Entrepreneurship: Past Research and Future Challenges*

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Abstract

The contributions and shortcomings of past entrepreneurship research can be viewed within the context of six research design specifications: purpose, theoretical perspective, focus, level of analysis, time frame and methodology. The authors suggest a unifying definition of the field of entrepreneurship. The recent trend toward theory driven research that is contextual and process oriented is encouraging. It is time for entrepreneurship researchers to pursue causality more aggressively. Exploratory studies that are not theory driven should be discouraged unless the topic is highly original. Implications for practicing entrepreneurs are discussed.

The past decade has witnessed a significant rise in popular enthusiasm for entrepreneurs and entrepreneurship. This enthusiasm has been matched in the academic arena, resulting in a significant increase in the amount of research effort being devoted to the subject[1]. This increased attention seems justified given the growing evidence that new firm creation is a critical driving force of economic growth, creating hundreds of thousands of new jobs (Birch, 1979; Birley, 1987; Reynolds, 1987), as well as enhancing federal and local tax revenues, boosting exports, and generally increasing national productivity (*President's Commission Report*, 1984).

As a body of literature develops, it is useful to stop occasionally, take inventory of the work that has been done, and identify new directions and challenges for the future. This reflective process is essential in order to derive the maximum benefit from future research. The purpose of this review is to provide such a reflective moment for the field of entrepreneurship research. The contributions and shortcomings of past research will be examined and suggestions will be made for the direction of future research.

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[1] There are several sources that can provide basic background for the non-specialist interested in entrepreneurship research. *The Encyclopedia of Entrepreneurship* (Kent, Sexton, & Vesper, 1982) and its recent sequel, *The Art and Science of Entrepreneurship* (Sexton and Smilor, 1986) provide comprehensive reviews under a range of entrepreneurship related subject headings. *Entrepreneurship and National Policy* (Vesper, 1983) provides an excellent discussion of the new venture process and implications for national policy. Finally, review articles by Gartner (1985a) and Wortman (1987) provide a good overview of the literature.

The organizing theme of this paper consists of six key specification decisions that we feel researchers need to address as they begin to assemble a research program in the area of entrepreneurship. These design specification decisions are interrelated, and cannot be made independently. However, for the purposes of this paper, we will consider each of the following research dimensions separately: **Purpose**-what is the specific as well as larger purpose of the study? **Theoretical Perspective**-what is the theoretical perspective adopted? **Focus**-on what specific phenomena shall the investigation be focussed? **Level of analysis**-what level or levels of analysis will be considered? **Time frame**-what length of time frame will be considered? **Methodology**-what methodology will be adopted?

Past entrepreneurship research will be reviewed within the context of these six design dimensions.[2] This organizing structure is meant to complement previous reviews that have been organized around subject categories or units of analysis. Readers who have limited familiarity with the entrepreneurship literature or those interested in specific topics may find it useful to refer to these previous comprehensive works.

Finally, since our intention is to provide a critical review, we wish to preface our remarks by acknowledging a debt to those who have pioneered the study of entrepreneurship. Although hindsight makes it easy to identify the shortcomings of early studies, it is important to recognize that these works were necessary first steps in the exploration of the entrepreneurship phenomenon.

Decision 1: Specification of Purpose

Entrepreneurship is a multifaceted phenomenon that cuts across many disciplinary boundaries. Studies falling under the rubric of "entrepreneurship" have pursued a wide range of purposes and objectives, asked different questions and adopted different units of analysis, theoretical perspectives and methodologies. This diversity is reflected in the many and varied definitions of entrepreneurship: Schumpeter (1934) defined entrepreneurship as "carrying out new combinations." Knight's (1921) definition focussed on the ability to predict the future successfully. Leibenstein (1978) argued that firms do not necessarily operate at the outer limit of their production function; therefore, entrepreneurship is the ability to work smarter and harder than your competitor. Kirzner's (1973) concept is closely linked to arbitrage and the ability to correctly anticipate where the next market imperfections and imbalances will be. Cole (1968) defined entrepreneurship as purposeful activity to initiate, maintain, and develop a profit-oriented business. Stevenson, Roberts and Grousbeck (1985) suggested that entrepreneurship is being driven by perception of opportunity, rather than resources currently controlled. And Gartner (1985b) defined entrepreneurship as the creation of new organizations. Empirical researchers have argued for some time that this inability to agree upon common definitions has hampered research progress (Gartner, 1985a; Vesper, 1983).

[2] Limitations of space have meant that this review has focused primarily on US literature related to new firm creation. It is important to note that there is a well defined literature on corporate venturing as well as a rapidly growing body of European literature that is not discussed in this review.

The problem with these definitions is that though each captures an aspect of entrepreneurship, none captures the whole picture. The phenomenon of entrepreneurship is intertwined with a complex set of contiguous and overlapping constructs such as management of change, innovation, technological and environmental turbulence, new product development, small business management, individualism and industry evolution. Furthermore, the phenomenon can be productively investigated from disciplines as varied as economics, sociology, finance, history, psychology, and anthropology, each of which uses its own concepts and operates within its own terms of reference. Indeed, it seems likely that the desire for common definitions and a clearly defined area of inquiry will remain unfulfilled in the foreseeable future.[3]

However, because of the range of approaches available for entrepreneurship research, some common ground is needed upon which to synthesize the insights of diverse approaches of inquiry. At the broadest level, there is a need for an overall, common purpose that will forge some unity among entrepreneurship researchers.

In the spirit of the challenge to define an overall, common purpose, we suggest that entrepreneurship be defined as the "creation of new enterprise" and propose the following: that entrepreneurship research seek to *explain and facilitate the role of new enterprise in furthering economic progress*. This fundamental purpose, or one like it, is wide in scope yet still delineates a constrained area of inquiry within which multi-disciplinary research programs may be built.[4] Furthermore, by emphasizing "explanation" it encourages researchers to go beyond descriptive studies and to pursue causal inference. And by emphasizing "facilitation" it encourages researchers to maintain relevance for practice and to consider both micro and macro perspectives.

In the past, much of the entrepreneurship research has either lacked clarity of purpose or the specified purpose was of little consequence. Many early works were of the "census taking" type-confined largely to documenting and reporting the occurrence of entrepreneurs or their personality characteristics, with little attempt to uncover causal relationships or to explore implications for practice. Many of these studies left the reader wondering what the authors really hoped to achieve.

[3] It can be argued that the term *entrepreneurship* is too imprecise a concept to be of much use to researchers. In this respect, it is interesting to make a comparison with the term *leadership*. Pfeffer (1977) argues that the concept of leadership is so broad that its usefulness is called into question: "Apparently there are few meaningful distinctions between leadership and other concepts of social influence. Thus, an understanding of the phenomenon subsumed under the rubric of leadership may not require the construct of leadership" (p. 105). It seems that the same argument could be made about the construct of entrepreneurship.

[4] In this context, it is appropriate for us to explicitly raise our point of view regarding the outcomes of entrepreneurial effort. A comprehensive research program cannot confine itself solely to studies of entrepreneurial *success*. This is for two reasons. First, the venture's failure may be the result of established competitors' reactions to the entry of the new firm. If this competitive response enhances the industry's overall competitiveness, then economic progress has still been achieved, even if the venture fails. Second, failure is an important source of learning, and even though a specific venture may fail, the people involved may have developed skills and knowledge that will lead to future entrepreneurial success (Maidique & Zirger, 1985).

The failure to clearly specify the purpose of the research combined with the lack of common ground for synthesizing research findings has hindered the advancement of the field. To address this problem, we suggest not only that the specific purpose of a study be explicitly stated at the outset, but that the field will best advance if this more specific purpose is explicitly linked to a generally accepted overall purpose such as "explaining and facilitating the role of new enterprise in furthering economic progress."

Decision 2: Specification of Theoretical Perspective

After the specification of purpose, the next important decision is the specification of theoretical perspective. Much of the entrepreneurship research to date has implicitly assumed a "strategic adaptation" perspective. A strategic adaptation perspective suggests that the key to entrepreneurial success lies in the decisions of the individual entrepreneurs who identify opportunities, develop strategies, assemble resources and take initiatives. Recently, this perspective has been challenged by theorists who adopt a "population ecology" perspective, which suggests that individual goal-driven behavior is largely irrelevant and that environmental selection procedures are the most powerful determining factors.

The Strategic Adaptation Perspective

Authors that adopt a strategic adaptation perspective usually start by identifying key success factors that enhance the chances of survival. Vesper (1980) suggested five key ingredients: technical knowhow, product or service idea, personal contacts, physical resources, and customer orders. Timmons (1982) reviewed the works of over two dozen authors and concluded that there are "substantial variations in content, assumptions, and emphasis, and little theory to anchor the variety of viewpoints" (p. 132). Nevertheless, he notes several recurrent ingredients in discussions of successful venture creation, such as the importance of a lead entrepreneur, building a team with complementary skills, a triggering idea for a product or service, a well developed business plan, a network of people and resources and appropriate financing.

The flip side of "key success factors" is "key failure factors." Unfortunately, the list of potential pitfalls associated with starting a new venture appears limitless. Woodruff and Alexander (1958) identified 23 causes of failure among small manufacturers. Vesper (1983) identified 12 "barriers" to entrepreneurship Typical problems include lack of market knowledge, inability to delegate responsibility, lack of technical skills, lack of seed money. Rather than attempt to list the potential pitfalls associated with new ventures, it can be argued that the seriousness of any problem depends on the extent to which it detracts from one of the key success factors identified earlier—and failure to address any *one* of the key success factors will be sufficient to kill a new venture.

In addition to key success factors, another important consideration is entry strategy. Vesper (1980) provided the most extensive compilation of entry

strategies. These include new product, new service, imitative product, imitative service, franchising, geographical transfer, customer sponsored, parent company sponsored, government sponsored and acquisitions. Vesper's purpose seemed to be to make the potential entrepreneur aware of the variety of entry strategies. He suggested that a combination of strategies might be effective, but provided only anecdotal evidence about the appropriate use of a given strategy.

The most advanced strategic adaptation entrepreneurship research has come from researchers who have tried to capture the expertise of the venture capital community. The assumption here is that people who make profits from assessing new venture proposals will have developed expertise in distinguishing between winning and losing ventures. Works by Tyebjee and Bruno (1981), Roberts (1983), and MacMillan, Siegel and SubbaNarasimha (1985) all examined the factors that venture capitalists evaluate in deciding to fund entrepreneurial venture proposals. Recently, this work has been extended to studies that seek to link pre-funding characteristics with ultimate success. Roure and Maidique (1986) confirmed that experienced, well balanced venture teams improve performance and found that "successful ventures targeted product-market segments with high buyer concentration in which, through technological advantage, their products could attain and sustain a competitive edge" (p. 295). MacMillan, Zemann and SubbaNarasimha (1987) reached similar conclusions and identified two major criteria that predict success: "1) the extent to which the venture is initially insulated from early competition and 2) the degree to which there is demonstrated market acceptance of the product" (p. 124).

In the review of these studies it became clear that entrepreneurial firms are too diverse to permit simple generalization (Gartner, 1985a). Some researchers have dealt with this complexity by adopting a contingency approach that seeks to identify major contingent variables that significantly shape entrepreneurial outcomes. Sandberg and Hofer (1987), who also collected data via the venture capital route, have developed and tested a contingency model for predicting venture performance based upon characteristics of the entrepreneur, the structure of the industry being entered, the venture strategy, and the interactive effects of these three factors. Although their findings are based on a small sample and can be challenged on statistical grounds, their results are nevertheless suggestive: the entrepreneur's characteristics appear to have little effect on venture performance, whereas the interaction between industry structure and strategy appear to be strongly associated with performance. By using theory and inductive arguments to develop and test hypotheses that consider the interaction of personal, environmental and strategic variables on performance, Sandberg and Hofer take the research on strategic adaptation an important step forward. Hopefully future studies of this type will follow.

Another emerging stream of strategy research seeks to determine what repeatedly successful entrepreneurs have learned through experience. Lamont (1972) initiated the first study of this type by conducting a matched pair sample of 24 technology-based enterprises, half of which were founded by individuals with no previous entrepreneurial experience and half of which were founded by experienced entrepreneurs. He found that the experienced entrepreneurs tended to found firms with a product orientation (as opposed to a contract orientation), with larger

initial financing, and with a better balance of business skills among the management team. More recently, the notion that there is much to be learned by studying repeatedly successful entrepreneurs was advocated by an individual who has himself started over 30 new businesses over a 10-year period (Executive Forum. 1986). He contends that study of one-shot entrepreneurs will inevitably focus or problems and obstacles that may simply be a product of inexperience. His argument is that only multiple entrepreneurs can provide the base for a theory of entrepreneurship since only they have developed an "experience curve."

Ronstadt (1988) argued that such multiple entrepreneurs are more common than previously supposed. In a sample of 1537 practicing and ex-entrepreneurs, Ronstadt found that 63% of the former and 40% of the latter were involved in the creation of more than one venture. He suggested that the best new venture opportunities are most often revealed only after an individual is already involved in a start-up. This is due to the fact that once the firm is initiated, greater information becomes available about relevant contacts, viable markets, product availability, competitive resources and response time.

A review of the strategic adaptation literature shows that progress is being made. The strategy conceptualizations have advanced from rather static, overly generalized "key success factor" models to contingency models that consider a range of variables under varied circumstances and take into account the learning effect of past efforts. In spite of this progress, it is still surprising that so little work has been done in the area of entrepreneurship strategy. There are very few good empirical studies, and those that exist are limited by small sample sizes.

Whether it is explicitly stated or not, the dominant assumption of the strategy oriented literature is that success is primarily dependent upon the entrepreneur's ability to develop and execute effective strategies. The literature that adopts a population ecology perspective offers a different point of view and will be discussed next.

The Population Ecology Perspective

Hannan and Freeman's 1977 article entitled "The Population Ecology of Organizations" was a provocative piece that challenged many assumptions held by organizational researchers. The authors argued that most management theory overemphasizes the capacity of an organization to adapt to a changing environment. In contrast, they viewed inertia as a dominant organizational characteristic. Employing a biological analogy, they suggested that those organizations that are well adapted to their environment will survive, and those that are not will die. Through this selection mechanism, the environment will determine the characteristics of populations of organizations. The essence of the argument is that chance variations in organizational forms that are adaptive are selected *for* whereas nonadaptive forms are selected *against*.

Perhaps that best articulation of the application of ecological thinking to entrepreneurship lies in the work of Greenfield and Strickon (1986). They argued that contemporary paradigms in social science research and thought have become

static and therefore incapable of explaining dynamic social processes. As an alternative, they proposed a new paradigm that has its origins in Darwinian biology:

> With respect to entrepreneurship this means that we are no longer looking for a transcendent type—the analogue of the immutable species— but instead recognize existing diversity of behavior within specific populations, which at its extremes encompasses innovation and novelty. What is called entrepreneurship, from this point of view, is actually one segment of an otherwise seamless variability. (p. 14)

Population ecology theory has significantly matured in recent years, developing from a simplistic and deterministic biological metaphor into a rich theoretical framework capable of incorporating other theoretical perspectives. There have been many attempts to reconcile population ecology with extant organizational theory (Hannan & Freeman, 1984; Hrebiniak & Joyce, 1985; Singh, House, & Tucker, 1986). One such attempt is by Brittain and Freeman (1980), who developed a particularly comprehensive model of the organization creation process by beginning with the population ecology model and incorporating elements of other perspectives such as strategy and transaction cost economics. They argued that new opportunities are created for the expansion of existing and founding of new organizations through technological or demographic change. These changes result in what they call "new resource sets." Following Stinchcombe's (1965) argument, they suggested that knowledge of opportunity and access to requisite resources to exploit the opportunity are not uniformly distributed throughout the population. Instead, opportunities are most likely to come to individuals at key informational loci within existing organizations. Depending on the nature of the existing organizations, the new opportunity may be best exploited by a new firm.

Brittain and Freeman's model begins to connect the insights of the seemingly disparate perspectives of population ecology and strategic adaptation. It directly addresses the role of chance, and by emphasizing changing resource sets and the replacement of short-term opportunities types of firms (*r* strategists) with long-term low cost producers (*K* strategists), it is a dynamic model that explicitly deals with ongoing change and competition.

In their study of organizational births and deaths in the newspaper industry, Carroll and Delacroix argued that an ecological perspective should be concerned with both foundings and mortality, and that each will be driven by different factors (Carroll & Delacroix, 1982; Delacroix & Carroll, 1983). This research raises an important possibility: organizational births may better be explained by macro variables such as technological or demographic shifts, whereas survival of entrepreneurial firms may better be explained by micro variables such as strategy.

As the above studies have demonstrated, the strategic adaptation and population ecology perspectives are not irreconcilable. One promising opportunity for combining the insights of these perspectives lies in the study of industry evolution, or the "community" level of analysis, as it has been labeled by the ecologists (Astley, 1985; Carroll, 1984). A good example is the work of Tushman and Anderson (1986), who studied three different industries and observed that technology evolves "through periods of incremental change punctuated by technological

breakthroughs" (p. 439). They defined technological breakthroughs in Schumpeterian terms: "Major technological innovations represent technical advance so significant that no increase in scale, efficiency, or design can make older technologies competitive with the new technology" (p. 441). They added an interesting dimension by distinguishing between two fundamentally different types of technological discontinuity: competence-enhancing and competence-destroying. A competence-enhancing technological shift builds upon existing know-how (replacement of mechanical typewriters by electric), whereas with a competence-destroying shift, existing know-how is largely irrelevant (replacement of steam-engines by diesel locomotives).

Tushman and Anderson found that competence-destroying technological discontinuities favor the entrance of new firms into an industry because of the inability of established competitors to exploit the new technology. Competence-enhancing discontinuities, on the other hand, work to the long-run advantage of established firms who can use their resources and market position to incorporate the new technology. Thus the entrepreneurial firm that enters an industry via incremental change or via the introduction of a new competence-enhancing technology is in far greater peril from existing competitors than one that enters via the introduction of competence destroying technology.

This is an example of how the ecological perspective can provide valuable insight that can lead to more effective strategy formulation: an aggressive entry strategy is more likely to succeed under conditions of a competence-destroying discontinuity than under conditions of a competence-enhancing discontinuity, where competitors are in a strong position to retaliate.

Our review of the population ecology literature leads us to the following comment regarding future entrepreneurship research: In the past, much of the entrepreneurship research has implicitly assumed a strategic adaptation perspective. The application of ecological thinking to entrepreneurship has challenged many previously held assumptions, increased our understanding of the entrepreneurial process, and demonstrated the significant benefits of theory driven research. Ideally, the example of population ecology will encourage the exploration of other theoretical perspectives that have the potential to provide insight into the entrepreneurship phenomenon.

Whether the strategic adaptation, population ecology, or some other perspective or combination of perspectives is pursued, it is clear that the field will be better served in the future if the issue of theoretical perspective is addressed directly and unstated assumptions are avoided. Theory can then be tested and elaborated, and from this, *informed* knowledge can be developed to aid the academic and the practitioner alike.

In this section we have highlighted one set of theoretical issues by contrasting the strategic adaptation and population ecology perspectives. In the next section, on focus, we pursue a second, related set of issues by examining the trend toward more contextual and process-oriented research.

Decision 3: Specification of Focus

Early entrepreneurship studies typically focussed on the personality or cultural background of the individual entrepreneur as a determinant of entrepreneurial behavior. Over time, these approaches yielded to a recognition that meaningful research must adopt a more contextual and process-oriented focus. This section will review this progression toward richer and more dynamic approaches as a method of highlighting the challenge of "focus."

Psychological Theories

McClelland's work on "need for achievement" (McClelland, 1967) and an empirical study of 150 successful Michigan entrepreneurs by Collins, Moore and Unwalla (1964) were early works that started a prolific stream of personality-based entrepreneurship research that continues to this day. Brockhaus (1982), Gasse (1982), Martin (1984), and Sexton and Bowman (1985) have provided reviews of this psychological/personality-based literature. Most of the comments in this section are drawn from these reviews.

McClelland argued that need for achievement is culturally acquired and a key psychological characteristic of an entrepreneur. An individual with a high n-Ach is characterized as (a) taking personal responsibility for decisions, (b) setting goals and accomplishing them through his/her effort, and (c) having a desire for feedback (McClelland, 1967). The two basic problems with need for achievement are first, the theory is as applicable to salespeople, professionals, and managers as it is to entrepreneurs, and second, subsequent research has not validated a link between a high need for achievement and the decision to start a business (Sexton & Bowman, 1985). McClelland's more recent work has gone beyond need for achievement and examined other personality characteristics such as initiative, assertiveness, efficiency orientation, systematic planning, and commitment to work contract (McClelland, 1986). As with need for achievement, these are not unique to entrepreneurs, but instead characteristics common to many successful individuals.

Internal locus of control is another characteristic that has been attributed to entrepreneurs. This concept refers to the belief held by individuals that they can largely determine their fate through their own behavior. However, internal locus of control has proved to be no more useful than need for achievement in differentiating the entrepreneur from the non-entrepreneur (Brockhaus, 1982; Sexton and Bowman, 1985; Gasse, 1982). Brockhaus concluded that although a high internal locus of control is common to both successful managers and successful entrepreneurs, it may still hold "promise for distinguishing successful entrepreneurs from the unsuccessful" (p. 45).

A high risk-taking propensity is another psychological characteristic often attributed to entrepreneurs. Although some of the empirical findings are contradictory (see Sexton & Bowman, 1985), the overall evidence is that entrepreneurs are moderate risk takers and do not significantly differ from managers or even the general population. It is perhaps more insightful to view entrepreneurs

as capable risk managers whose abilities defuse what others might view as high risk situations.

One psychological characteristic that does appear to distinguish the entrepreneurial personality is the tolerance for ambiguity. Studies by Schere (1982) and Sexton and Bowman (1985) have indicated that entrepreneurs have a significantly greater capacity to tolerate ambiguity than do managers. Other personality characteristics that have been argued to distinguish between entrepreneurs and managers are a high need for autonomy, dominance, independence combined with a low need for support and conformity, and a capacity for endurance (see Sexton & Bowman, 1985).

Definitional and methodological problems associated with these past psychological studies, such as noncomparable samples, bias toward successful entrepreneurs, and the possibility that observed entrepreneurial traits are the *product* of entrepreneurial experience, make it difficult to interpret the results. Furthermore, at a more fundamental level, it can be argued that the wide variations among entrepreneurs make any attempt to develop a standard psychological profile futile. One is struck by the appropriateness of Gartner's (1985a) observation that there is as much difference among entrepreneurs as between entrepreneurs and non-entrepreneurs.[5]

Some researchers have used personality traits to identify different entrepreneurial types. Smith (1967) distinguished between crafts and opportunistic types. Stanworth and Curran (1976) specified 3 types: the artisan, the classical and the manager. Webster (1977) suggested 5 categories of entrepreneurs, Vesper (1980) listed 11 different types and Gartner developed 8 entrepreneurial archetypes (Gartner, 1983). These studies make interesting reading, but as with the other personality-based literature discussed so far, it is questionable whether these descriptive studies move us closer toward a theory of entrepreneurship.

Demographic studies of entrepreneurship suffer from some of the same problems as the psychological/personality literature. Most of the empirical work that examines the demographic characteristics of entrepreneurs suffers from small sample sizes, non-comparability of samples and static terms of reference. The most comprehensive study to date is by Cooper and Dunkelberg (1987). They collected broadly based data on 890 entrepreneurs and contrasted their findings with earlier research using smaller samples. They confirmed that entrepreneurs tend to be better educated, come from families where the parents owned a business, start firms related to their previous work and locate where they are already living and working. In other ways, however, the entrepreneurs in their sample were less different than previous research has indicated, "being no more likely to be of foreign-stock and not being particularly likely to leave school early or to drift from job to job" (p. 21) than the general population. Cooper and Dunkelberg concluded

[5] There are some interesting parallels that can be made between the personality-based entrepreneurship research and the studies that sought to identify leadership traits. Theories of leadership progressed from simple "trait" theories through two-dimensional personal-behavioral approaches and on to highly complex models that; considered a variety of forces at work within the leader, the situation, and the subordinate. As we shall see, entrepreneurship research has followed a similar pattern to become much more contextual and dynamic.

that diversity seems to be a central characteristic of their sample. This is our conclusion as well: being innovators and idiosyncratic, entrepreneurs tend to defy aggregation. They tend to reside at the tails of population distributions, and though they may be expected to differ from the mean, the nature of these differences are not predictable. It seems that any attempt to profile the typical entrepreneur is inherently futile.

More useful are recent psychological studies that focus on the entrepreneur within an organizational context. Schein (1983) examined the role of the founde in creating organizational culture. According to Schein, entrepreneurs "typically . . . have strong assumptions about the nature of the world, the role their organizations will play in that world, the nature of human nature, truth, relationships, time and space" (p. 17). Schein examined the process by which the assumptions and theories of the founders interacted with the organization's own experiences to determine culture. Kets de Vries (1985) focussed on dysfunctional entrepreneurial personality characteristics by examining the negative repercussions of need for control, sense of distrust, desire for applause, and psychological coping mechanisms demonstrated by some entrepreneurs. This article was the result of studies done in collaboration with Miller that sought to link executive personality with strategy and organizational structure (Kets de Vries & Miller, 1984, 1986). Kets de Vries and Miller developed a typology of pathological organizations and their most recent work examined culture as the link between personality and strategy.

The work by Schein and by Kets de Vries and Miller is important because it does not focus simply on the psychology of the entrepreneur, but focuses instead on the relationship between the entrepreneur and the organization and on the *process* by which individual characteristics affect organizational outcomes. The focus of these most recent psychological studies is clearly more contextual and process-oriented than the earlier work.

Social-Cultural Theories

One of the earliest and best known attempts to link entrepreneurship to the larger social context was Weber's classic work "The Protestant Ethic and the Spirit of Capitalism" (1930). Weber argued that the rise of Protestantism encouraged hard work, thrift, and striving for material advancement, which in turn gave rise to capitalism. Although the causal effects of the Protestant ethic on the development of capitalism have since been hotly contested, it does seem clear that the rise of Protestantism swept away many institutional obstacles that were preventing the development of capitalism. Our conclusion is that there must be congruence between ideological constructs and economic behavior if entrepreneurship is to flourish.

The tendency of certain cultures to produce entrepreneurs has made it intuitively appealing to view culture as a determinant of entrepreneurship. Hagen (1960) explained entrepreneurial behavior as a means by which disadvantaged minorities seek to alter the status quo. Some examples are the Dissenters in England, the Protestants in France, the Samurai in Japan, the Jews in many countries, and the Parsees in India (Greenfield & Strickon, 1981). This perspective is continued

today in the work of Brenner (1987), who argued that it is those groups that have lost or face the prospect of losing social status that are driven to take entrepreneurial risks. Although there may be some validity to these assertions, some contradictory evidence does exist (Shapero & Sokol, 1982). The recent entrepreneurial proliferation associated with Silicon Valley (Stanford and Berkeley graduates) and Route 128 (Harvard and MIT graduates) demonstrates that not all entrepreneurs come from disadvantaged backgrounds. The best that can be said with confidence is that *in some cases* entrepreneurship is a response to lack of social mobility through other channels.

Studies in the 1960s by Cochran (1965) and Alexander (1967) recognized the complex economic, social, and psychological factors that impact the entrepreneurial process. However, it was Glade (1967) that really set the stage for the types of contextual models currently advocated. Glade viewed the entrepreneur as a decision maker operating within a specific social and cultural setting. He termed this setting an "opportunity structure," implying both the perception and existence of an opportunity combined with the availability of resources: "Integral features of any given situation are both an 'objective' structure of economic opportunity and a structure of differential advantage in the capacity of the system's participants to perceive and act upon such opportunities" (p. 251).

More recently, Vesper (1983), Martin (1984), and Shapero and Sokol (1982) all developed models of venture initiation that build upon this idea. The Shapero and Sokol model is perhaps the most sophisticated model of entrepreneurial event formation in the Glade tradition. It identifies life-path changes, perceptions of desirability, and perceptions of feasibility as variables leading to new company formation. Their model considers the interaction of many situational and cultural factors and provides a dynamic framework that captures the range of positive pulls and negative displacements leading to the start-up of a business.

Network Theories

Recent studies that have examined "networks" are more refined attempts to place the entrepreneur within a social context. Birley (1985) studied the role of networks in the founding of new firms by sampling 160 firms in Indiana. She differentiated between two kinds of networks: informal (family, friends, business) and formal (banks, accountants, lawyers, SBA) and found that entrepreneurs rely heavily on the informal network, but seldom tap into the formal network. MacMillan (1983) argued that there is a distinct manipulative aspect of networks. In a small sample longitudinal study he identified the critical role played by deliberate network building in the launch of eight start-ups.

The importance of networks has been reflected in a growing interest in "incubators." An incubator may be a formally organized facility offering laboratory and office space, support services, technical and business consulting services, and contact with other entrepreneurs (Smilor & Gill, 1986), or may simply be the organization where the entrepreneur worked prior to launching a venture, The most famous example of a firm acting as an incubator for entrepreneurial spinoffs is Fairchild, which spawned at least 35 companies (Vesper, 1983). Studies of such

incubator organizations have shown that high-tech entrepreneurs tend to locate themselves in the same area as their previous employer and develop products that are closely related to their prior organizations (Cooper, 1986).

The understanding of networks was further advanced by Aldrich and Zimmer (1986), who viewed the entrepreneurial process as embedded in a shifting network of continuing social relations that facilitate and constrain "linkages between aspiring entrepreneurs, resources and opportunities" (pp. 8–9). They contended that new business formation is part of an evolutionary processes of "variation, selection, retention, and diffusion and the struggle for existence" (p. 9). Though recognizing that individuals are intentional or purposeful in their actions, they argued that the growing evidence of cognitive limits on human behavior and the "powerful influence of social factors on cognitions and information processing" means that one cannot attribute new business formation to individual acts (p. 6). For Aldrich and Zimmer, the entrepreneurial process takes on meaning only in the context of the broader social processes that they described.

These recent studies demonstrate how the focus of entrepreneurship research has progressed to become more contextual and process oriented. Several authors have suggested frameworks for capturing this contextual complexity. Gartner (1985a) suggested a conceptual framework for describing the phenomenon of new venture creation that identified the similarities and differences between ventures. His framework "integrates four major perspectives in entrepreneurship: characteristics of the individual(s) who start the venture, the organization which they create, the environment surrounding the new venture, and the process by which the new venture is started" (p. 696). Carsrud, Olm, and Eddy (1986) suggested a similar model, one that examines the interaction between psychological, personal/demographic, organizational, and situation/environmental variables on the venture creation process.

This section has reviewed a range of entrepreneurship literature from the perspective of focus. There is strong evidence of a trend toward research with a more contextual and process-oriented focus. Research has progressed beyond deterministic personality and cultural theories toward more comprehensive and dynamic theories. The challenge for future entrepreneurship research is to continue this trend and move toward explaining rather than merely documenting the entrepreneurial phenomenon.

Decision 4: Specification of Level of Analysis

Given our earlier comments about the general purpose of entrepreneurship research, it follows that we are interested in *all* entrepreneurial phenomena that impact economic progress. This means we may be concerned with the fate of the individual entrepreneur, the progress of an entire industry, or the impact of that industry on society as a whole. Thus researchers may choose among five levels of analysis: individual, group, organizational, industry and societal levels. Most of the research to date has been at a single level of analysis. However, two recent

studies illustrate just how much can be gained by attempting a richer, albeit more difficult multi-level research design.

The first is a study by Van de Ven, Hudson and Schroeder (1984) that examined the start-up of 14 educational software companies. The firms were divided into high and low performers based on a composite measure of success. Key variables from three different levels of analysis were examined for their impact on success. The three levels of entrepreneurial (characteristics of the founding individual), organizational (planning and initial development processes of the firm) and ecological (industry as a whole).

The Van de Ven et al. study is exemplary in its use of the literature to identify key variables for investigation at each level of analysis. At the entrepreneurial level, the authors concluded that success was related to education and experience, internal locus of control and risk reduction, a broad and clear business idea, and personal investment. At the organizational level, success was positively related to planning activities (although ironically, spending time on a detailed business plan seemed to result in poorer performance), small scale startup, incremental expansion, single person command, and active involvement of top management and board members in decision making. At the ecological level, the study suggested that assistance from a corporate sponsor in the form of equity capital, training, or guaranteed contracts was actually maladaptive, and that firms competing for contracts on an independent basis advanced more quickly, at least over the short run.

Aldrich and Auster (1986) provide a second example of a multi-level research design. They built upon Stinchcombe's work and argued that the "strengths of large, old organizations are often the weaknesses of small, new organizations and vice versa" (p. 165). For smaller and newer organizations they looked at various strategies such as franchising, long-term contracts, and mergers and acquisitions to overcome the liabilities of newness and smallness. For larger and older organizations, they examined strategies of franchising, mergers and acquisitions, subcontracting, and corporate venturing to overcome the liabilities of oldness and largeness. The connection between different levels of analysis was made through the observation that adaptive strategies at the organizational level result in new "forms" at the industry level that improve the viability of whole populations of organizations.

The relationships between phenomena that can be observed at different levels of analysis are important not just for academics, but for both practitioners and public policy makers as well. From the entrepreneur's perspective, the success of the individual enterprise will be affected by factors that can only be observed at different levels of analysis. To miss any one of these perspectives increases the probability that key factors will be overlooked, and that unanticipated events will take the entrepreneur by surprise. From the public policy maker's perspective, the insights generated by multi-level studies have the potential to improve targeting of government efforts to encourage successful entrepreneurship.

The two studies discussed above demonstrate that each level of analysis provides unique insight and that the synthesis of these insights yields a richer understanding than that possible from the perspective of a single level of analysis. The

challenge for entrepreneurship research is to increase the incorporation of multiple levels of analysis into future research designs.

Decision 5: Specification of Time Frame

A key building block for understanding the pattern of new business formation is the notion that start-ups move through predictable stages. The fact that this pattern can only be observed through wide time frame research is the key thrust of this section. Other issues related to longitudinal research will be discussed in the final section on methodology.

Most of the studies that focus on stages in the start-up of an enterprise are variations on a theme. Although typically arranging the stages in natural order, most theorists note that the stages need not be strictly sequential, nor can they be dealt with in isolation. One of the more detailed works (Swayne & Tucker, 1973) listed 57 steps in three overall stages of concept, planning and implementation. A recent review by Gartner (1985a) of the work of eight researchers identified six common actions undertaken in the entrepreneurial process: locating a business opportunity, accumulating resources, marketing products and services, producing the product, building an organization, and responding to government and society. Stevenson et al. (1985) identified five steps in the start-up: evaluating the opportunity, developing the business concept, assessing required resources, acquiring needed resources, and managing and harvesting the business.

Block and MacMillan (1985) focussed on the planning for a launch and suggested that there are critical milestones in a start-up. They argued that a new venture is an experiment with implicit hypotheses or assumptions about the relations among product, market, and competition that can only be tested through experience. Block and MacMillan suggested that go/no-go or redirection decisions be made at each of ten milestones, based upon emerging information that becomes available as each milestone is reached.

From the point of view of advancing theory, studies that merely document the stages of a start-up are of questionable value. However, identifying the major tasks that need to be accomplished during the launch of a venture has practical value; furthermore, the notion that a start-up moves through discrete stages is an insight that must be incorporated into any theory of new venture creation.

Although the above researchers focus on the stages of start-up, other researchers use still longer time frames and focus on major stages of growth in fully launched organizations. Greiner (1972) identified five distinguishable phases of development, each characterized by "evolutionary" periods of relative calm followed by "revolutionary" periods of management crisis and realignment. This approach was furthered by Churchill and Lewis (1983), and Hambrick and Crozier (1985) and bears similarity to the "life-cycle" work of Kimberly and Miles (1980). These works go beyond the start-up phase and demonstrate that different management and strategic issues become paramount at different stages of development. Robinson and Pearce (1986) took the analysis one step further with a comprehensive study of the relation between venture performance at different

stages of development and the attention given to strategic and operational decisions. They showed that as the firm evolves, each state calls for emphasis on different strategic activities.

Short time frame studies are simpler to design and easier to execute but clearly lack the richness of insight that results from studying a phenomenon over a longer time period. For entrepreneurship research this is extremely important, since new firms are extremely fragile and experience many changes within short periods of time. Often the seeds of future problems are sown in the early stages. Only wide time frame studies will allow us to study the development problems faced by new firms and to pursue the objective of causal inference.

Decision 6: Specification of Methodology

As entrepreneurship emerges as a recognized area of inquiry, the quality and usefulness of the theory that is developed will be tied to the ability of researchers to identify patterns of causality. Early efforts in entrepreneurship research were understandably exploratory case studies or cross sectional statistical studies of the "census-taking" type. However, if such exploratory studies are successful, they should be followed by more systematic studies that subject a priori hypotheses to formal testing and work toward the development of theory.

Unfortunately, the progress toward a priori hypothesis testing has been slow. The current standard appears to be data collection and a posteriori statistical testing. Still, there has been some progress in terms of building upon previous research and designing more rigorous studies. For example, in measuring the contribution of entrepreneurship to economic progress, Birley (1987) and Reynolds (1987) built upon the earlier work of Birch (1979), with their analyses characterized by much greater precision. In Reynolds' case, he used regression and discriminant analyses to distinguish between factors related to the social contribution of new firms and factors related to their survival. A further example is Khan (1987), whose study of the effectiveness of venture capital decision making went beyond simple additive regression approaches (MacMillan et al. 1987) and employed non-compensatory decision modelling.

The goal of establishing causal linkages among variables means that more longitudinal work is necessary. Longitudinal studies are inevitably more difficult and expensive than cross sectional studies, but the benefits are considerable. Two good examples of longitudinal studies are Hambrick and Crozier's (1985) examination of the difficulties of managing rapid growth firms, and Tushman, Virany and Romanelli's (1986) study of a cohort of minicomputer firms over a protracted time period. Following a group of firms over time is expensive and time consuming, but it is important to recognize that only such large scale cross sectional *and* longitudinal studies can start to provide us with enough confidence about causality to provide the basis for theoretical model building and experimental research.

To date the attempts to develop formal methods have been limited. Baumol (1982) developed a theoretical model describing the influences that determine the supply of entrepreneurship and its influence on economic growth. Kihlstrom and

Laffont (1979) proposed an entrepreneurship-based theory of competitive equilibrium by building upon Knight's (1921) concept of risk. Casson (1982) developed an economic theory of entrepreneurship within the neoclassical framework. These attempts at formal model building hold promise, but pale compared to the sophistication of the models used in other fields. Until progress is made in the development of rigorous models of the entrepreneurial process, our ability to generate theory will be severely circumscribed.

If attempts at formal model building have been limited, attempts at experimentation have been rare. Worthy of note are two studies – the use of simulation techniques to study venture capital investment effectiveness by Stevenson, Muzycka, and Timmons (1987) and the experimental study by Kourilsky (1980) that examined the entrepreneurial behavior of children in a simulated economy. The lack of experimental research is a further indication of slow progress in developing entrepreneurship theory.

It is interesting to note that the studies cited above stem from a variety of disciplinary backgrounds: Hambrick and Crozier from strategy; Reynolds from sociology; Kourilsky from education; Kihlstrom and Laffont, Baumol, and Casson from economics. Other disciplines that have contributed to the study of entrepreneurship include anthropology (Owens, 1978), marketing (Dickson & Giglierano, 1986), psychology (Brockhaus, 1982), history (Cochran 1965), finance (Huntsman & Hoban, 1980), and political science (Gatewood, Hoy & Spindler, 1984). This diversity of approaches and methods is to be encouraged, for entrepreneurship is as varied as it is elusive, and the range of research methods should match the complexity of the phoneomenon under study.

Our review of the literature leads us to suggest that there is a need to pursue causality more aggressively. The field must move to the stage where exploratory case analyses or cross sectional census taking studies that are not theory driven and do not test hypotheses are no longer acceptable.

Implications for Entrepreneurs

This review has focussed on issues of research design and is primarily targeted at an academic audience. This approach reflects the belief that useful knowledge for practice will only result from the pursuit of rigorous research and the development of entrepreneurship theory. For those who do not share this view, there is no shortage of anecdotal "how to" books to which they may refer.

Even though this review has focussed on research design issues, several important implications for practice have been raised. At the most general level, the design issues raised in this paper can serve as criteria for sifting through the vast amount of popular and academic literature dealing with entrepreneurship. In much of this literature the practitioner is advised to look out for the same inappropriate generalizations and misleading assumptions about causality that we caution academics to beware.

Although past attempts to stereotype entrepreneurs based upon psychological and cultural characteristics have been discredited, recent work suggests that entrepreneurs' personalities do have important influences on the organizations they

create (Kets de Vries, 1985; Schein, 1983). The behaviors and values of the entrepreneur interact with the experiences of the unfolding organization to imprint its culture. In turn, organizational culture has important implications for the performance. Entrepreneurs are encouraged to be aware of how their behavior shapes the emerging culture. We by no means suggest that entrepreneurs try to change their personalities, but it may be possible for them to be alert for and avoid behaviors that have dysfunctional organizational consequences.

The literature makes it clear that opportunities do not drop from the sky. Opportunities are created within and among existing organizations as a product of ongoing networks of relationships and exchanges. Opportunities come most frequently to people located at advantageous positions within networks. Furthermore, exploiting an opportunity requires certain resources (human resources, capital, marketing and technical information, sales etc.). The same types of network relationships and contacts needed to identify opportunities are also necessary to obtain the resources required to exploit opportunities. Aspiring entrepreneurs are advised to evaluate and map their current networks. Doing so is the first step toward building an effective network, an activity that is too important to be left to chance.

It is also clear from the literature that there are no magic formulae for success. Each venture will have its own key success factors, any one of which will be sufficient to kill the venture if overlooked. Some important items for consideration are the following: Is there an established market for the product? Is the market defensible? Is the strategy appropriate for the industry structure?

Although planning is important, spending too much time on a detailed business plan can be counterproductive. And though assistance from a corporate sponsor is usually thought to be helpful, evidence suggests that firms competing for contracts on an independent basis advance more quickly (Van de Ven et al. 1984). For technologically innovative ventures, it is important to establish whether the innovation can easily be adopted by established competitors (Tushman & Anderson, 1986). If so, a long range objective might be to be acquired by an existing firm. If not, an aggressive share-building strategy might be most appropriate.

The ecology literature suggests that success is also a matter of chance, and that one needs some luck. This is true, but it is also possible to shape luck-by building networks, by exercising parsimony of investment, by seeking competitively insulated niches, by moving incrementally, and by continually monitoring performance. This approach conserves resources, heightens awareness of developing trends and maintains the flexibility needed to quickly respond to new opportunities.

Finally, start-ups move through distinct phases, with different management and strategic issues paramount in each phase. Effort must be taken to ensure that resources are spent on the areas most critical to the firm's success, given its stage of development. And care must be exercised to think through how short-term actions might be planting the seeds of future problems.

Summary and Recommendations

We have reviewed the literature in the context of the challenges faced when designing an entrepreneurship research program. In the course of this review, we came to the conclusions that are summarized in Table 1 and discussed in greater detail below:

1. Purpose. There is a need for future research programs to include a clear statement of purpose. Furthermore, we appeal to researchers to link the specific purpose of their study to the more fundamental purpose we have proposed: to explain and facilitate the role of new enterprise in furthering economic progress. It is hoped that by linking to this overall purpose, a wide variety of research activities can be brought into a broad but unifying arena.

2. Theoretical Perspective. In the past, much of the entrepreneurship literature has implicitly assumed a strategic adaptation perspective. The insights resulting from recent work using the population ecology perspective has challenged some of these assumptions and demonstrated the benefits of theory driven research. We suggest that future research should examine and clearly state theoretical assumptions and that additional theoretical perspectives should be explored.

3. Focus. Recently, there has been a trend toward more contextual and process oriented research. This is an important advancement and moves the field closer to a position of being able to explain rather than merely document the entrepreneurial phenomenon. Future research should continue this trend.

4. Level of analysis. There has been a welcome initiation of studies that examined more than one of the individual, group, organization, industry, and society levels of analysis. Such multi-level studies provide a much richer understanding of the entrepreneurial phenomenon and should therefore be encouraged in future research programs.

Table 1. Overview of entrepreneurship: past research and future challenges

Research Design Decisions	Past Research	Model Research and Future Challenges
Specification of purpose	Little clarity, descriptive, lack of unity	Clearly stated, explanatory, further economic progress
Specification of theoretical perspective	Weak theory development, implicitly assuming strategic choice	Theory driven, clearly stated assumption, variety of theoretical perspectives
Specification of focus	Focus on personality or cultural determinants	Focus on the entrepreneurial process in social context
Specification of level of analysis	Primarily single level of analysis	Multiple levels of analysis
Specification of time frame	Narrow time frame	Wide time frame
Specification of methodology	Cause studies, cross sectional surveys, single method, descriptive	Theory driven, a priori hypotheses, multiple methods, explanatory

5. Time frame. It appears that greater insights can be obtained from studies which employ wide time frames than from studies employing cross sectional "snapshots." A push towards longer time frame studies is desirable, particularly since it is becoming clear that different strategic issues become important as firm and industry evolve.

6. Methodology. There has been disappointingly slow progress in research that addresses issues of causality, perhaps reflecting the elusiveness of the entreprenurial phenomenon. Recent years have seen only limited examples of research designs that develop a priori hypotheses. Consequently, formal modelling and experimental research have lacked a foundation for development. On the positive side, the incidence of studies that are both cross sectional and longitudinal are on the rise.

In closing we wish to be realistic. Clearly it is unrealistic to expect that future research designs will incorporate all the qualities we have suggested. Very few researchers have sufficient resources to design and execute projects that are theory driven, choose a contextual and process-oriented focus, adopt multiple levels of analysis, and employ wide time frames. Indeed, although we have been arguing that entrepreneurship research needs to move in a particular direction, we accept the fact that there are unavoidable tradeoffs in research and that there is no single best approach (McGrath, 1964; Weick, 1979). However, we do suggest that more meaningful and insightful results will be forthcoming if researchers consider these design issues and eschew research program designs in which all of the easy design alternatives are selected.

Acknowledgement

The authors would like to thank Suzanne Low and Phil Rosenzweig for their useful comments on an earlier version of this manuscript and to acknowledge the valuable suggestions (many of which were directly incorporated) made by four anonymous reviewers. We would also like to thank the Social Science and Humanities Research Council of Canada and the Sol C. Snider Entrepreneurial Center for their support.

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