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**Evolving conversations: a look
at the convergence in
entrepreneurship research**

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EVOLVING CONVERSATIONS: A LOOK AT THE CONVERGENCE IN ENTREPRENEURSHIP RESEARCH

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Abstract

This research presents an empirically grounded picture of the converging conversations shaping the field of entrepreneurship. We analyze the 13 593 references cited in the 752 papers published in the FER Proceedings between 1981 and 1999. The results show that five converging axes have been attracting entrepreneurship scholars over time: research on personal characteristics of the entrepreneur, on factors affecting new venture performance, on venture capitalist's practices and their impact on entrepreneurship, on the influence of social networks, and research drawing from a resource-based perspective.

Résumé

Cette recherche présente un portrait empirique des conversations académiques qui, en convergeant, structurent le champ de la recherche en entrepreneurship. Nous y analysons les 13 593 références citées dans les 752 articles publiées dans les Actes des Conférences de Babson (Frontiers of Entrepreneurship Research) entre 1981 et 1999. L'analyse révèle 5 axes de convergence qui, au cours des années, ont attiré les chercheurs en entrepreneurship : les caractéristiques personnelles des entrepreneurs; les facteurs affectant la performance des nouvelles entreprises; les pratiques des investisseurs en capital de risque et leur impact sur l'entrepreneurship; l'influence des réseaux sociaux; et les recherches inspirées par la perspective des ressources et compétences.

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IS THERE CONVERGENCE IN ENTREPRENEURSHIP RESEARCH?

Considering the fragmentation that seems to be plaguing entrepreneurship, Aldrich and Baker (1997) remark that in young scientific fields, where there is little consensus on definitions or approaches, convergence is arrived at “because researchers are *attracted* by the initial progress made by early investigators.” In this light, they suggest that “influence comes from exemplary research, not from the propagation of rules or admonitions” and conclude that “the field will be shaped by those who produce research that interests and attracts others to build on their work (Aldrich & Baker, 1997: 398).” Surprisingly however, their own search for convergence focuses not on exemplary works, but on the research designs, samples, and methods used by entrepreneurship scholars. Even in a recent account of national differences in entrepreneurship research, Aldrich (2000: 5) repeats a conclusion that he and Baker made in 1997: “Judging from normal science standards, entrepreneurship research is still in a very early stage. If no single powerful paradigm exists, then there is even less evidence for multiple coherent points of view (Aldrich & Baker, 1997: 398).”

Many authors have published literature surveys and conceptual syntheses that look at the forces driving the field (e.g. Bygrave & Hofer, 1991; Low & MacMillan, 1988). From a more empirical standpoint, Shane (1997) examined the impact that specific authors (and institutions) had on entrepreneurship research by counting the number of publications in 19 academic journals deemed of high-quality. Adjusting for co-authorship and a journal’s standing, he found that he, MacMillan, Covin, Birley and Bygrave were the five scholars who had the most *impact* in the field. But while interesting, this observation still does not tell whether these scholars’ publications lead to converging streams of research. Closer to the idea that scholars build upon each other’s work, a few studies look more closely at the *references* found in entrepreneurship articles. For instance, Ratnatunga and Romano (1997) analyze the references found in 725 articles from six journals associated with small enterprise research between 1986 and 1992. Sorting out the most cited articles in three publication periods (1975-80; 1981-85; 1986-92), they find the personal characteristics of entrepreneurs to be the only consistent topic of research over time. Along the same vein, Béchar (1997) compares the references in four entrepreneurship journals and observes two distinct paradigms emerging from the literature: the *economy* of entrepreneurs (a focus on the *variables* of entrepreneurship) and the *society* of entrepreneurs (a focus on its *processes*).

By virtue of their empirical approach, these studies offer a convincing account of what the most influential works in entrepreneurship could be. Still, it is not clear whether the “classics” that they identify necessarily lead to the kind of convergence that Aldrich and Baker are alluding to. Moreover, it is not evident from these classics *alone* what the convergence is about – if it exists at all. From a citation point of view, identifying such convergence would be more compelling if it revolved around a few references *repeatedly cited together*. In other words, the *relationships* between the most frequently cited works would arguably be a stronger indication that scholars are converging on a given topic or approach.

In light of these observations, we investigate the question of convergence by looking not at the samples, definitions, methods or most published authors, but rather by focusing on the co-citation relationships between the most cited references used by the field’s participants. Because it emphasizes the

interplay between various conversations and their evolution in time, our portrait of entrepreneurship research makes three contributions. First, by using a methodology that goes beyond classical analyses of “the most commonly cited works”, we provide a more refined answer to those seeking convergence in the exemplary works from which people are building their own research. Second, we not only highlight what the most influential titles are, but also show how various conversations are linked to one another, thereby hinting at some important characteristics of the field as a whole. And third, we believe that our “mapping” of the field can help policy officials and practitioners make sense of a rapidly growing body of research, and find ways in which they can engage in those very conversations that are shaping the field. In the end, we believe that our picture of the field contributes to a better understanding of the theoretical and methodological issues that animate, as Venkataraman puts it (1997:120), our “invisible college” of entrepreneurship scholars.

OBJECT OF STUDY AND METHOD OF RESEARCH

This paper analyzes the 13 593 references cited in the 752 full-length papers published in the Babson / Kauffman Conference’s Frontiers of Entrepreneurship Research Proceedings between 1981 and 1999. Five observations support the choice of this particular series as a representative sample of entrepreneurship research. First, the Conference is generally seen as an important forum for entrepreneurship scholars (Aldrich and Baker, 1997: 379). Second, the series is arguably representative of the entrepreneurship research presented in *other* academic journals (Aldrich and Baker, 1997: 394). Third, the Conference presents a somewhat more “global” picture of the field than individual journals – the more so if we consider its international character. Fourth, the Conference’s 19-year record offers a comprehensive picture of the evolution of various research streams. And fifth, we agree with Aldrich and Baker that “by nurturing particular types of research, (the Babson Conferences) may have contributed to the standardization of research practices in entrepreneurship and created a core community of researchers who can play gatekeeper roles in the profession and enforce its gradually emerging standards (1997: 394).” Hence, it is our assertion that the Babson / Kauffman Conference Proceedings offer a valid illustration of the citation practices that have characterized the field of entrepreneurship research over the period considered.

The analysis of this corpus is based on co-citation analysis, a technique that is widely used in the sociology of science and technology. In entrepreneurship proper, Déry and Toulouse used the technique to offer a detailed account of the social structuration of the field – as evidenced by the Journal of Business Venturing between 1986 and 1993 (Déry & Toulouse, 1996). The present paper expands on this first study.

The research was accomplished in three methodological stages. In the first stage, the references cited in each 752 articles studied were inventoried. In the second stage, this inventory was used to create a co-occurrence matrix, where all the source articles citing a similar reference were paired together. The graphical representation of these co-occurrences leads to the identification of *networks* of cited references. In essence, what these networks represent are the co-occurrence relations that exist between different titles cited in the 752 source articles. As such, these co-occurrence relationships can be interpreted as conditional probabilities that is, the probability of finding reference “y” when reference “x” has already been cited in a given text. In the third stage of the research, these networks of references were content analyzed for the commonalities shared by the co-cited titles, therefore highlighting the axes of convergence that have animated entrepreneurship scholars publishing in the Babson / FER Proceedings.

Two methodological considerations are worth noting before moving to the actual mapping of converging references. First, and in order to present a *manageable* picture of the field, we only consider the titles that are cited more than 15 times. Our argument is that to represent a potential point of convergence, a reference has to be present in at least 2 % of the 752 articles studied (citation frequency

threshold). Second, we posit that for two works to form a potential axis of convergence, the co-occurrence between them has to be at least 25 %. This decision rule means, for instance, that a “meaningful” relationship will be said to exist between two references cited 15 times only if both texts are cited together a minimum of four times (i.e. $4/15 = 26,6\%$). Note that we are not passing any judgment on the statistical *significance* of co-occurrence relationships, but are rather striving for the identification of cogent patterns.

DESCRIPTION OF FINDINGS: FER 1981-1999

Figure 1 presents the co-occurrence networks between the 44 titles most frequently cited in the FER corpus over the period 1981-1999. At first sight, a number of conversations are anchored around Porter’s seminal piece of 1980. Most notably are two clusters of works focusing on *new venture performance*. A first one (P1) is found in the upper right hand of the figure and is illustrated by Sandberg (1986) and Brush and Vanderwerf (1992). The central concern of this cluster is perhaps best summarized by the question “how can we measure new venture performance?” A second cluster is found much lower in the network (P2), and is organized around Sandberg and Hofer’s (1987) article. In a way, this discussion focuses less on measurement issues as on how various factors affect new venture performance. For instance, Van de Ven et al. (1984) explore the performance of 14 new educational-software firms from three different perspectives (entrepreneurial, organizational and ecological) at two different stages of development. Similarly, Sandberg and Hofer (1987) test a number of propositions about the respective influence of entrepreneur’s characteristics, industry structure and strategy, as well as their interactions. And Eisenhardt and Schoonhoven relate “characteristics of the founding top-management team, strategy and environment to the sales growth of newly founded U.S. semiconductor firms” (1990: 504). Interestingly, this later text ties to Stinchcombe’s (1965) discussion of the *liability of newness*, while Sandberg and Hofer’s article leads to a different network focusing on venture capitalists’ decisions.

Still under Porter’s competitive strategy umbrella, but moving away from the emphasis on industry structure, we find a relatively tight cluster of works that focus on a firm’s set of *resources and capabilities* as the determining factor of competitive advantage – the so-called Resource-Based Perspective (RBP). Most representative of this perspective are Barney’s (1991) and Wernerfelt’s (1984) seminal articles. Also included are two older books by Penrose (1959) and Miles and Snow (1978). The relationship between Wernerfelt’s (1984) text and Churchill and Lewis’ (1983) paper suggests that scholars using the RBP have sought (among other things) to link specific resources and capabilities to distinct stages of growth. In any case, the presence of such a tight cluster indicates that entrepreneurship scholars have drawn significantly from the RBP, even if at this stage, we cannot identify more specific topics for which this approach has been used.

Leaving aside these strategic concerns, we find two sub-networks anchored by McClelland (1961) and which are concerned primarily with the *person of the entrepreneur*. The first group (E1) is rather loosely tied and is comprised of books or chapters that review past research on the social or psychological dimensions of entrepreneurship (e.g. Brockhaus, 1982; Shapero and Sokol, 1982), and/or propose more specific models or theories, such as *locus of control* (Rotter, 1966) or *life path change* (Shapero and Sokol, 1982), to explain why certain people engage in entrepreneurial activities. It is worth noting that two conceptual pieces *link* (L) this later network on the person of the entrepreneur and the first cluster focusing on new venture performance: Gartner’s (1985) integration of individual, organizational, environmental and process characteristics in a model of new venture creation, and Low and MacMillan’s (1988) review of the field’s advances. This link is further supported by Carland et al.’s (1984) argument that the pursuit of innovation is the differentiating characteristic between entrepreneurs and small business owners. Together, these three conceptual works seem to act as pivotal references for those scholars linking differences in performance to differences in individual, organizational and strategic characteristics.

The second group of works concerned with the person of the entrepreneur is more tightly knit (E2): not only are they almost all related to *both* McClelland (1961) *and* Vesper (1980), they also share many links with one another. Perhaps more clearly than in the previous sub-network, the central concern of this cluster lies in investigating specific factors affecting a person's *decision to launch* a new venture. Examples of these factors range from need for achievement (McClelland, 1961), risk-taking propensity (Brockhaus, 1982) or subjective perception of risk and ability (Liles, 1974) to personal antecedents (Collins and Moore, 1964), personal characteristics (Hornaday and Aboud, 1971) or more immediate situational factors (Shapero, 1975). In this case however, it is Schumpeter's 1934 book that links this group of works to other influential titles, such as Porter's 1985 book on the internal underpinnings of competitive advantage, Penrose's 1959 piece on firm growth and Eisenhard and Shoonhooven's (1990) and Stinchcombe's (1965) works on founder's and environmental influences on new venture survival.

As we have noted above, another group of works converge on *venture capitalists'* (VCs) roles and practices. Anchored by MacMillan et al.'s (1985) exploration of VCs' decision criteria, this tightly knit network has three other poles: Tyebjee and Bruno's (1984) model of VCs investment process, Gorman and Sahlman's (1989) description of VCs' activities, and Sapienza's (1992) study of VCs' involvement in funded ventures. It is interesting to note that such convergence on venture capital topics shares an important link with works focusing on new venture performance, something that is perhaps best seen in Sandberg and Hofer's (1987) use of VCs' decision criteria as predictors of new venture performance. Stuart and Abetti's (1990) study linking experience factors to early venture performance also appears as a relatively influential work, even if not specifically tied to the above performance networks other than through MacMillan et al. (1985).

Two smaller axes of convergence also appear in our picture. The first network (D) brings together Pfeffer and Salancik's (1978) and Williamson's (1975) influential books and can be described as a concern for the effect of *structural and economic dependence* relationships. The second axis (N) is centered on "the role of (social) *networks* in the entrepreneurial process" and rests on Aldrich and Zimmer's (1986) and Birley's (1985) articles. Finally, the six remaining works in this global picture (i.e. Birch, 1979; Cyert and March, 1963; Drucker, 1985; Hambrick and Crozier, 1985; Jensen and Meckling, 1976) do not lead to additional networks. This does not mean that such references have not inspired valuable research in their own right, but rather that such research has not (yet) generated more organized axes of convergence within the field.

EVOLUTION IN TIME: FOUR PORTRAITS

In exploring whether these axes of convergence have evolved in time, we agree with Ratnatunga and Romano's contention that "any approach to selecting cut-off points is, however, inherently arbitrary (1997: 202)." Nonetheless, because our intention is less to identify the precise points when networks have been shifting as to investigate whether such shifts *did* occur, separating the corpus in four more or less equal periods made more practical sense than testing every possible period length and cut-off point. Still, a methodological word of caution is in order. Because we are considering limited periods with considerably less source articles, we need to adjust the threshold parameters used to establish the citation networks. Doing otherwise would result in networks so complex as to prevent any attempts of synthesis. Therefore, we raise the minimum citation frequency from 2 % of the total corpus to 2,5 % of the limited set of articles from the period under study. Similarly, we postulate that for two works to represent a "meaningful" axis of convergence over the period, the co-occurrence relationship has to be at least 50 %.

FER 1981-1985: The characteristics of entrepreneurs as a defining theme

Quickly glancing at the most cited titles on figure 2, there is no doubt that concerns about the *personal characteristics of entrepreneurs* dominated entrepreneurship research presented during the first

half of the 1980s. We more or less meet the same titles noted in figure 1 and that centered on why certain people decide to create new businesses (P2). But unlike what was observed in the aggregate network, these concerns for the person of the entrepreneur are no longer anchored by Vesper (1980) and McClelland (1961), but rather by Collins and Moore (1964/1970). New entries also tie to the network, such as Hull et al.'s (1980) piece on personality traits.

Over and above this general focus however, three underlying concerns further color the picture. First, the works of DeCarlo and Lyons (1979) and Schwarz (1976) indicate that in the early 1980s, a number of scholars were converging on the study of *female entrepreneurs* – and sometimes with additional considerations for minorities (F). Along the same vein, a second network (T) focuses on the characteristics associated with *technical entrepreneurs*. Although it is graphically more spread-out, such sub-network is nonetheless very tightly knit, with strong relationships between four pivotal works: Cooper (1973); Roberts (1968); Roberts and Wainer (1971); and Wainer and Rubin, (1969). In both cases, the ties with the larger network indicate that these research streams further attempted to delineate the individual characteristics of entrepreneurs. Finally, a third small and isolated network (M) denotes more *managerial concerns* for the performance of different entrepreneurs, as it links Hoad and Rosco's (1964) study of management factors contributing to performance to Smith's (1967) typology of craftsman and opportunistic entrepreneurs. Beyond these delineations however, the period's strong focus on the person of the entrepreneur still is manifest.

FER 1986-1990: Parallel conversations exhibiting little convergence

If there is one defining characteristic of the period represented in figure 3, it is the prominent *fragmentation* of the corpus cited by participants to the 1986-1990 Conferences. We can count up to 8 loosely tied parallel conversations. But while these conversations often cover related topics, they fail to generate clear-cut convergence around a cluster of titles. For instance, two parallel networks focus on *new venture performance* (P1/2): Van de Ven et al. (1984) and Roure and Maidique (1986) on one side– the later with a distinct focus on high-technology ventures, and Sandberg and Hofer (1987) and Stuart and Abetti (1987) on the other. Similarly, there are two unrelated clusters centered on the *personal characteristics of entrepreneurs* (E1/2). First, Carland et al.'s (1984) differentiation between entrepreneurs and small business owners is linked to two separate texts: Churchill and Lewis' (1983) five-stage growth model and Brockhaus's (1982) review of the psychology of the entrepreneur. A second more scattered network links McClelland (1961) with Smith (1967), Smith and Miner (1983) and Rotter (1966), apparently grounding personal characteristics research on different types of entrepreneurs. Finally, two distinct dyads focus on the interface between *venture capitalist's* activities and entrepreneurship (V1/2), but without apparent dialogue between them. On the one hand, both MacMillan et al.'s (1985; 1987) pieces zero in on the decision criteria of VCs and their possible impact in terms of performance. On the other hand, Bygrave (1987) and Timmons and Bygrave (1986) look at venture capitalists' practices and consider their role in fostering economic growth. Two other axes of convergence remain isolated: a first one links Porter's (1980) model of industry structure and strategy to Abell's (1980) text on strategic planning and the importance of "defining the business"; the second one is interestingly constituted of textbooks focusing on the entrepreneurship process (e.g. Ronstadt, 1984; Timmons et al. 1985; Vesper, 1980). Again, no meaningful relationships link these parallel axes to other conversations.

FER 1991-1995: Structuring the field around a strategic perspective

Contrary to the previous period, the references used by entrepreneurship scholars in the first part of the 1990s appear more organized, with four or five central works linking various others (see figure 4). However, these central works don't necessarily preside over tightly knit clusters, but over focused lines of research, often represented by a single title. Having said that, the principal novelty in the period is the establishment of Porter's 1980 book as one of the principal anchor of the field. With its strong links to

both Andrews' (1971) and Miles and Snow's (1978) seminal pieces, there is no doubt that the field now revolves around a *strategic impetus*. Nested under Porter's umbrella are two sub-networks concerned with *new venture performance* (Ps): as in the aggregate picture, these sub-networks spur from two adaptations of Sandberg's dissertation (Sandberg, 1986 and Sandberg and Hofer, 1987). Interestingly, *both* networks are further delineated in terms of entry strategy and barriers of entry, principally through the works of MacMillan and Day (1987) and McDougall (1987). Similarly, these concerns for new venture performance are linked to research on *venture capitalist's* decisions (e.g. Gorman and Sahlman, 1989; MacMillan et al., 1985; MacMillan et al., 1988; Tyebjee and Bruno, 1984), but this time through an earlier work by Stuart and Abetti (1987). Although not related to other works, Kazanjian's (1988) study linking specific strategic concerns to four stages of growth also makes a noteworthy entry in the *strategy* network.

Beyond these strategic considerations, four parallel networks emerge from the 1991-95 picture, this time under the "leadership" of Gartner's (1985) article and Vesper's (1980/90) book: a first set of *conceptual works* (C) further delineated by Low and MacMillan (1988) and Carland et al. (1984); a second group of works (O) looking at new venture creation from a *population ecology* perspective (e.g. Aldrich and Auster, 1986; Stinchcombe, 1965); a third cluster (X) perhaps best described by a concern for linking *personal antecedents and experience* to various forms of entrepreneurship and levels of performance (e.g. Cooper and Dunkelberg, 1986; Stuart and Abetti, 1990); and a fourth set (R) of seminal pieces reviewing the *psychological and social characteristics* of the entrepreneur (e.g. Brockhaus, 1982; Shapero and Sokol, 1982). Three smaller networks remain unconnected with the rest: a first pair (1) focuses on the influence of social networks (Aldrich and Zimmer, 1986, Aldrich et al., 1987); a second (2) stems from Churchill and Lewis' (1983) and Tyebjee et al.'s (1983) works on the stages of venture growth; and a third group (3) linking Eisenhardt (1989) and Yin (1989) echoes the field's reliance on case studies in its investigations of entrepreneurship processes.

FER 1996-1999: Enter the Resource-Based Perspective

If the previous period marked the consolidation of the strategic impetus, the period depicted in figure 5 is clearly the domain of the *Resource Based Perspective* (RBP). Two kinds of works are illustrated in this dominant network. A first pole (A) is comprised of classic references of the RBP (e.g. Barney, 1991; Dierick and Cool, 1989; Penrose, 1959; and Wernerfelt, 1984). A second pole (B) is made of texts more directly associated with entrepreneurship studies: in addition to the Gartner (1985) and Churchill and Lewis (1983) pieces seen before, four titles make a strong appearance on this sub-network: Chandler and Hanks' (1993) investigation of capabilities that affect performance; Stevenson and Gumpert's (1985) contrasting picture of entrepreneurs' and administrators' "thought patterns"; Brush's (1992) review of female entrepreneurs' research, and Duchesneau and Gartner's (1990) profile of start-ups in an emerging industry. Interestingly, Chandler and Hanks' (1993) text ties to Brush and Vanderwerf's (1992) piece on performance measurement, and then to a sub-network of strategy formulation texts including both Andrews' (1971) and Hofer and Schendel's (1978) books. Additionally, Chandler and Hanks' (1993) text also ties to a nexus of works focusing on *new venture performance* (P), and that through the bridge formed by two books on organizations' relationships to their environment, Pfeffer and Salancik (1978) and Aldrich (1979) – the latter which is also tied to Cooper et al.' (1994) study of human and financial capital. In addition to Sandberg and Hofer's (1987) JBV article, this sub-network is now delineated by Miller and Camp's (1985) study of factors affecting the performance of corporate ventures, and McDougall et al.'s (1994) exploration of industry growth and strategic breadth. Clearly then, the use of the RBP has not detracted entrepreneurship scholars from investigating factors affecting new venture performance.

Above this network (S), we note a loosely tied group of more conceptual works perhaps best characterized by a concern for the *influence of external structures* (e.g. Granovetter's (1985) discussion of under- and over-socialized actors, Hannan and Freeman's (1984) seminal piece on population ecology,

Larson's (1992) study of social control in entrepreneurial settings, and Stinchcombe's (1965) now familiar discussion on the liability of newness. These work further tie to both Nelson and Winter's (1982) and Williamson's (1975) discussions on the nature of the firm. Included in this network is also Cohen and Levinthal's (1990) proposition that innovative performance is path dependent, an argument that ultimately links this group to the above RBP network.

Interestingly, research focusing on venture capitalists (VCs) exhibits a level of sophistication that was absent from previous pictures. Two networks are now emerging. Anchored by Sapienza's (1992) article, the first one focuses on VCs' *contribution to new venture successes*. Representative of this focus are Ehrlich et al. (1994), Gorman and Sahlman's (1989) and MacMillan et al.'s (1988) articles, all published in JBV. The second network focuses more clearly on VCs' *decision process*: in addition to the now classic pieces of MacMillan et al. (1985) and Tyebjee and Bruno (1984), we now note Hall and Hofer's (1993) verbal protocol analyses of VCs' evaluation decisions and Roure and Keeley's (1990) study of the factors predicting success in high-technology ventures. Worth mentioning is that the link between these two streams of research is made through Gupta and Sapienza's (1992) study of the strategic preferences of venture capital firms.

Three weakly connected networks make an interesting appearance. A first link between Timmons et al.'s (1987) Babson presentation and Kirzner's (1973) seminal book suggests an emerging focus on opportunity recognition (1). Further down, a more extensive network (2) links Lumpkin and Dess's (1996) clarification of entrepreneurial orientation, Covin and Slevin's (1992) model of entrepreneurship as firm behavior and Dess et al.'s (1997) tests of contingency and configurational models. Finally, a small network ties Sexton and Bowman-Upton's (1991) book on creativity and growth to Covin and Slevin's (1997) chapter on high growth transitions (3). In a way, these last two networks perhaps suggest the emergence of an entrepreneurial view of strategy making.

INTERPRETING THE RESULTS OF CO-OCCURRENCE NETWORKS

Has there been convergence in entrepreneurship research? Manifestly, yes. At the aggregate level, conversations about the variables affecting new venture performance, the factors affecting a person's decision to launch a new business, venture capitalist's practices and their impact on entrepreneurship and economic growth and the influence of social networks have all been important focal points, as have been more seminal pieces about industry structure, strategic positioning and the resource-based perspective. However, the four period-analyses show that these conversational axes have evolved over time. Contrary to Ratnatunga and Romano's (1997) observation about small business research between 1986 and 1992, we find that "the personal characteristics of entrepreneurs" has *not* been a "consistent topic" over the 1981-99 period: indeed, while it clearly dominated the Babson Conferences in the first part of the 1980s, this topic waned over the subsequent years. In its place, a resolutely strategic focus emerges as the dominant umbrella under which entrepreneurship scholars are positioning their work.

In a way, the observation that the number of cited titles increases steadily as we move from period to period (from 1 533 different titles between 1981-85 to 3 335 between 1996-99 – see figures 2 to 5) is a good indication that the *body of knowledge* mobilized by entrepreneurship scholars has grown exponentially. Similarly, we observe that the *core* of this body of knowledge expands with time, moving from 29 key-references in the first period to upward of 70 in the last period. However, such growth in academic knowledge does not necessarily lead to more convergence. As we've seen, the move from entrepreneur's personal characteristics to a strategic focus generated many parallel conversations that often failed to coalesce into a more tightly organized literature.

Similarly, it is important to highlight that the levels of convergence observed in this study are still relatively low. For instance, figure 1 shows us that the most frequently cited title (Porter, 1980 – cited 47

times) is found in only 6,25 % of the 752 articles studied. Similarly, only 5 titles are found in more than 4 % of the corpus (i.e. are cited more than 30 times), and 17 are cited more than 20 times (i.e. are found in more than 2,8 % of the corpus). Comparable levels of citation frequencies can also be observed for each of the by-period analyses, with the most cited titles rarely found in more than 10 % of the articles for the period under review. Immediately, this tells us that the corpus of references analyzed here is highly fragmented, an observation that is consistent with Ratnatunga and Romano's (1997) findings about small business research, where the most frequently cited title appeared in only 38 of 725 articles (5,24 %). That being said, it is important to bear in mind that by their very nature, conferences like the Babson / Kaufmann FER one are more likely to present a diverse all-encompassing picture than would be more focused ones. Similarly, the portrait generated from conference proceedings is also likely to be more diffuse than that offered by a single publication outlet. As a point of comparison, an earlier study noted that the most cited titles in the *Journal of Business Venturing* between 1986 and 1993 were found in 13,1% of the articles (Déry and Toulouse, 1996). Still, the relatively low levels of convergence found here highlight the eclectic nature of the field. In the end, entrepreneurship appears less characterized by a dominant paradigm as by successive *pockets of convergence*.

At a more general level, it is worth observing that aside from a few conceptual works and research on venture capital, the main anchors toward which the field is gravitating are often less associated with entrepreneurship *per se* as with other disciplines, and with strategy in particular. In a way, this indicates that if there is convergence in entrepreneurship research, it is more on an object of study, and not (yet) on a specifically distinct body of knowledge – at least from a theoretical point of view. But in and of itself, such finding is perhaps not so surprising, as it clearly reflects current debates that question the field's overall distinctiveness, and particularly with respect to strategy (Ireland et al., 2001; Shane & Venkataraman, 2001; Zahra & Dess, 2001).

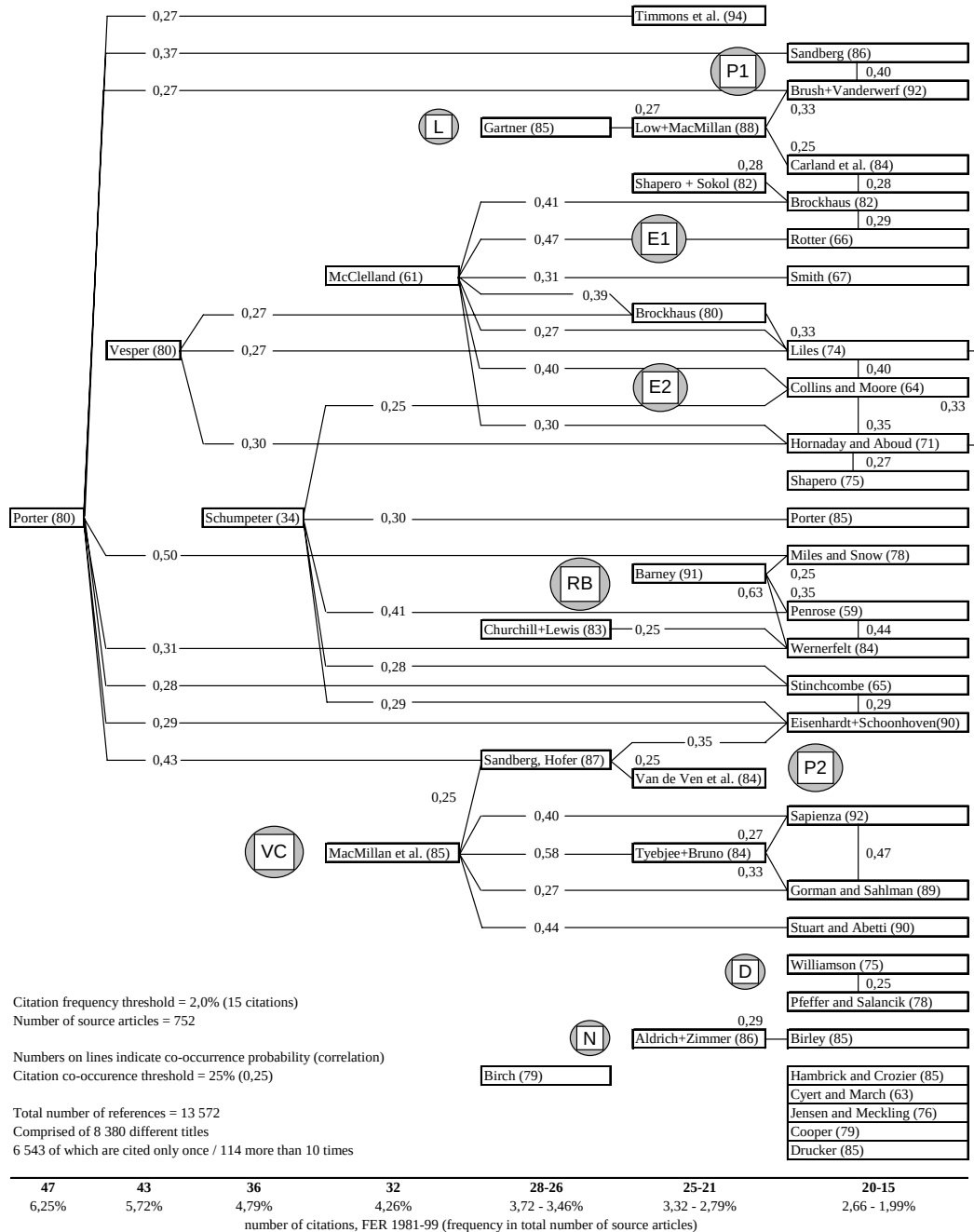
In the end, what our analysis shows is that throughout the last 20 years, there *has* been convergence in the field of entrepreneurship. However, such convergence has not been stable and remains relatively low, as older conversations tire off and new ones take over. In this light, it may be true that our field is still in its adolescence. Still, the mix of convergence and diversity that permeates through our findings remind us that this field is neither plagued by the conformism of single paradigms nor by the anarchy of total fragmentation. What better place then to find rich opportunities for research?

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Figure 1 Co-occurrence network of references, FER Proceedings, 1981-1999



N.B. Given the limited space available, the full references of the titles presented in figures 1 through 5 are not listed in the present paper. The 11-page document is available upon request from the first author.

Figure 2: Co-occurrence networks of references, FER Proceedings, 1981-1985

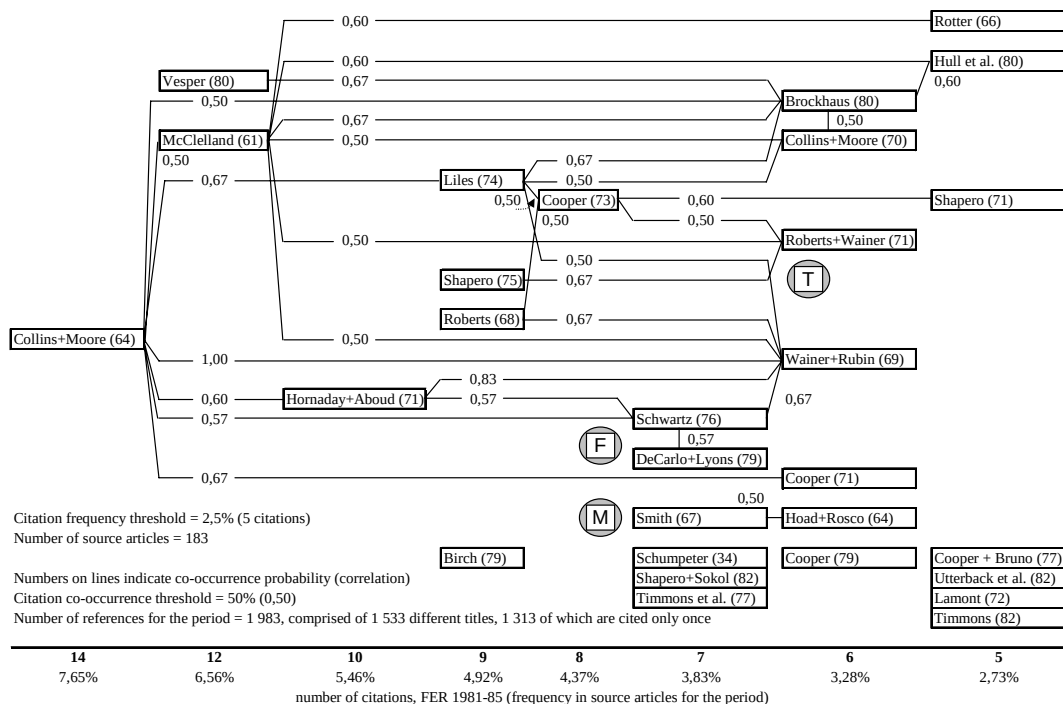


Figure 3: Co-occurrence networks of references, FER Proceedings, 1986-1990

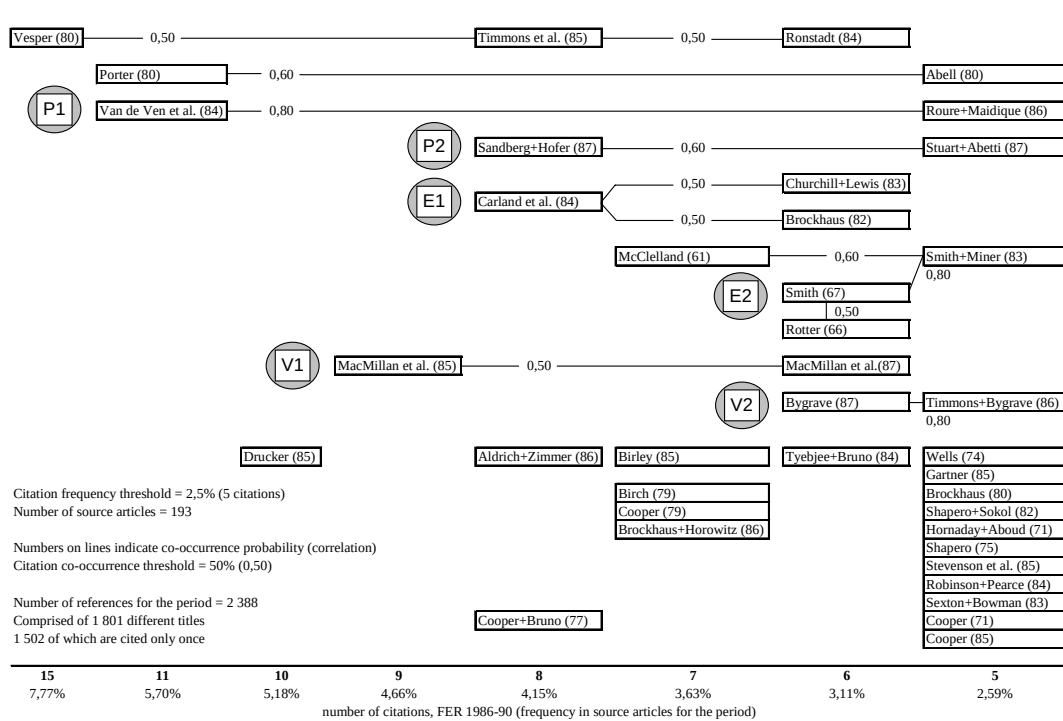
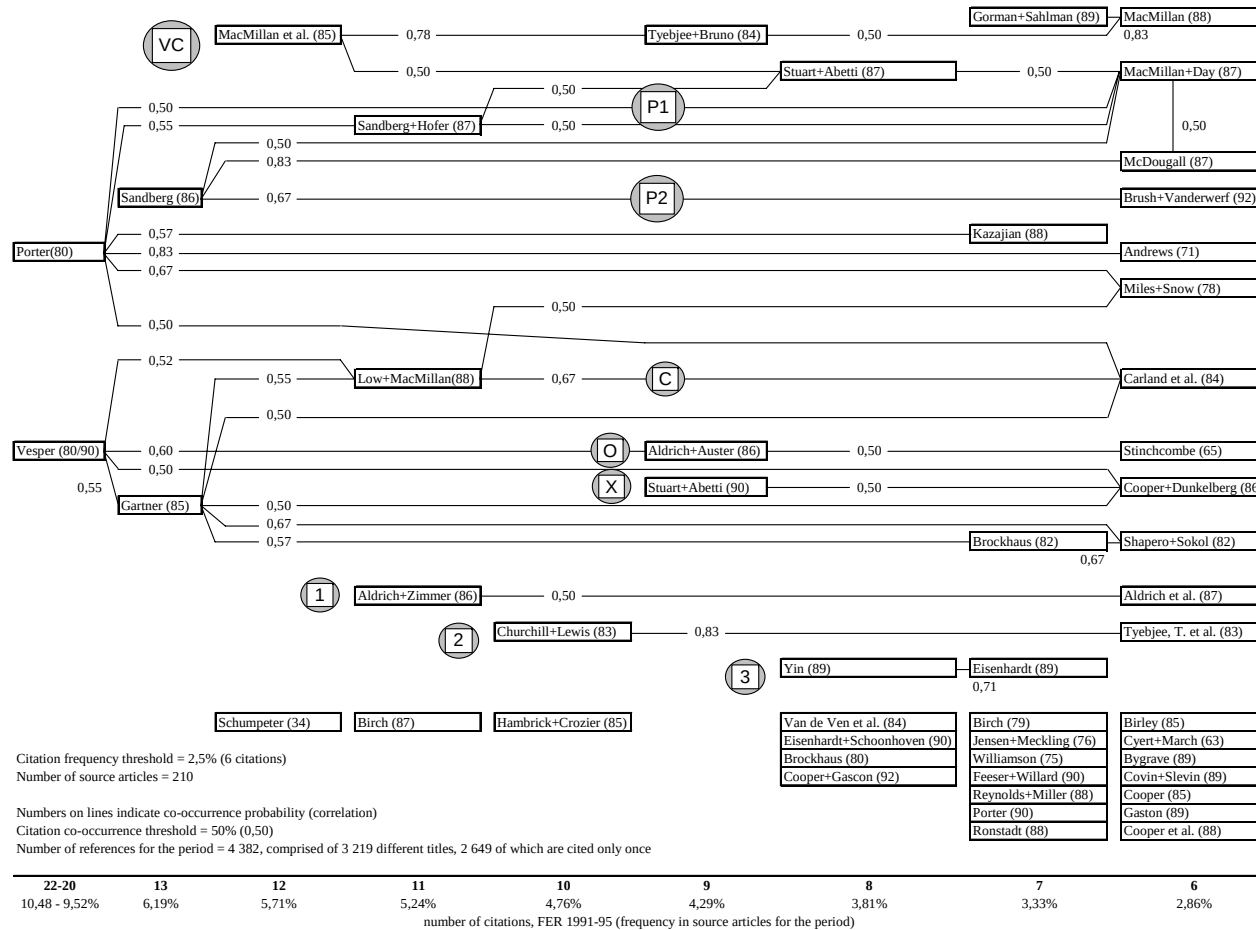
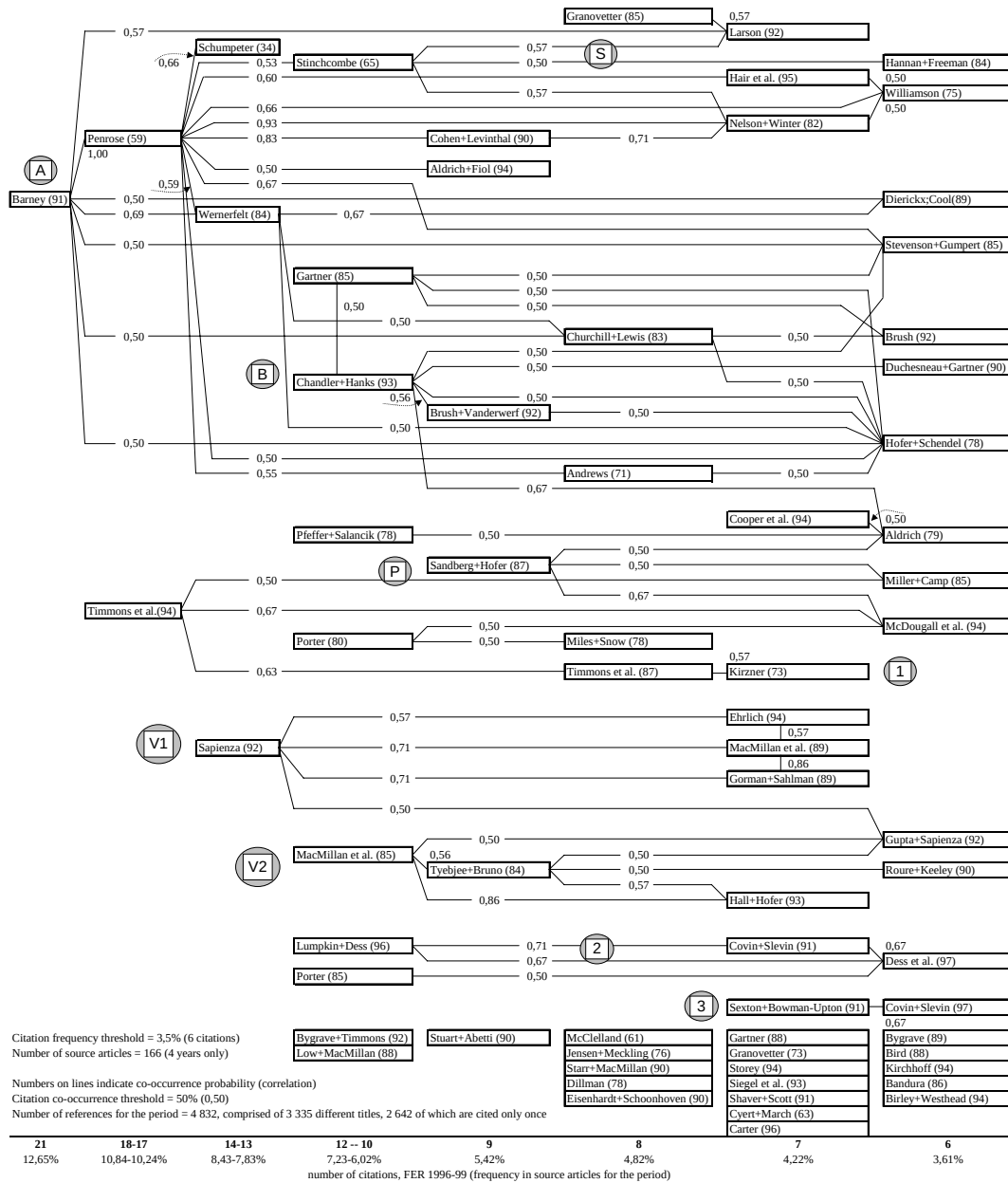


Figure 4: Co-occurrence networks of references, FER Proceedings, 1991-1995



N.B. Given the limited space available, the full references of the titles presented in figures 1 through 5 are not listed in the present paper. The 11-page document is available upon request from the first author.

Figure 5: Co-occurrence networks of references, FER Proceedings, 1996-1999



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