyze trends in the theoretical contributions of AMJ articles over the past five decades finding an increase in theory-building and theory-testing in management research. Reporters have been replaced by qualifiers and expanders, which have become the most impactful articles. Builders have also increased, outpacing testers. It is important to examine entrepreneurship education literature in order to ascertain what types of articles (with regard to the weight of theory-building) have been published most frequently. While there may be a feeling that most works on entrepreneurship education are merely reporters, an examination of the recent literature might provide a different insight. An emergence of builders without a concomitant increase in testers can cause a "construct proliferation" which is not very desirable in a low paradigm field with an already fragmented literature (Pfeffer, 1993).

Assessment

Paradigms

According to Kuhn (1970), and Burrel and Morgan (1979) analysis based on only one paradigm or one way of understanding the organizational phenomenon tends to produce incomplete knowledge, especially when referring to the multifaceted nature of organizational studies and realities. Burrel and Morgan (1979) distinguish four paradigms: interpretivist and radical humanist, related to a subjective approach to reality, and radical structuralist and functionalist, related to an objective approach to reality. Gioia and Pitre (1990), applied these intellectual foundations to theory-building issue, arguing that there are different approaches to theory-building founded on different paradigms.

The interpretivist paradigm describes and explains, in order to diagnose and understand, and theory-building typically consists of substantively describing emerging concepts and relationships and showing how it all fits together. The radical humanist paradigm describes and critiques in order to revise and change the perception of reality, and theory-building usually consists of writing up dialectical analyses and showing how the level of consciousness should change.

The radical structuralist paradigm aims to understand, explain, criticize, and actively revise the structure of reality. Under this paradigm, theory-building usually consists of writing up rhetorical analyses and showing how established practice should change. In the functionalist paradigm, the goal is to search for regularities and test them in order to predict and control reality, and theory-building usually consists of writing up results and propositions, describing the regularities observed, testing these propositions, and showing how the theory is refined, supported or disconfirmed.

Most theory development is based on functionalism. However, this paradigm should not be seen as the best suited, universal approach for theory-building. Also, while theoretical perspectives based on a single paradigm should be recognized as original, they jeopardize an eclectic and holistic vision of reality. Gioia and Pitre (1990) propose a metaparadigm perspective of theory-building in which shared areas between paradigms (transition zones) exist allowing for diverse paradigmatic views, regardless of whether the viewer is typically rooted in the assumptions of a particular paradigm.

Building Blocks

Whetten's (1989) contribution to theory development remains influential and provides a standard for assessment of the consistency of theoretical contributions. Based on previous contributions to theory development (e.g. Dubin, 1969), this author suggests that good theoretical contributions are based on four building blocks: "what" refers to the identification of factors, variables, constructs and concepts that must be taken into account in the explanation of the phenomenon, while respecting the criteria of comprehensiveness and parsimony; "how" refers to an explanation of the way in which the previous factors are related, and the development of patterns of causality; "why" refers to the description of the underlying dynamics beyond the proposed factors and causal relationships; and "when" refers to the temporal and contextual factors that condition the propositions of the theoretical model and represent the range of the theory.

"What," "how" and "when" describe and constitute the domain or subject of theory, providing a framework for interpreting patterns or discrepancies. "Why" embodies the theory's assumptions and explanations, representing the elements of the theory subject to empirical testing, and specifying the implications for research of a theoretical argument. Assessment of current literature on entrepreneurship education requires an analysis of whether the research has responded to the challenge of "why," i.e. whether it has produced new insights with implications for further research that can be subjected to empirical examination across a variety of settings.

RESEARCH METHOD

Sources And Coverage

This analysis focuses on academic articles published over the period 2000-2011 on the subject of entrepreneurship education in higher education. This time period is particularly relevant since the last decade has seen significant developments in entrepreneurship education with the creation of a large number of programs inside and outside business schools, plus a variety of courses covering specific subjects within entrepreneurship (such as, for instance, opportunity recognition, business models, and entrepreneurial finance). Also, the last impactful reviews of the subject were carried out in the late 1990s (for instance: Gorman et al., 1997, and Fiet's (2000a, 2000b).

Articles are drawn from peer-reviewed journals in the subject categories of Business, Management, Education and Educational Research. Most of these journals are listed in the ISI Web of Knowledge. The selection of articles was carried out with the objective of covering the widest possible range of journals in the fields of Management and Education integrating theory and empirical articles about entrepreneurship education (methodologies, theories, contents, frameworks and evaluation of programs/subjects). Interviews, reports, introductions to special issues, and presentations were excluded. Table 1 outlines the stages pursued in the review methodology. Two searches were conducted: the first search was carried out on the websites of the most prestigious journals in each of the areas listed above, according to ISI impact factor (specifically, all the journals with a 2010 five-year impact factor greater than the aggregate impact factor for the ISI subject category where the journal is primarily listed were included); the second search covered business and academic databases (such as EBSCO), thereby adding more journals to the initial sample.

Table 1 Review Methodology	
Stage	**Description**
Selection process	
1st Search	
1	In the ISI Web of Knowledge (Journal of Citation Reports 2010 – Social Sciences Edition) list of journals, the following subject categories (journal type) were selected: Education and Educational Research; Management; and Business.
2	Journals were also selected that were not indexed on ISI Web of Knowledge, but included relevant articles about the topic, such as: *Higher Education in Europe*, *Teaching in Higher Education*, *Journal of Enterprising Culture*, *International Journal of Entrepreneurship Education*.
3	A search was conducted for articles that met four criteria: (1) peer review; (2) use of one or more of the following keywords in the title or abstract: "entrepreneurship education;" "educating entrepreneurship;" "teaching entrepreneurship;" "entrepreneurial university;" "entrepreneurship faculty;" "academic entrepreneurship;" "university entrepreneurship;" "enterprise education;" and "entrepreneurialism"; (3) publication between 2000 and 2011, inclusive; (4) focus on entrepreneurship education methodologies, theories, contents, frameworks and evaluation of programs/subjects.
2nd Search	
4	Search in business and academic databases (such as EBSCO) for articles integrating theory about entrepreneurship education, using the above mentioned keywords.
Data analysis	
5	The data were 'cleaned' by excluding interviews, book reviews, editorial notes reports, introductions to special issues, and presentations. Articles that do not look at entrepreneurship education per se (such as works focusing on university administration and technology commercialization) were also excluded. The searches resulted in a set of 152 articles that met the selection criteria.
6	Articles were then read and analyzed. A total of 92 studies were dropped from further analysis since they did not meet the criteria described in (3), 60 articles remaining in the final set.
7	A first database of all relevant articles was created and additional information such as the article title, its author(s) details, the journal, the year of publication and an overview of the article were recorded.
8	After a content analysis of the articles, a second database was created and articles were coded according to: purpose, sample/data used, data analysis/procedures, findings, consistency of the theoretical framework and participation in the programs (mandatory vs. elective).
9	All the articles of the database were reviewed and coded by the authors according to the taxonomy created, on two separate occasions, with four-month gap between reviews. After an article was coded the second time, the coding was compared to its original coding. In over 90 per cent of cases, codings were the same; differences were due to more consistent application of selection criteria. In a meeting, the coding was compared and discrepancies were discussed in order to reach a consensus.

Following the procedure adopted by Busenitz et al. (2003), Coviello and Jones (2004) and Ireland et al. (2005), the searches were based on keywords associated with entrepreneurship education in the article title or abstract. The keywords were: entrepreneurship education;" "educating entrepreneurship;" "teaching entrepreneurship;" "entrepreneurial university;" "entrepreneurship faculty;" "academic entrepreneurship;" "university entrepreneurship;" "enterprise education;" and "entrepreneurialism". Examples of articles that were excluded from the review because they did not focus on entrepreneurship education per se (for instance, works

focusing on university administration and technology commercialization) include Shane (2004) on university patenting, and Powers (2004) on technology transfer, among others.

To ensure reliability, following Dainow's (1986), all the articles in the database were reviewed and coded by the authors according to the taxonomy created, on two separate occasions, with a four-month gap between reviews. After an article was coded the second time, the coding was compared to its original coding. In over 90 per cent of cases, codings were the same; differences were due to more consistent application of selection criteria. In a meeting, the coding was compared and discrepancies were discussed in order to reach a consensus. This procedure yielded 60 peer-reviewed articles from 29 journals with the distribution shown in Table 2.

Table 2
Distribution of Articles per Peer-reviewed Journals

Subject Category	Journal Name (abbreviation)	No. of Articles
Business and Management	*Entrepreneurship & Regional Development (ERD)*	2
	Entrepreneurship Theory & Practice (ETP)	1
	European Economic Review (EER)	1
	International Entrepreneurship Management Journal (IEMJ)	9
	International Journal of Business and Globalization (IJBG)	1
	International Journal of Entrepreneurship and Small Business (IJESB)	1
	International Journal of Entrepreneurship Education (IJEE)	1
	International Review on Public and Nonprofit Marketing (IRPNM)	1
	International Small Business Journal (ISBJ)	1
	Journal of Business Venturing (JBV)	4
	Journal of Economic Behavior & Organization (JEBO)	1
	Journal of Enterprising Culture (JEC)	2
	Journal of Small Business and Enterprise Development (JSBED)	1
	Journal of Small Business Management (JSBM)	1
	Research in Business and Economics Journal (RBEJ)	1
	Research Policy (RP)	1
	Silicon Valley Review of Global Entrepreneurship Research (SVRGER)	1
	Small Business Economics (SBE)	1
	Technology Analysis & Strategic Management (TASM)	1
	Technovation (T)	2
Education And Education Research	*Academy of Management Learning & Education (AMLE)*	6
	European Journal of Education (EJE)	1
	European Journal of Engineering Education (EJEE)	2
	Higher Education (HE)	1
	Higher Education in Europe (HEE)	3
	Industry & Higher Education (IHE)	9
	Journal of Education for Business (JEB)	1
	Journal of European Industrial Training (JEIT)	2
	Research in Higher Education (RHE)	1

Analysis

The analysis is divided into two parts. First, a taxonomy of articles is based on the contributions set out in subsection 2.1. The taxonomy is based on theory generation, i.e. articles are classified according to whether they attempt to make a significant theoretical contribution, as follows:

1. Articles that do not attempt significant theory-building – reporters – mostly include case studies that offer insights into a specific context and do not try to generate theory (as identified by Eisenhardt, 1989) and general appraisals of the practice of entrepreneurship education;
2. Articles that provide empirical tests of previously existing theory in new experimental settings – testers;
3. Articles that propose new theory, whether derived from case studies, observations and perceptions of established practice, or empirical regularities – builders and qualifiers, and expanders. Builders and qualifiers are grouped together in the analysis since the parameters employed for analyzing theoretical content are similar, and qualifiers are relatively rare (in fact, none is identified in this analysis). In general, qualifiers include articles that add cumulatively to the constructs, relationships, and processes described by previous research, while builders introduce new constructs, relationships, and processes.

The second part of the analysis examines the nature and character of theory-building presented by the articles surveyed. This examination is twofold. First, the content of theoretical contributions is examined using Whetten's (1989) building blocks as a reference. The objective is to assess whether recent research on entrepreneurship education has contributed to conceptual elevation and unification. Second, the foundations of theory-building in each paper are classified according to the paradigms described by Gioia and Pitre (1990). Specifically, the roots of the theory developed in each paper are examined, in order to determine whether there is a dominant paradigm (interpretivist, radical humanist, radical structuralist, or functionalist), or whether the paper applies a metaparadigm perspective to theory-building. Table 3 outlines the taxonomy developed.

<table>
<tr><th colspan="4">Table 3
Taxonomy of Theoretical Contributions</th></tr>
<tr><th>Taxonomy</th><th>Description</th><td colspan="2" rowspan="2"></td></tr>
<tr><td>Reporters</td><td>Descriptive analysis; replicate past findings</td></tr>
<tr><td colspan="2"></td><th>Content</th><th>Foundation</th></tr>
<tr><td>Testers</td><td>Test existing theory in new contexts</td><td rowspan="3">What, How, When, & Why</td><td rowspan="3">Interpretivist, Radical Humanist, Radical Structuralist, Functionalist, & Metaparadigm</td></tr>
<tr><td>Builders & Qualifiers</td><td>Development of new constructs, relationships or processes, and restriction/moderation of established relationships or processes</td></tr>
<tr><td>Expanders</td><td>Development of new constructs, relationships or processes, while also testing existing theory</td></tr>
<tr><td colspan="4">Procedures</td></tr>
<tr><td colspan="4">1. Description: articles are classified according to whether they attempt to make a significant theoretical contribution (reporter, tester, builder and qualifier, expander);</td></tr>
<tr><td colspan="4">2. Content: articles with significant theoretical contributions (testers, builders and qualifiers, expanders) are examined according the content of theoretical contributions using Whetten's (1989) building blocks as a reference;</td></tr>
<tr><td colspan="4">3. Foundation: articles with significant theoretical contributions (testers, builders and qualifiers, expanders) are classified according to the paradigms described by Gioia and Pitre (1990).</td></tr>
</table>

TYPOLOGY OF CONTRIBUTIONS

Some of the articles surveyed directly address the practice of entrepreneurship education by focusing on programs, methods, frameworks, and models. Other papers address the relationship between entrepreneurship education and other subjects of entrepreneurship research, including entrepreneurial intentions, attitudes, motivations, and propensity. This analysis does not reflect this separation, since it focuses primarily on the type and nature of contributions, and not on the specific insights generated.

Reporters

Most reporters are case studies. Eisenhardt (1989) distinguishes between two types of case studies: those that intend to generate or build theory from data presentation, and those that offer insights of a specific context and do not intend to generate theory. The articles surveyed for this paper that are based on case studies are entirely descriptive, presenting different realities as examples of good practices, and are not intended to generate theory.

Table 4 outlines the reporters surveyed. The case studies describe methods (Bager, 2011; Carey and Matlay, 2011; Clarke and Underwood, 2011); programs and subjects (Rasmussen and Sorheim, 2005; Bonnet et al., 2006; Heinonen et al., 2007; Harkema and Schout, 2008;

Papayannakis et al., 2008; Hyclak and Barakat, 2010); and entrepreneurial universities (Etzkowitz, et al., 2000; Miclea, 2006; Stankovic, 2006; Philpott et al., 2011). When addressing a theoretical framework, some are very concise (e.g. Papayannakis et al. 2008; Hyclak and Barakat, 2010), while in others, theoretical considerations are spread throughout the text (e.g. Heinonen et al., 2007). In some instances, reference to theory is non-existent (e.g. Miclea, 2006; Stankovic, 2006; Clarke and Underwood, 2011). However, there are also case studies that present a well-defined, consistent theoretical framework supporting and contextualizing the reality being studied (e.g. Etzkowitz et al. 2000; Rasmussen and Sorheim, 2005; Philpott et al. 2011).

Other reporters examine the progress of entrepreneurship education in institutional terms, focusing mostly on supply and demand. Among these, Katz (2003) develops the most comprehensive chronology of entrepreneurship education (1876-1999), while Kuratko (2005) proposes some trends and challenges for the 21st century. Some reporters analyze the general state of entrepreneurship education in different countries (Redford and Trigo, 2007; Klandt, 2004; Klandt and Volkmann, 2006; Solomon, 2007), while others focus their analysis on the institutionalization of the field (Finkle and Deeds, 2001; Finkle, 2010). Most reporters have a consistent, well defined framework, with the exception of Klandt's (2004).

Table 4
Outline of the reporters surveyed

Authors	Year Published	Journal	Main findings
Case Studies			
Etzkowitz et al.	2000	RP	Comparative analysis between USA, Latin America, Europe, and Asia links the emergence of the "triple helix" framework with the development of an entrepreneurial paradigm in universities.
Rasmussen & Sorheim	2005	T	A case study of entrepreneurship education in Switzerland, focusing on learning-by-doing and action-based activities.
Bonnet et al.	2006	EJEE	A study of entrepreneurship training at Delft University of Technology focused on engineering innovation and sustainability.
Miclea	2006	HEE	A study of asymmetries in entrepreneurial attitudes at Babes-Bolyai University, focusing on the clash between individual entrepreneurialism and institutional barriers.
Stankovic	2006	HEE	Basic description of entrepreneurial initiatives at the University of Novi Sad.
Heinonen et al.	2007	IHE	Study of the application of an entrepreneurship-directed educational approach in Finland's universities finds that participating students increase their entrepreneurial potential. Student's entrepreneurial intentions influenced the way they perceived program's objectives.
Harkema & Schout	2008	EJE	Examines the foundations of entrepreneurship education carried out at the Center of Excellence in Innovation & Entrepreneurship at the University of Professional Education in The Hague. The competence-based program is based on a constructivist perspective and learner-centered theories where students are stimulated to create their own goals.
Papayannakis et al.	2008	EJEE	Study of the experience in curricula design and implementation for entrepreneurship education at National Technical University in Greece.
Hyclak & Barakat	2010	IHE	Study of the design and implementation of high tech entrepreneurship curricula at Cambridge University.

Bager	2011	IEMJ	Presents a case study of three different Danish training programs aimed at team building, creativity, and innovation promotion.
Clarke & Underwood	2011	IHE	Study of the introduction of volunteering opportunities into business ethics and enterprise modules to develop students' skills in real-life entrepreneurial cases.
Carey & Matlay	2011	IHE	Examines the emergence of online social media in pedagogy, and the roles of risk and responsibility in the assessment and support of business ideas.
Philpott et al.	2011	T	Study of the emergence of an entrepreneurial university, highlighting the divide between disciplines (science, engineering and medicine vs. social sciences and business).
Other Reporters			
Finkle & Deeds	2001	JBV	Finds that, from 1989 to 1998, both the demand for and the supply of entrepreneurship faculty have increased in the US, even though there has been no mandate from the American Assembly of Collegiate Schools of Business for the incorporation of entrepreneurship into the curriculum of all accredited schools.
Katz	2003	JBV	Finds that, in the US, the entrepreneurship education has reached maturity, but growth is likely outside business schools and outside the US. Proposes that there are too many journals, a narrowing focus on top-tier publications and a shortage of faculty overall exacerbated by a shortage of specialized doctoral programs.
Klandt	2004	AMLE	Finds that, from 1998 to 2002 the number of professorships in entrepreneurship has increased in German-speaking Europe.
Kuratko	2005	ETP	Identifies trends and challenges in entrepreneurship education for the 21st century, including: a maturity/complacency/stagnation trap; a research/publications dilemma; and a faculty pipeline shortage.
Klandt & Volkmann	2006	HEE	Reports an increase in the number of entrepreneurship chairs at universities in Germany in the period of 1998-2004.
Redford & Trigo	2007	SVRGER	Reports trends in the development of entrepreneurship education in Portugal.
Solomon	2007	JSBED	Compares the results of a 2004/2005 survey of entrepreneurship education in the US with previous (1977-2000) national surveys, finding that, as the growth trend continued, the use of technology and the Internet started playing a major role in the field.
Finkle	2010	RBEJ	Reports an increase in US faculty positions in entrepreneurship from 1989 to 2008, as well as in candidates. Entrepreneurship tenure track positions have increased when compared with Finkle and Deed's (2001) initial study, suggesting that the field of entrepreneurship is becoming more institutionalized.

Testers

Table 5 shows a summary of the testers surveyed. Most testers examine theories that are not directly associated with entrepreneurship education, focusing instead on entrepreneurial intentions (Oosterbeek et al., 2010; Rodrigues et al. 2010; Sánchez, 2011; Giacomin et al. 2011; Liñán et al. 2011; Lanero et al. 2011); propensity (Kirby and Ibrahim, 2011); attitudes (Lena and Wong, 2003; Shinnar et al. 2008; Teixeira, 2010); and motivations (Kourilsky and Walstad, 2002). Some, however, try to measure the efficacy of entrepreneurship education (Fenton and Barry, 2011) or its impact on different countries (Lee et al. 2005). Some analyze methods (Dutta et al. 2011) and materials (Edelman et al. 2008), while others look at academic entrepreneurship (Klofsten and Jones-Evans, 2000) and faculty entrepreneurialism (Lee and Rhoads, 2004).

A particularly interesting type of testers seeks to evaluate specific entrepreneurship education programs. While some of these cases suffer from selection bias due to elective participation in programs (Fenton and Barry, 2011; Sánchez, 2011), others have devised clever ways to avoid bias (Kirby and Ibrahim, 2011; Oosterbeek et al. 2010). Lee et al. (2005) observe both elective and mandatory programs. While, in general, studies tend to find that entrepreneurial intentions are enhanced by program participation, results differ depending on whether elective or compulsory programs are being observed. In programs where participation is compulsory, participants tend to dislike the program more, which negatively affects entrepreneurial intentions (Oosterbeek et al. 2010).

Table 5
Outline of the testers surveyed

Authors	Year Published	Journal	Main findings
Klofsten & Jones-Evans	2000	SBE	Examines the effects of entrepreneurial experience among academics in Ireland and Switzerland, finding that it translates into a high degree of involvement in consultancy and contract research, but not into organizational creation via technology spin-offs.
Kourilsky & Walstad	2002	IJEE	Looks at the impact of human capital and opportunity on the success of young entrepreneurs. Finds that professional experience and a technology-based idea or opportunity seem to be more important than entrepreneurship education.
Lena & Wong	2003	JEC	Finds that entrepreneurship education programs per se are not enough to promote entrepreneurial intentions and influence business start-up decisions. A positive attitude towards engagement in these programs seems important.
Lee & Rhoads	2004	RHE	Finds that teaching commitment of faculty diminishes with greater commitment to entrepreneurial activities, and also with increases in research funding.
Lee et al.	2005	IEMJ	Finds that the impact of entrepreneurship education on students' entrepreneurial intentions in Korea is much greater than in the U.S. but U.S. students have greater entrepreneurial intentions, probably because of a more entrepreneurship-oriented culture.
Edelman et al.	2008	AMLE	Finds a gap between practice and what is taught to entrepreneurship students and argues that entrepreneurship texts do not emphasize enough the activities that enhance the probability of starting a new venture.
Shinnar et al.	2008	JEB	Finds that student and faculty views on entrepreneurship often differ dramatically.
Oosterbeek et al.	2010	EER	Examines the effects of a compulsory program offered to young Dutch students. Finds that the program had significantly negative impact on entrepreneurial intentions and no impact on entrepreneurial skills.
Rodrigues et al.	2010	IJESB	Finds that (elective) entrepreneurship training has a significant influence on the propensity for new venture creation among students. Personal characteristics have an important role in shaping motivation and perceived hurdles have a negative impact on intentions.
Teixeira	2010	IHE	Finds that students who have business related competences and live in an environment that fosters entrepreneurship have a stronger desire to become entrepreneurs. Work experience and personality traits influence students' attitudes significantly.
Dutta et al.	2011	IEMJ	Finds that depth or specialization of entrepreneurship education helps facilitate the creation of new ventures. However it is breadth or diversity of educational experiences that positively influences future wealth creation.

Fenton & Barry	2011	IHE	Finds that benefits from entrepreneurship education occur mainly at the graduate level, when it is more meaningful, engaging and applied, suggesting that it should be promoted through experiential learning.
Giacomin et al.	2011	IEMJ	Finds that entrepreneurial disposition and intentions, as well as the sensitivity to each motivator and barrier, differ by country (American, Asian and European) but students across countries are motivated and/or discouraged by similar variables.
Lanero et al.	2011	IRPNM	Finds a positive effect of education on perceived entrepreneurship feasibility, which in turn positively affected entrepreneurial intentions by providing individuals with a feeling of personal competence.
Liñán et al.	2011	IEMJ	Finds that entrepreneurship education enhances perceived behavioral control, leading to greater entrepreneurial intentions. However, start-up decisions also depend on the "entrepreneurial orientation" of the individual and not only on perceived feasibility and desirability.
Kirby & Ibrahim	2011	IEMJ	Finds that entrepreneurial propensity of Egyptian students is higher than that of their counterparts in the UK.
Sánchez	2011	IEMJ	Finds that students participating in an elective entrepreneurship program increased their competencies (self-efficacy, pro-activeness, risk-taking) and intentions towards self-employment.

Builders

Builder articles are at the core of theory generation in the field. The examination of the progress of entrepreneurship education through the analysis of published material and the generation of new theoretical contributions and improvements to existing ones has been a concern shared by several authors over the last decade. Béchard and Grégoire (2005) highlight the main preoccupations in the field and develop a typology of them in entrepreneurship education. Pittaway and Cope (2007); Mars and Rios-Aguilar (2010); and Yusof and Jain (2010) develop different frameworks for entrepreneurship in higher education, based on the findings of their surveys. Laukkanen (2000); Fiet (2000b); Honig (2004); Boyle (2007); and Blenker et al. (2011) propose new approaches and models. Fiet (2000a); Shepherd (2004); and Haase and Lautenschlager (2011) propose new methods and pedagogies. Lobler (2006); Barbosa et al. (2008); Fayolle and Gailly (2008); Wollard (2010); Hjorth (2011); and Neck and Greene (2011) propose new programs and frameworks.

No qualifier articles were identified in this survey. Most builders are based on a well-defined, consistent theoretical background supporting and contextualizing the research (Béchard and Grégoire, 2005; Mars and Rios-Aguilar, 2010), while in some the theoretical background underpinning the new theory being built is not well defined but is easy to recognize (Pittaway and Cope, 2005; Yusof and Jain, 2010; Neck and Greene, 2011). A significant literature stream arises from the work by Fiet (2000a, 2000b). The more interesting contributions propose a theoretical framework and apply to a specific program, which is evaluated on the basis of the proposed framework (Laukkanen, 2000; Lobler, 2004; Barbosa et al. 2008). Table 6 summarizes the builders examined.

Table 6
Outline of the builders surveyed

Authors	Year Published	Journal	Main findings
Fiet	2000b	JBV	Appeals for educators to increase the theoretical content in their entrepreneurship courses and points several opportunities to build cumulative theory. A contingency approach for teaching entrepreneurship is proposed.
Fiet	2000a	JBV	Proposes a method to teach theory by establishing a student-approved system to enhance student motivation and participation in the acquisition of competencies.
Laukkanen	2000	ERD	Proposes a business-generating model of teaching, implying a shift of mindsets or paradigms towards the role of the university in generating business strategies.
Honig	2004	AMLE	Presents two alternative experiential models of teaching entrepreneurship: the Experiential Model of Entrepreneurship Education (using simulations and convergent group thinking), and the Contingency Model of Business Planning Education (assimilation of concepts, accommodation of divergent thinking).
Shepherd	2004	AMLE	Argues that failure is an important source of learning for entrepreneurs and proposes the application of a specific pedagogy in the classroom to teach students to manage their emotions when faced with failures.
Béchard & Grégoire	2005	AMLE	Proposes that the literature on entrepreneurship education is articulated around four major types of preoccupations: social and economic roles of entrepreneurship education; systematization of entrepreneurship education; content and methodologies; and the needs of individual students in structuring teaching interventions.
Lobler	2006	TASM	The constructivist approach and an out of school learning environment are used as a theoretical base for entrepreneurship education, deriving principles for the promotion of a self-governed learning process.
Boyle	2007	IHE	Proposes a new model of entrepreneurship education focusing on the development of the individual, more than the dissemination of knowledge. Instruments include entrepreneurial retreats for the development of entrepreneurial thinking, new curricula and individualized entrepreneurial prescriptions, apprenticeships and opportunity centers.
Pittaway & Cope	2007	ISBJ	Develops a framework for entrepreneurship education, identifying key areas for empirical research: general policy climate for entrepreneurship education; general enterprise infrastructure; and contextual factors.
Barbosa et al.	2008	JEC	Proposes an approach for the development of an educational program in entrepreneurship to help students develop their entrepreneurial cognition and risk taking, reducing the risks of failing and of missing good opportunities, and developing both the intuitive and the analytic sides of student's cognition.
Fayolle & Gailly	2008	JEIT	Proposes a framework with two levels (ontological and educational) for the development of a teaching model where five questions should be addressed: why (goals); for whom (audience); for which results (evaluation criteria); what (contents and theories); and how (methods).
Mars & Rios-Aguilar	2010	HE	A framework for strengthening the application of entrepreneurial models to higher education research is introduced, based on the theoretical constructs of entrepreneurship found in the economics and management literature, such as disruption, innovation and value creation.
Woollard	2010	HEE	Proposes a theoretical framework that sees university entrepreneurship as an organizational process within an entrepreneurial system described

			as an input-process-output model with feedback effects of process outputs and outcomes.
Yusof & Jain	2010	IEMJ	Proposes a framework for research into university-level entrepreneurship including entrepreneurship teaching, academic entrepreneurship, and technology transfer.
Blenker et al	2011	IHE	Identifies four paradigms of entrepreneurship teaching and proposes the emergence of a new paradigm: "everyday practice," related with the promotion of an entrepreneurial mindset. Argues that there is a logic progression between the existing paradigms and everyday practice.
Haase & Lautenschlager	2011	IEMJ	Identifies a "teachability dilemma" which emerges because while the importance of the entrepreneurial "know-how" is recognized, such know-how is also very difficult to teach because experience-based soft skills related to the entrepreneurship field are difficult to develop.
Hjorth	2011	ERD	An affect-based theory of entrepreneurial entrepreneurship education is developed in a model of provocation-based entrepreneurial entrepreneurship education (the E^3 model) which supports learning as a social creation process.
Neck & Greene	2011	JSBM	Argues that teaching entrepreneurship as a method that is teachable, learnable, but not predicted, requires practice and focus on a portfolio of techniques to practice entrepreneurship and encourage creating.

Expanders

The expander articles surveyed emphasize theories or frameworks (Fayolle et al. 2006; Kyro, 2008) or methods (DeTienne and Chandler, 2004; Graevenitz et al. 2010). All four expanders identified produce theory that is directly related to entrepreneurship education, except for Graevenitz et al. (2010), who focus on entrepreneurial intentions. All the articles compare their own theory with existing perspectives by applying it to a program and assessing its validity and consistency. Table 7 outlines the expanders.

Table 7
Outline of the expanders surveyed

Authors	Year Published	Journal	Main findings
DeTienne & Chandler	2004	AMLE	Proposes a specific training intervention model based on generativity theory (SEEC: securing, expanding, exposing, and challenging) aimed at developing opportunity identification competences in the classroom.
Fayolle et al.	2006	JEIT	Develops a framework to assess and/or improve the design and execution of entrepreneurship education programs, linking characteristics of the program (setting and audience, type of program, objectives, contents, teaching and training methods, and approaches) with outcomes related with attitudes and intentions.
Kyro	2008	IJBG	Develops a framework that combines learning and teaching for fostering individual meta-competencies (meta-affection, meta-conation and meta-cognition). These three constructs of personality and intelligence interplay and relate with the teaching and risk learning processes.
Graevenitz et al.	2010	JEBO	Proposes and tests a model of learning in which entrepreneurship education generates signals to the students. Using this model it is shown that the course induces sorting, and that entrepreneurship education may not always lead to stronger entrepreneurial intentions.

CONTENT

The testers examined make no significant theoretical contributions and in general it is not possible to detect the presence of Whetten's building blocks of theory development. An exception is Liñán et al., (2011), who identify and relate the "what," "how" and "why" elements and explain their relationships.

In those articles classified as builders, three elements of theory development can be easily identified: "what," "how" and "why." "What" and "how" are related to the theoretical framework where concepts, constructs, variables and their relationships are described. "Why," which relates to the explanation of the theoretical assumptions (explaining the relationships and dynamics between constructs and their application to the entrepreneurship education field), is sometimes under-addressed (Shepherd, 2004; Boyle, 2007). The fourth element of theory development, which is related to testing – "who, where and when" – is usually not addressed in the builder category, although some articles may present a brief, informal, non-systematic evaluation of the programs (Laukkanen, 2000; Lobler, 2006; Barbosa et al., 2008).

The articles classified as expanders, including DeTienne and Chandler (2004); Fayolle et al., (2006); Kyro (2008); and Graevenitz et al., (2010) display consistent elements of theory-development: "what," "how," "why" and "who, where, when." When compared to builders, expanders contribute more significantly to theory since these articles assess the "what," "how" and "why" elements, analyzing temporal and contextual factors, testing the propositions of the theoretical model and thus increasing theory applicability. An analysis of theoretical contributions according to paradigms of theory-building paradigms reveals that a large majority of contributions are rooted in the functionalist and radical structuralist views. Table 8 summarizes testers, builders, and expanders according to the dominant theory-building paradigm.

Table 8
Paradigms of Theory-building

Paradigm of theory-building	Type of article	Nº of articles
Interpretivist	Builders	4
Radical Structuralist	Builders	14
Functionalist	Testers	16
Functionalist-Radical Structuralist Transition Zone	Testers	1
	Expanders	4

All testers are rooted in the functionalist paradigm, where the main goal is to test in order to predict and control, showing how the theory is refined, supported or disproved. There is, however, one tester (Liñán et al., 2011) which should be placed in the transition zone between functionalism and structuralism, due to the coexistence of testing and an aspiration to change reality and practices. These features are also displayed by all four expander articles, which are also classified in this transition zone, (DeTienne and Chandler, 2004; Fayolle et al., 2006; Kyro, 2008; Graevenitz et al., 2010).

Four articles classified as builders are founded on the interpretivist paradigm: Béchard and Grégoire (2005); Pittaway and Cope, (2007); Mars and Rios-Aguilar (2010); and Yusof and Jain (2010). In these articles, the main purpose is to describe and explain in order to diagnose and understand where new concepts and relationships emerge. All the other builders surveyed are rooted in the radical structuralist paradigm, as their main goal is to understand, explain, criticize and act, showing how practices should change.

CONCLUSION

This aim of this paper has been to review the literature on entrepreneurship education over the last decade (2000-2011), focusing in particular on theoretical contributions. The survey shows that theoretical contributions on entrepreneurship education have been increasing and improving in terms of scope and methodology, but there still seems to be a lack of articles that expand knowledge by simultaneously making new theoretical propositions and testing those propositions in new experimental settings. Also, theory-building and theory-testing are still rooted in single paradigms, limiting the generation of more complete and eclectic knowledge.

The present work contributes to the literature by providing an overview of the current state of the field, highlighting main trends and gaps. The application of a taxonomy based on the Business and Management literature to analyze theoretical contributions in the field of entrepreneurship education is original and can provide a means for evaluation of progress in the field over time.

Contribution

Taxonomy of Articles

Although all articles examined are deemed important for the advancement of the field, some have contributed more by going further than just describing the existing reality, by testing existing theory or developing new theories without experimentation. As Colquitt and Zapata-Phelan (2007) argue, theory-building and theory-testing can coexist in the same article, and those who succeed at both presenting a new theory and testing it are likely to make longer-lasting contributions.

More than half of the articles reviewed emphasize theory testing and/or theory development (therefore earning a classification as builders, testers or expanders), showing evidence that the appeal made by several authors (e.g. Whetten, 1989; Van de Ven, 1989; Fiet, 2000b; Rindova, 2008), for more theory has had some resonance in the field. Evolution over the last few years shows that reporter articles (including descriptive case studies) have not increased significantly in number, while testers and builders have. This finding is somewhat at odds with Colquitt and Zapata-Phelan (2007) who report an increase in expanders and a decrease in testers. Since these authors focused solely on articles in the AMJ, our findings seem to show that the literature at large has not – unlike the AMJ – emphasized expanders, and still seems to be more focused on testing existing theories or presenting new theoretical contributions without testing them.

In general, the field of entrepreneurship education does not seem to have evolved as much as would be expected over the 25 years since Ronstadt's (1985:49) diagnosis: "(…) The field is new; it is hard to defend; it has little conceptual substance because it is so young; anyone can kill

a new idea." And, perhaps because entrepreneurship education is still an evolving field (Chandler and Lyon, 2001; Busenitz et al., 2003) where paradigms are still lacking, this survey finds that: (i) there is a strong focus on the analysis of the "current state" of entrepreneurship education; (ii) most builder and expander articles are centered on the development of methods, programs and new theories or frameworks; and (iii) most tester articles are related to theories focusing on subjects other than entrepreneurship education, such as entrepreneurial intentions. One expects that, when the field is more consolidated and institutionalized, there will be a shift in the focus of the theory towards a greater refinement and a clearer emphasis on concepts and processes directly associated with entrepreneurship education.

Theory-building from case studies does not seem to be a common trend, even though this is an appropriate method for early stages of research in a field (Eisenhardt, 1989), like entrepreneurship education. None of the many articles surveyed that report case studies link results from a specific context with literature about other contexts, which compromises their conceptual elevation and generalization of data. Theory-building in entrepreneurship education is, therefore, founded on observations that go beyond specific cases.

Content

This makes theoretical frameworks especially important, as they need to contextualize the domain or subject of theory (Whetten's "what" and "how"). Assessment of articles classified as builders and expanders is positive from this point of view, as most articles do have a consistent, well defined framework. In the tester articles surveyed, a poor or inexistent theoretical framework usually means that the interpretation of patterns or discrepancies with reference to the theory being tested is also poor.

Theory generation in the field of entrepreneurship education is a concern shared by journals focusing on business and management and on education. In the particular case of management journals, the expansion of theory development is in line with Colquitt and Zapata-Phelan's (2007) prediction that theory-building would increase in management literature as the field became more mature. Where the substance of theoretical contributions is concerned, expander articles have the greatest potential to be influential with both academics and practitioners, and it can be argued that there is a shortage of such articles in recent literature. Whetten's four building blocks of theory development are better addressed in the four expander articles identified. By testing their theoretical propositions in real contexts, expanders can better address the key questions postulated by Bergh (2003): (i) in what way does the contribution revise or extend theory development? (ii) is the contribution going to be useful? (iii) will it change the way of thinking about the phenomenon?

A critical issue for the generation of more expander articles is the development of experimental evidence (Whetten's "who, where, when"). This survey supports Colquitt and Zapata-Phelan's (2007) findings that most articles developing new theory do not test their theoretical propositions in experimental settings. Theory applicability is therefore severely limited. Honig (2004) argues that entrepreneurship education seems to be "atheoretical" in the sense that empirical evidence supporting its theories and models is missing. While several authors call for more empirical testing of their own theories or approaches, they do not address this concern themselves. The present article argues that future work should focus on producing more tester articles, following three steps: (i) analyze the existing reality and identify gaps in recognized practice which can be addressed in a general manner; (ii) address these gaps by operationalizing

theoretical propositions that can be applied generally; and (iii) implement and test the theoretical prescriptions in an experimental setting that can provide an accurate impression of the applicability of the theory developed. To illustrate these three steps, an example is provided. The lack of uniformity in the programs offered is mentioned by Gorman at al. (1997) as a gap that should be addressed in future research. Based on the analysis and evaluation of different entrepreneurship education programs, theoretical propositions should be developed regarding the best strategies and practices to implement in the classroom. These strategies and practices should be implemented in the classroom and its impact further evaluated, and a follow-up should be made in order to assess the effectiveness of these measures.

With regard to the empirical testing of theoretical propositions, improvements can be observed when comparing the articles being surveyed here with those that are included in the 10-year literature review by Gorman et al., (1997). In particular, selection bias is more regularly addressed now, as some entrepreneurship education programs have become mandatory, and research has been conducted in those contexts. However, as pointed out above, the mandatory nature of entrepreneurship education can lead to unexpected results (such as a decrease in entrepreneurial intentions), as subjects develop more realistic expectations, becoming more aware that they are not well-suited for entrepreneurial activities. Still, this should not be seen as a negative effect of entrepreneurship education.

Paradigms

Notwithstanding the appeal made by Gioia and Pitre (1990) for a metaparadigm perspective in theory development, most articles concerned with theory in the field of entrepreneurship education remain based on a single paradigm. Almost all tester articles are firmly based on a functionalist paradigm, while builders are founded on the radical structuralist paradigm. Expander articles have a greater potential to straddle these two paradigms, adopting what may be called a multiparadigm, or transition approach, integrating elements of functionalism and radical structuralism. The lack of a true multidisciplinary, metaparadigm perspective restricts a more eclectic, comprehensive analysis of entrepreneurship education. At this stage of development of the field there is still a strong desire to test and change reality, proposing new practices, rather than changing ideologies and criticizing existing structures.

To summarize, it is possible to find logical patterns linking the contents and paradigms underpinning most articles, Expander articles typically, address all four questions posed by Whetten and are rooted in a multiparadigm, transition approach that integrates functionalism and radical structuralism by proposing changes to the accepted body of knowledge and testing these changes in an experimental setting. Builder articles are more limited in the sense that they address only three of Whetten's questions ("what," "why," and "how"), being rooted in the radical structuralist paradigm by proposing changes to the existing knowledge but not testing these changes. Most tester articles address only the "what" question, as they are founded on the functionalist paradigm by developing constructs and variables to test existing knowledge in new settings.

This survey suggests that the literature on entrepreneurship education is focused on what works in the classroom and what tools and models can be used to increase the quality of what can be delivered. As such, it is important to analyze the contribution of entrepreneurship education research towards classroom practices. There is not a consistent body of knowledge or a common framework in entrepreneurship education, which limits the recommendations of best practices for

entrepreneurship educators to adopt. Most articles present specific cases/programs with best practices that work in a specific context, but provide no evidence that these practices may be extended towards a universal approach. Indeed, there is no unequivocal, generalizable evidence on successful practices that might be applied in a widespread variety of contexts. Pedagogical approaches and methods are still, to a large extent, dependent on the objectives, setting, and audience. The best approach for practitioners is to examine the literature and pick out proven strategies and best practices that apply to their specific case. While the adoption of consensual guidelines in entrepreneurship education will probably remain a challenge over the next decade, there are important conclusions to be drawn. Table 9 summarizes the main insights identified in the literature.

Table 9
Main Insights into Best Practices for Entrepreneurship Educators

What emerges from (and for) the entrepreneurial classroom?
Best practices and strategies that entrepreneurship educators should promote: 1. Experiential learning, rather than the transmission of knowledge; 2. Diversity of educational experiences; 3. Learner's active participation and students-approved system to enhance student motivation in the learning process; 4. Multidisciplinary approaches; 5. Direct participation of experienced entrepreneurs in training programs; 6. Experience of failure in the learning process; 7. Risk, responsibility and opportunity identification training; 8. Individual meta competences; 9. Contingency and constructivist approaches; 10. The use of the internet/online social media; 11. A portfolio of techniques to practice entrepreneurship; 12. Adapt the programs to cultural context; 13. Entrepreneurial environment, mindsets and attitudes;

Limitations

This survey is not exempt from limitations. The methodological choices for the search led to a process of selection that might have left out some important contributions to the field of entrepreneurship education. While the coding scheme and categories of analysis chosen fit the purposes of the analysis, important issues may have been left behind. The deliberate choice to concentrate on a period covering roughly the last decade before 2012 means that some recent contributions may have escaped the analysis. It is believed, however, that the articles surveyed provide an accurate overview of the development of research in the field, its main gaps and achievements.

Implications For Further Research

In spite of these limitations there are also important opportunities for future research. Table 10 summarizes the main gaps identified, highlights their consequences, and proposes solutions for addressing those gaps, in order to increase the consistency of the body of knowledge. Based on previous analysis and discussion, several lines of inquiry emerge:

1. To use case studies to build theory; to link case study results with the literature on other contexts (avoiding focusing on context-specific experiences, increasing the generalization of results).

2. To undertake empirical studies testing existing theories and methodologies, and include experimental evidence in all theories or methodologies proposed.
3. To develop a metaparadigm approach to theory-building, involving researchers from different fields.

Table 10
Gaps, Problems, and Opportunities for Future Research

Gaps found	What if those gaps are not filled?	Future challenges or avenues for research
Poor theoretical frameworks.	Limited interpretation of patterns or discrepancies.	To characterize better the frameworks of the studies, defining concepts and their relationships.
Absence of theory-building from case studies; most case studies do not link their findings with other literature.	Fewer insights for the field; conceptual elevation and generalization of data will be conditioned.	To use case studies to build theory following Eisenhardt's (1989) stages; link the results of case studies with the literature on other contexts.
Sample selection bias.	Biased results and problems in the generalization of results.	To focus on compulsory entrepreneurship courses, or on purposeful samples.
Lack of experimental evidence on theories/methodologies proposed.	Theories and methodologies lacking practical validity.	To develop more experimental evidence confronting the new theories proposed and those that already exist in order to assess their validity.
The lack of longitudinal studies that derive causal attributions.	The analysis of causal attributions as modifications of behaviors or other changes occur is not possible.	To conduct longitudinal studies in the field of intentions, intentions-behaviors, and changes on both of them.
The lack of a metaparadigm perspective.	A reductionist vision of reality, instead of an eclectic and comprehensive one.	To analyze the same phenomenon under different paradigms, involving researchers from different fields.
Reduced uniformity in the programs offered.	Lack of consistency in the practice of entrepreneurship education.	Instead of creating whole new programs, use previous and already developed programs and build upon them, testing the effects of incremental changes.

The booming pursuit of entrepreneurship education over the last few decades has attracted a growing interest in entrepreneurship education research, leading to an increasingly rich field of study, although characterized by some inconsistency of the body of knowledge, which is reflected in the quality of theoretical contributions, and in the consistency of guidelines to adopt in the entrepreneurial classroom.

It is possible to conclude that theoretical contributions to entrepreneurship education have been increasing and improving, especially thanks to publication of greater numbers of tester and builder articles. New, different ideas have emerged, been articulated, organized, and connected, suggesting new directions for researchers (Rindova, 2008). However, there is still considerable scope for improvement, in particular through the development of more expander articles that make new theoretical propositions and test them propositions in new experimental settings. Theory-building and theory- testing are still rooted in single paradigms, limiting the generation of more complete, eclectic knowledge.

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