

Entrepreneurship Education: Toward a Model of Contingency-Based Business Planning

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Despite the ubiquity of business planning education in entrepreneurship, there is little evidence that planning leads to success. Following a discussion of the theoretical and historical underpinnings, three pedagogical models are compared, including two alternative experiential methods: simulations and the contingency approach. The contingency model, as introduced, utilizes Piaget's concept of equilibration, and is asserted to provide both cognitive tools and flexibility in accommodating unanticipated environmental factors faced by future entrepreneurs.

EDUCATING FOR ENTREPRENEURSHIP: THE NORMATIVE APPROACH

Entrepreneurship courses are taught at nearly every American Assembly of Collegiate Schools of Business (AACSB) accredited institution, at over 1400 postsecondary schools, and enjoy considerable worldwide growth (Katz, 2003). Course content varies widely, including the use of case material, simulations, and various "hands-on" approaches (Gorman, Hanlon, & King, 1997; Vesper & McMullan, 1988). One of the more popular curricula formats consists of teaching and monitoring the production of a business plan. In a study of leading entrepreneurship educators, the development of a business plan was identified as being the most important course feature of entrepreneurship courses (Hills, 1988). We examined the 2004 college catalogs of all of the top 100 universities in the United States (*U.S. News and World Report*, 2004) for courses that specifically referred to business plan education in their course descriptions. Not surprisingly, we found 78 of the top 100 universities offered such courses, typically in the area of entrepreneurship or small business management. Nota-

bly, neither the teaching of business plans, nor the plans themselves, are sufficiently justified on the basis of theoretical or empirical literature. I explore this anomaly here and offer a suggested course of action.

Given both the extent and diffusion of entrepreneurship education, the dearth of researchers systematically evaluating the impact of course content on postcourse entrepreneurial activity is quite surprising (Gorman et al., 1997). One exception is research that examines the impact of education on entrepreneurial intentions, in terms of a student's view of the desirability and feasibility of starting a business (Autio, Keelyey, Klofsten, & Ulfstedt, 1997; Krueger, 1993; Peterman & Kennedy, 2003). In general, research findings suggest that exposure to certain types of entrepreneurship education increase individual self-reported intentions to begin a business. In particular, practical programs that provide real-world experience seem particularly useful in enhancing intentionality through increased perceived desirability and feasibility (Peterman & Kennedy, 2003). Unfortunately, the literature attempting to systematically connect much entrepreneurial formal or traditional education to entrepreneurial activity or performance is virtually nonexistent (Autio et al., 1997).

Thus, beyond entrepreneurial intentions, few empirical findings exist to assist in the pedagogical design of contemporary entrepreneurship edu-

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cation. The business planning paradigm has become so popular that many universities send competitive teams around the world to enter into business plan competitions (Ames, 1989; Hindle, 1997; Kahrs, 1995; Maitland, 1996). Both product and process are considered to be very important, and universities appear to pride themselves on winning business plan contests nearly as much as they do fielding successful athletic teams.

While athletics were originally introduced into the curriculum to promote discipline, loyalty, and health (Tyack & Hansot, 1990: 199), the pedagogical goals of business planning education remain somewhat murky. The enthusiasm for teaching business plans most likely originates in the strategic planning literature, where it is said to eliminate haphazard guesswork and assist in the interpretation of data necessary for the maintenance of organizational and environmental alignment (Armstrong, 1982). Despite the considerable curricula resources expended on efforts to train, supervise, and promote competitions, both the theoretical underpinnings and practical application of business planning usage are poorly understood (Castrogiovanni, 1996).

A *business plan* may be defined as a written document that describes the current state and the presupposed future of an organization. Evidence suggests that business schools teach business planning because plans ostensibly assist entrepreneurs and nascent entrepreneurs as they engage in highly complex and uncertain activities (Ames, 1989; Burns, 1990; Kahrs, 1995; Rich & Gumpert, 1985). As frequently taught in business schools, business plans consist of 20 to 40-plus page documents that outline a proposed new product or service; the organizational and financial strategies to be employed; marketing, production, and management activities; and an examination of the competitive and environmental constraints and resources. Students typically work in groups to devise these plans, and they present them either in the classroom or to outside judges in order to demonstrate the quality of the plan and the idea, as well as their ability to integrate material across a broad array of business school subjects.

Obviously, there were successful businesses, start-ups, and entrepreneurs long before the notion of business plans firmly took hold. The historical genesis of the contemporary business plan is most probably rooted in the long-term planning carried out to turn around large firms (Fayol, 1988), as well as that conducted by large corporations, such as the Ford Motor Company (Ewing, 1956). Drucker (1959) wrote one of the first articles on long-range planning utilizing an entrepreneurial approach,

where he attempted to define long-range planning as the organized process of making entrepreneurial decisions. Drucker's framework for business planning gained additional currency with Halford (1968) and Webster and Ellis (1976). Several influential texts were written in the eighties (e.g., Ames, 1989; Fry & Stoner, 1985; Hisrich & Peters, 1989; McKenna & Oritt, 1981; Rich & Gumpert, 1985; Shuman, Shaw, & Sussman, 1985; Timmons, 1980; West, 1988). Common to these books and articles were that they focused on new or small firms, they presented arguments for and against business plans, and they promoted a structure of anywhere from 13 to 200 essential points that an entrepreneur should cover when producing a business plan. These points covered everyday operational activities including attempts to forecast demand, as well as to provide an analytical and strategic approach (Robinson, 1979). Competitions followed shortly afterward. Management-consulting firms such as Ernst & Young (Siegel, Ford, & Bornstein, 1993) promoted business planning through sponsored competitions and their own published material. In 1984 Moot Corp. began one of the first business planning competitions in the world (Moot Corp, 2003). The Moot model spread, and by 1989 competitions were conducted at leading U.S. universities including Harvard, Wharton, Carnegie Mellon, Michigan, and Purdue. A recent Web site search showed that 10 of the top 12 universities conduct their own business plan competitions, including Harvard, Stanford, Wharton, and MIT.

Given the considerable resources dedicated to teaching this activity, students who have learned to plan should demonstrate increased mastery, knowledge, and comprehension that would assist them in the process of starting a new firm. Assumptions, generally untested, are that business plans assist individuals in the nascent firm to make better decisions, or that they help with the nascent organization's performance. Surprisingly, the limited research conducted so far that evaluates the utility of business plans in entrepreneurial environments has failed to produce clear findings (Stone & Brush, 1996). One study found that only 28% of a sample of *Inc. 500* firms had completed a formal classic business plan, and only 4% conducted a systematic search (Bhidé, 2000). Bhidé points out how short the planning process actually is—in one study 63% of *Inc. 500* firms took only a few months to plan, and only 9% took more than a year (Bhidé, 2000: 55).

Business plans may also be seen as the manifestation of the activity to collect and summarize relevant information. In this capacity they should increase efficiency, through the reduction of uncer-

tainty regarding possible outcomes, as well as reduce the probability of bad choices being made at every step of the organizing process (Hax & Majluf, 1984). However, these assumptions have limited and often contrasting empirical support. Most previous research on this subject examines how business plans influence organizational profitability. Some of these studies found a positive relationship between planning and profitability in terms of growth and performance (Bracker, Keats, & Pearson, 1998; Schwenk & Shraeder, 1993). Other studies found a negative, or lack of relationship, between business plans and profitability (Boyd, 1991; Robinson, 1979; Robinson & Pearce, 1984). Even fewer in number are studies that have examined business planning activities for new venture development (Delmar & Shane, 2003). Researchers in one study of nascent entrepreneurs found no relationship between profitability and those that had written a formal business plan 2 years after founding (Honig & Karlsson, 2004). Institutional factors were cited as influencing and coercing some entrepreneurs into writing business plans, including those who thought of the activity as a futile exercise. In another study, researchers taking a slightly different approach found a positive relationship between business planning and *survival* after 18 months, and they observed a relationship between ongoing planning activities and product development (Delmar & Shane, 2003). Unfortunately, neither study examined the business plans qualitatively, nor were they able to examine the potential impact of entrepreneurship education (although the Honig & Karlsson study did fail to find a relationship between performance and business education). Thus, despite a somewhat feeble and controversial empirical record, the fact that business plan education continues to be taken for granted as an educational good continues to be surprising.

Its near universal popularity, despite mixed empirical data, suggests that the business plan and business planning education are more deeply rooted in ritual than in efficiency (Meyer & Rowan, 1977), particularly in the field of entrepreneurship. Planning activity is supported from numerous sources and incorporates many facets of the contemporary business landscape. For example, banks, venture capitalists, and angel investors frequently demand the completion of a business plan before actually making investments. Informal discussions frequently indicate that the business plan is either developed *after* actors make a decision to invest, or is not a critical or significant factor in making financial investment (Bhidé, 1994). Honig and Karlsson (2004) conducted an empirical analysis utilizing institutional theory (DiMaggio & Pow-

ell, 1983; Oliver, 1991) to explain the ubiquity of the business plan promoted by educational, governmental, nongovernmental, and industrial fields. They found elements of coercive, mimetic, and normative isomorphism influencing nascent entrepreneurs to produce business plans.

Business planning is so legitimized that the moment someone publicly announces their intention to start their own business, friends, family, bankers, and investors begin asking for their business plan. Preparing a business plan produces an aura of formality and conviction often required before an individual's creation of a new organization will be taken seriously. A business plan is meant to be the first step toward a specific process widely known as entrepreneurship, but unlike the activity of entrepreneurship, it focuses primarily on ideas as opposed to actions.

Thus, business planning for new entrepreneurs seems to have taken on ideological elements. It is as though a new business idea or intention without an accompanying plan is either not viable or doomed to failure, a consequence of the lack of commitment on the part of the entrepreneur(s). Ideological and socially normative behavior of this type may lead to superstitious learning, whereby unrelated activities are associated with successful outcomes (Skinner, 1953; Herriott, Levinthal, & March, 1985).

In considering entrepreneurship education, the pedagogical implications of business plans are paramount and should be of concern to many educators in the field. Entrepreneurship frequently consists of an inductive process by which various products, services, and ideas are examined, attempted, modified, and delivered. The endpoint of the process is frequently the result of this inductive activity (Saravathy, 2001), as opposed to positivist deductive rationality. Perhaps educators like the business plan model because it provides them with a specific project-oriented output that assists with student evaluation, and helps provide focus and structure in a field that is, by definition, without conventional borders. Note, however, that although the business plan format may be expedient, there is little or no conclusive proof that it helps students learn the requisite aspects of the field, or that it is of any benefit should they eventually decide to become entrepreneurs. Further, once a plan is written, it may psychologically limit the framework of options available to an organization and be outdated due to a constantly changing environment. The contemporary model of entrepreneurship business planning education, in which the business plan occupies a central position, is depicted in Figure 1.

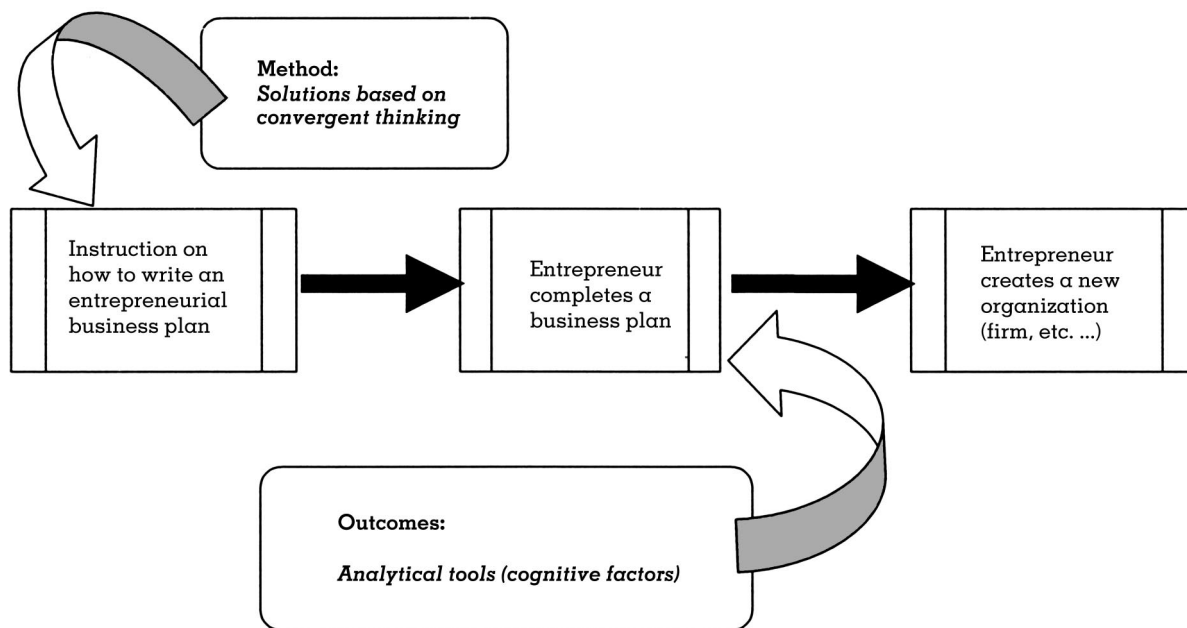


FIGURE 1
Conventional View of Entrepreneurship Business Planning Education

Contemporary business planning education is structured in such a way that students may interpret entrepreneurship as a linear process, by which budding and nascent entrepreneurs are expected to learn the necessary analytical tools and steps, produce a high-quality plan, and only afterward begin the activities involved in starting their ventures. Yet, despite a great many advocates, as well as its increasingly certain place in the academic curriculum, critics argue that planning is irrelevant and constraining, resulting in the limitation of the range of activities and creative responses to environmental changes (Mintzberg, 1987). Maintaining that the contemporary MBA focuses too much on analytical decision making, Mintzberg has developed this critique by advocating pedagogical devices that improve the situational, collaborative, and global problem-solving capabilities of contemporary managers (Mintzberg & Gosling, 2002).

From a theoretical perspective, Mintzberg's call suggests the concept of equilibration as stated by Piaget (1950). Piaget, trained as a biologist, first became interested in why children fail to answer questions correctly, and concluded that logic is incrementally learned (Messerly, 1996; Gardner, 1991). For Piaget, intelligence and learning take place in evolutionary stages, called *structural evolution*, resulting in adult cognition. Equilibration is how Piaget describes our attempt to create a balance between the environment and existing circumstances. While we respond to the world

according to our *assimilation* (analytical tools), unique experiences in life require *accommodation* (minor changes in our cognitive structures). Our intellect develops as we attempt to achieve a balance between ourselves and the environment, with unique situations bridged by changing mental structures to reflect these new experiences. Piaget's intellectual equilibrium is not static, but prepares the individual for the next subject of disequilibrium. Thus, while a university student would presumably be bored by a lesson in how to count to 10, a session on derivatives may provide a progressive challenge leading to intellectual development.

Piaget's theory of learning is particularly appropriate to the preparation of potential entrepreneurs. For comparison, we can examine the study of technology, an arguably important component of many entrepreneurial endeavors. The strictly rational approach of neoclassical economics, based on mathematical models and a monodisciplinary approach, has failed to yield an explanation of technological advance (Solo, 1975). Even economists who attempt to understand technological development inevitably find themselves in the more abstract and arcane world of organizational studies (David, 1985; Rosenberg & Birdzell, 1986), a subject more conducive to the Piagetian structuralist approach. Solo (1975) argues forcefully that only an epistemology such as Piaget's structuralism—which incorporates learning functions that operate through a complex of cognitive structures—

can explain the multifaceted interrelationships of individual, social, and organizational learning. Even understanding entrepreneurship retrospectively necessitates an interdisciplinary iterative approach. For example, research examining the entrepreneurial activities of Thomas Edison required approaches including technology, language, strategy, and management, to name but a few (Hargadon & Douglass, 2001). Because entrepreneurs must focus on both the science of invention and the institutional constraints of novelty and the marketplace, success is determined not by preplanned activities, but through the observation, interpretation, introduction, and reevaluation of new products and activities. The Piagetian model is particularly well suited to the sort of interdisciplinary learning that occurs through collaboration, an essential factor in bridging the myriad of different knowledge systems. Learners are encouraged to utilize cognitive relationships that are already embedded in their social practices, and that are anchored in authentic tasks (Wood, 1995). A similar example where Piaget's theory has been successfully utilized is the study of business ethics, an arena that also requires individuals to solve problems that require cross-disciplinary logical judgment and critical analysis (Kavathatzopoulos, 1994). Understanding creativity and the creative process is only possible through the examination of how we come to learn, and of how our minds progressively map out our distinct identities. Piaget's theory allows us to begin to understand the nature of inquiry through a disciplined method. As a learning theory, it most closely approximates the requirements of entrepreneurial endeavors, which consist of both recognizing opportunities and applying novel and creative solutions. It seeks to develop an overarching epistemological inquiry that allows for the reflection of the source and character of knowledge.

I return to Piaget's theory below when discussing models of entrepreneurship learning, then proceed to discuss current educational theory and methods regarding business planning for entrepreneurship training, followed by the introduction of two alternative models that incorporate aspects of the assimilation and accommodation processes as conceptualized by Piaget. I conclude with a general discussion of entrepreneurship education.

The Theory Behind Business Planning Education

Despite the ubiquity of business plans and business planning in university education, there are few formal theoretical models and scant research data to support the activity. For those that argue

that management education relies too much upon untested assumptions, trends, and fads, this comes as no surprise (Abrahamson, 1991). Because the ability to manage, implement, and observe the impact of changes in entrepreneurial environments has been quite limited, much of what is known regarding planning and performance comes from the strategic planning literature. Although there is little conclusive evidence to prove that a diffusion of the planning perspective from strategy to entrepreneurship occurred, casual observation, including cross-field publication records, suggests that many scholars of entrepreneurship were originally trained in strategy and are likely to have carried their perspectives on the importance of planning with them to entrepreneurship.

Two major theoretical views of strategic long-range planning contrast the synoptic, or highly rational proactive process of goal setting, monitoring, and evaluation with incremental processes that are less structured and rational (Fredrickson & Mitchell, 1984). Advocates of formal planning reside in the synoptic camp, cognizant that the business environment may be one of the most critical elements of the effective implementation of any business plan. Uncertainty varies considerably from environment to environment, market to market (Aldrich, 1979, 1999). When uncertainty is greatest, plans may actually constrain the ability of organizations to adapt, a finding supported by a number of studies (Fredrickson & Acquinto, 1989; Fredrickson & Mitchell, 1984). The empirically supported perspective that dynamic environments are less suitable to strategic planning has important implications for educators interested in start-up planning. In many cases, new firms must enter highly dynamic unstructured new markets with novel or radically altered products. Planning may present a liability to such firms by constraining their willingness to adapt to new conditions.

Strategic theory asserts that there are two advantages resulting from the planning process: content and process (Weir, Kochhar, LeBeau, & Edgeley, 2000). *Content* includes the choices, plans, and actions of a strategy, while *process* refers to the creation and analysis of strategy, as well as the organizational implementation. A cursory examination of the instructional literature on business planning, as well as my own experience in examining various business plans and discussing the subject informally with venture capitalists and entrepreneurs, suggests that content issues represent the dominant aspect of entrepreneurial business plans.

The content of any strategic plan consists of the method of obtaining sustained competitive advan-

tage. In manufacturing, this mainly consists of identifying performance objectives and organizational expertise based on cost, quality, complexity, and available resources. In the marketing arena, a SWOT analysis is frequently used to identify competitive advantage through either segmentation or identification of an effective marketing mix (Weir et al., 2000).

The results of empirical studies testing theoretical relationships between strategic planning and outcomes for existing businesses tend to be inconclusive, with some research identifying the utility of long-range planning in organizations (Andersen, 2000; Karger & Malik, 1975; Wood & LaForge, 1979), others failing to identify positive outcomes (Grinyer & Norburn, 1975; Sapp & Seiler, 1981; Whitehead & Gup, 1985), and still others conditional on the relative stability of the industrial environment under study (Powell, 1992; Fredrickson & Mitchell, 1984). Many studies have been faulted for methodological weaknesses. For instance, it is very difficult to prove causality, which typically assumes that firms that plan better are more successful. An alternative view is that more successful firms have more resources available to spend on activities such as strategic planning. Other criticisms include a difficulty in identifying appropriate outcomes, subjectivity regarding assessment of what constitutes strategic planning, lack of commonality according to factors such as size, industry, and product, and general methodological weaknesses (Greenley, 1986). One approach to adjudication regarding these mixed findings has been to examine the range of studies through meta-analysis. One early metastudy failed to draw any conclusions from the existing empirical literature (Gordon, 1986), although more recent meta-analysis suggests there may be some positive relationships between strategic planning and performance (Miller & Cardinal, 1994). Miller and Cardinal's meta-analysis found planning to be positively related to profitability, but of particular note was that the relationships were only observed when planning was defined as *not* requiring written documentation. As they state: "if an archival source of performance data is used, planning is defined as standardized and formalized planning, a low-quality assessment strategy is used, and the environments are only moderately turbulent, the correlation falls to approximately zero" (Miller & Cardinal, 1994: 1661). Thus, even for preexisting firms, it appears that overly formalized planning fails to universally provide a significant advantage and is most useful only in a specific subset of environments.

An Experiential Approach Toward the Teaching of Entrepreneurship

Much of what entrepreneurs do is the product of tacit knowledge, also referred to as knowledge-by-doing (Polyani, 1967). Because of the nature of tacit knowledge, it is most often acquired through learning by experience. Educators can address the gap between formal explicit knowledge and tacit knowledge by incorporating experiential education, also known as informal education, into the curriculum. Informal education can be defined as "the life-long process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment—at home, at work, at play" (Coombs, 1985: 24). Informal education is how individuals develop practical skills both inside and outside the formal educational curricula. One way of incorporating informal education into the curricula is to utilize action learning (Revans, 1978), which envisions learning as a social and organizational process. The action-learning process has also been addressed at the organizational level to characterize the learning organization (Leitch, Harrison, Burgoyne, & Blantern, 1996).

In many ways, starting a new business is similar to going into battle, whereby the entrepreneur must allocate sufficient resources and a workable strategy capable of overcoming competitive and hostile adversaries. For this reason, students of strategy and entrepreneurship are often referred to works such as Sun Tzu's *The Art of War*, and Machiavelli's *The Prince*. Lanchester's mathematical models were originally applied to military strategy and the battleground, where the casualties suffered by two opposing armies are moderated by weapons efficiency. These equations are now a component to examine business competition and operations research with the well-known annual Lanchester prize (Cambell & Roberts, 1986). Thus, the "fight between two armies is comparable to the competitive struggle between a market leader and the rest" (Onoda in Cambell et al., 1986: 190). One of the most common elements shared by war and entrepreneurship consists of a lack of certainty. Resources, reactions, and the environment all converge to present a virtually unpredictable soup of ingredients. Robert McNamara, defense secretary under both Presidents Kennedy and Johnson, repeatedly observed that ad-hoc rules and procedures are of little use when dealing with the realities imposed by a radically changing environment (McNamara, 1986). Rather than attempting to forecast the long-range effects to particular actions, he stresses the importance of maintaining clear dia-

logue and reacting creatively to the particular situation at hand. Another insightful example is the fall of France in 1940, whereby extensive and elaborate planning failed to anticipate the impact of technological solutions that opened up new opportunities, such as the blitzkrieg, that made the Maginot Line redundant (Kiesling, 1996). The role of the leader, whether a general or an entrepreneur, is to make sense of uncertainty and chaos and bring about reasoned and efficient adaptation and organization (Amit & Schoemaker, 1993). Flexibility, as opposed to planning, more frequently wins the battle of the day. Van Creveld (1985) makes this point repeatedly in evaluating successful military strategies throughout history. For example, in reviewing Napoleonic battle strategies (Koniggratz, in 1866, between the French and the Prussians), he concludes:

To Moltke [the Prussian general], strategy was always a system of expedients, and he always insisted that planning should go only as far as the first encounter with the enemy . . . Moltke, like Napoleon, but to a greater extent, knew full well that the flow of information to and from the units would never be sufficiently detailed or arrive sufficiently fast to allow control by a commander sitting at his headquarters in the rear, the invention of the telegraph notwithstanding (Van Creveld, 1985: 145–147).

Venture capitalists, like generals, are more likely to focus on factors such as teamwork and other nonexplicit criteria that emphasize adaptability, seldom placing a high value on the business plan itself (Macmillan, Siegel, & Subba Narasimha, 1985; Zacharakis & Meyer, 1998).

Entrepreneurship, like military strategy, suggests the need for entrepreneurs to avoid focusing their efforts on the production and evaluation of systematic detailed plans, and instead to develop the necessary skills to reevaluate, adapt, and revise activities in a resourceful manner to suit new environmental contingencies. Rather than pursuing a causal model of planned behavior, entrepreneurial activities may best be described as having an experimental focus that utilizes environmental feedback (Sarasvathy, 2001). Outcomes are frequently impossible to predict and represent decisions that are impossible to anticipate. Pedagogical techniques should therefore be developed that focus on applied hands-on activities, resulting in experiential learning, as opposed to the teaching of general principles.

Traditional pedagogy is frequently in contrast to the needs of entrepreneurial education. Knowl-

edge and skills presented with traditional methods often fail to transfer to the actual environment where they might be utilized, in contrast to nonformal techniques such as apprenticeship (Wood, 1995). Academic learning typically consists of presenting information in a consistent and predictable manner. We allow students to review, digest, and repeat previously dictated solutions to specific abstract problems, and to demonstrate competence during examinations. While these techniques are well adapted for teaching foundation material, such as providing tools that assist students in analytical decision making, this method of learning is ill suited to the complex and dynamic problems typically faced by contemporary managers (Mintzberg & Gosling, 2002) or adults (Wood, 1995).

Beyond the well-discussed forces of globalization and the knowledge economy, firms themselves are quite heterogeneous regarding the suitability of their activities to conventional planning (Perrow, 1967). Entrepreneurs also differ from managers and other organizational actors in their learning requirements, while empirical research has shown that considerably different learning styles are pursued by entrepreneurs versus intrapreneurs (Honig, 2001). The distinction between managerial, intrapreneurial, and entrepreneurial activities and learning requirements has not been made in contemporary business planning education. Books and teaching modules are designed to conclude with a standardized formatted business plan, complete with multiple chapters covering a range of analyses in a formal structure. Such structured closed-ended pedagogical activities may be particularly inappropriate for entrepreneurial activities, where the very nature of the problem, as well as the necessary analytical tools employed, changes radically as the business, the market, and the product emerge.

Entrepreneurs, as well as intrapreneurs, may be thought of as experts, much in the way chess masters, radiologists, physicists, or judges are considered experts. They are required to solve problems that are ill structured and open ended. Research examining the nature of expert knowledge suggests that through familiarity and experience, experts are in a position to approach problems from a broader, qualitative perspective, maximizing their efficiency when they move on to quantitative activities (Glaser & Chi, 1988). Experts, as well as entrepreneurs, gain critical experience by engaging in their professional activities, but this is of little help regarding the design of university curricula. We may, however, consider utilizing simulations and exercises that help prepare students

for the unpredictable nature of entrepreneurship, resulting in the generation of empathy and experiential learning (Hindle & Angehrn, 1998).

Figure 2 shows the incorporation of experiential trial and error (action learning) in the learning experience. Experts build their knowledge structure on a base of trial and error, culminating in the kind of experience that allows them to approach the problem with a more efficient paradigm (Glaser & Chi, 1988). One example of such a pedagogical device is to teach students to be prepared for novelty and surprise, because this is the environment they will be facing. Sitkin (1996) refers to this as training by inoculation. Individuals learn by experiencing small failures in order to build up resilience in the face of future organizational conditions. From Piaget's standpoint, learning through failure provides the necessary incentive to produce a situation of disequilibrium. The resulting imbalance motivates the student to learn and invoke a new concept introduced to avoid future failure. Thus, these failures may be organized as part of team-building exercises, whereby only following a substantial number of failures is sufficient material unveiled in order to solve the simulated problem (Robinson, 1996). Examples of this approach

include the use of simulators for the training of ultrasound radiologists, simulated patients for emergency and general medical training, and airplane simulators for training pilots. Each simulated environment encourages students to both experience and learn from failure in a real-time simulation mode.

The impact of entrepreneurial simulations is still poorly understood and represents a significant future research activity. From the perspective of Piaget's theory of cognitive development, the model, while useful, is somewhat weak regarding the dynamic process resulting in dialectical synthesis. For an individual to maintain motivation during the simulation, the activity must be both believable and continuously adaptable. It is the latter aspect of simulation design that may impact the long-term ability of students to obtain maximum learning. As the external (to the classroom) environment changes, the simulation should also change to reflect the individual's cognitive expectations. Otherwise, the activities may seem senseless and boring. Few simulations are sufficiently malleable to track the constant changes of the business world. Hindle and Angehrn (1998) introduced a theory to guide in the development, selec-

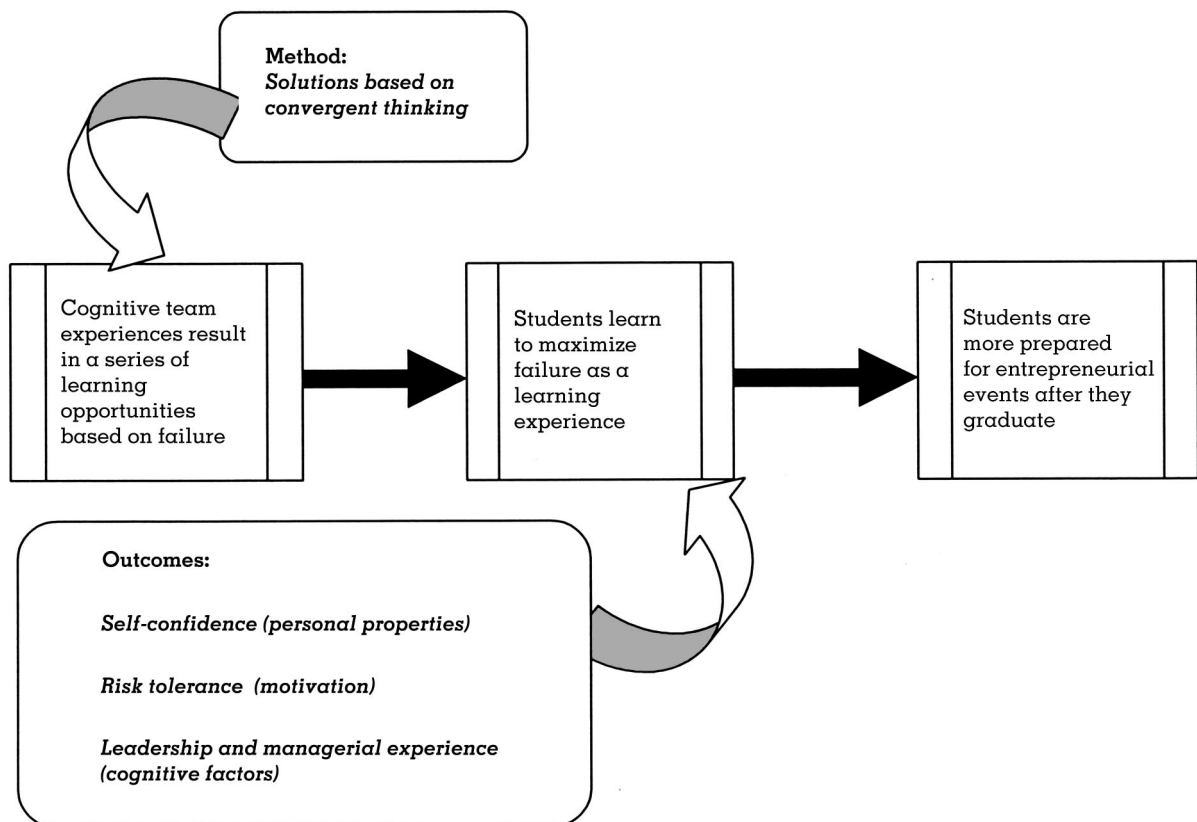


FIGURE 2
An Experiential Model of Entrepreneurship Education

tion, and evaluation of entrepreneurship simulation activities. They categorized relevant factors into four areas: communication skills, control skills, human resource skills, and technical skills. Each criterion should be examined according to theoretical categories that include adequate suspension of belief, unambiguous communication, technical reliability, and a general cost-benefit analysis. Adequate suspension of belief is necessary to gain the participant's "buy in" in order to maximize the simulated experience. Simulations must be credible, relevant, and illustrative to be effective (Hindle & Angehrn, 1998). Credibility of the simulation activity depends, in part, on unambiguous communication. Participants, guides, and software must all communicate immediate and clear situational assessments.

Multimedia simulations, such as the Harvard simulation "Launching a High-Risk Business" (Sahlman & Roberts, 1999), can help students prepare for failure, learn from it, and adapt their future activities in a more cogent and efficient manner. The topic of simulation and entrepreneurship education was well reviewed in a series of articles in *Simulation and Gaming*, guest edited by Katz, Gundry, Low, and Starr (1994, 1995, 1996). In one insightful empirical study in this series, Low, Venkataraman, and Srivatsan (1994) attempted to develop a simulation that would be both pedagogically useful and provide a theoretical-research perspective. They found these two goals to be mutually exclusive. This suggests that considerable research is necessary to explore both ends of the equation—how much students learn, and separately, whether what they learn is relevant. Other studies appear to demonstrate effective and applied learning, in terms of the application of stereotype formation, resulting from simulation activities (West & Wilson, 1995).

In sum, the experiential model is designed to help students learn to tolerate risk, learn from failure, and develop some managerial skills necessary to motivate and lead a team through unknown territory. Although they are designed to prepare students for ambiguity, simulations are still based on convergent thinking in that the solutions must be predesigned into the activity. Note, however, that students are both capable and likely to introduce new factors and alternative solutions not preprogrammed into the simulation, particularly vis-à-vis their social and bargaining position as students, individuals, and actors in the simulation (Low, Venkataraman, & Srivatsan, 1994). These unanticipated solutions and extraenvironmental negotiations (such as, "I agree to give you X in this assignment, if you agree to give me Y in the next

assignment" are exceptionally difficult to monitor; however, an alert instructor may be able to utilize them as part of the learning process. Of course, simulation learning may not provide the necessary specific skills and techniques to assist entrepreneurs as they navigate the decision tree of their future businesses—it cannot help them solve problems as they encounter them in the real world, and may not reflect current environmental changes and conditions.

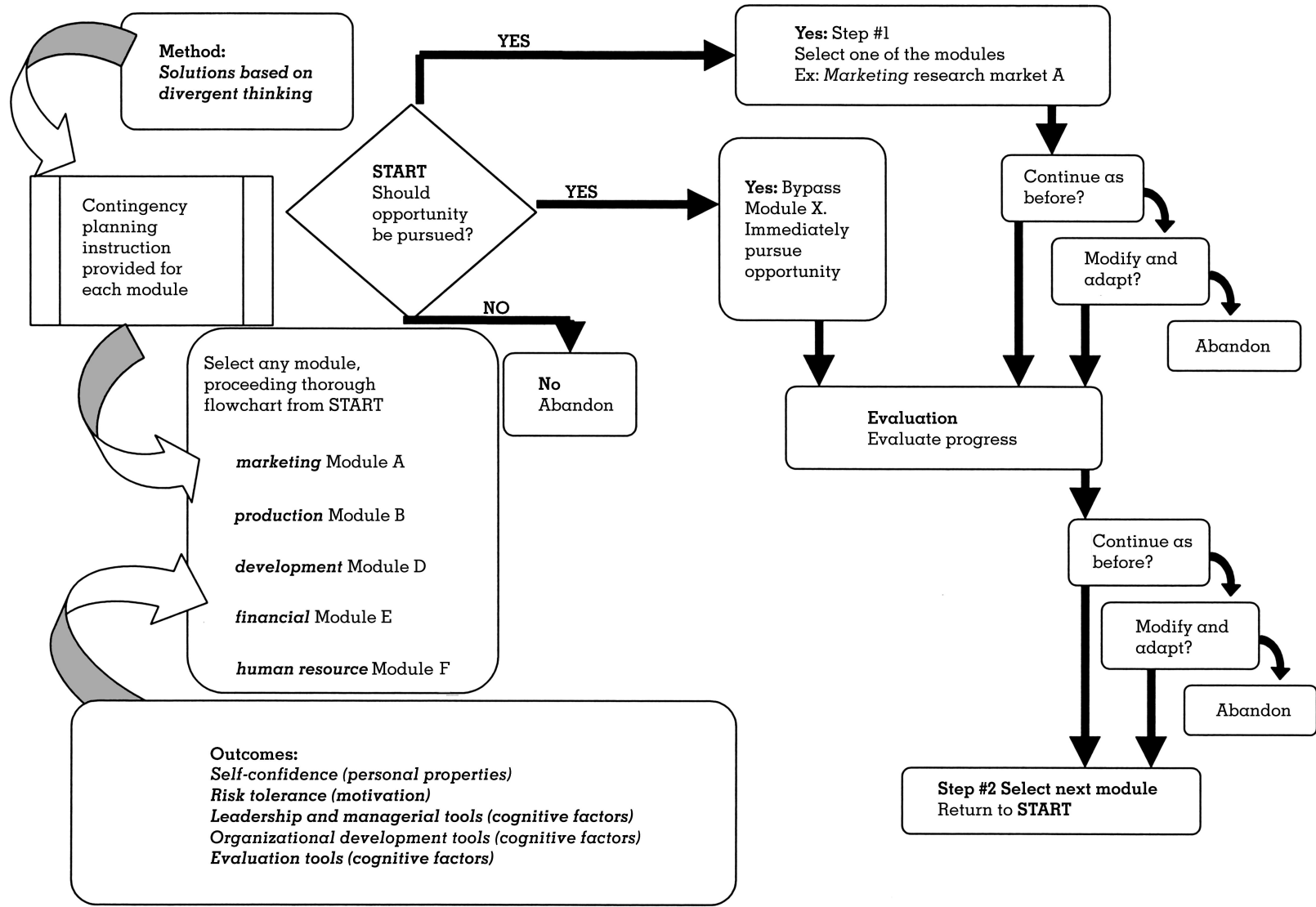
A Contingency Approach Toward Teaching Entrepreneurship

A third approach to teaching and preparing students for entrepreneurial activities consists of providing tools that assist in the navigation and development of paths characterized by uncertainty and unpredictability. Entrepreneurial activities can be characterized as requiring an open learning environment. There are few answers in the entrepreneurial process and not many best practices, only opportunities and exploitation (Shane & Venkataraman, 2000). Entrepreneurial activities have many features of open systems, whereby there may be more variables than can be predicted, understood, or controlled (Thompson, 1967). Rather than accumulating structured formal knowledge, the sustained competitive advantage maintained by entrepreneurs may best be characterized as a component of tacit, rather than explicit knowledge (Polanyi, 1967). Tacit knowledge, based on experience, is very difficult to codify or decompose into rule-based language, indeed, this is one of the sources of its strategic advantage, particularly with the advent of new information technologies (Teece, 1980).

Thus, educational activities should be developed that interrelate in an open-ended dialectic manner, supporting the development of tacit knowledge and the ability to adapt and modify a plan, rather than the ability to preconceive and detail one. While it may be useful for students to learn each step necessary to complete a business plan, there is no requirement that this be done in a linear or task-specific integrated manner. What is required is the development of capabilities to manage knowledge assets in a dynamic manner, in support of the learning theory promoted by Piaget, and following action-learning precepts. Figure 3 depicts a proposed contingency model for teaching business planning.

In the contingency model of business planning introduced here, there are no a priori direct or assumed relationships between the different phases of preparatory activities consisting of op-

FIGURE 3
A Contingency Model of Business Planning Education



portunity recognition and exploitation. Rather than present a prestructured relationship based on information retrieval, analysis, and decision making, this model is designed as an open system that can be started from virtually any point in the entrepreneurial cycle. The individuals simply select those modules they view as important, and proceed through an evaluation exercise. Modules may consist of any activities that appear relevant to the entrepreneurial practice. Further, the choice of which module to select at what time or period is contingent on multiple factors addressing the "art" of entrepreneurship, as opposed to the science. It is more akin to an artist who selects one particular color from his or her palette—the choice is determined according to the situation, environment, goals, and individual proclivities—there is no recipe for success. The role of the instructor is to assist the individual by advising them regarding their manipulation of the module, helping them to integrate the activity into their cognitive map. While this would ideally be done on an individual basis, practicality might necessitate the activity be conducted in small groups of students attempting to solve the same modular components (although not necessarily facing the same problems). As an example, consider how medical interns typically learn diagnosis and treatment. Groups of interns wander through hospital wards accompanied by an expert (experienced physician) who observes and advises them regarding their assessments. Entrepreneurship students utilizing the contingency model will be asked to implement solutions resulting from either actual business activities they may be involved in, by assisting firms they are consulting with, or by observing business environments they are familiar with in their communities. Student groups attempting to solve actual problems will be able to help each other to reach an understanding of appropriate actions. Rather than attempting to do "everything" from conception to exit, they will work on subcomponents of entrepreneurial activities, reporting on only the activities that, with advice of the instructor, are deemed essential. Five common business plan elements are depicted in Figure 3, consisting of marketing, product development, production, financial planning, and human resource planning, although additional components can be added or removed as necessary, as can be variation in repetition and sequence.

The World Bank has begun utilizing a system of rapid-results initiatives that allows for cross-functional efforts quite similar to the contingency plan outlined above. Their new system allows for the modification and adjustment of plans in real time,

overcoming conventional planning hurdles such as bureaucracy, inflexibility, and slowness of implementation. In one example, a team whose planned goal was to increase milk production for rural farmers discovered the real problem was one of spoilage, allowing for a redirection of efforts promoting quality control, rather than production goals (Matta & Ashkenas, 2003). The team leader of the milk productivity team (renamed the clean-milking team) observed: "I now realize how much of the overall success of the effort depends on people discovering for themselves what goals to set and what to do to achieve them" (Matta & Ashkenas, 2003: 112).

The contingency model makes extensive use of Piaget's theory of equilibrium (1950). Equilibrium is actually a dynamic process, whereby the individual repeatedly and incrementally assimilates new knowledge and applies this knowledge with increasing levels of sophistication and complexity. During each iteration, the individual, by actively seeking interaction with the environment, progressively satisfies that need. In particular, the individual is interested in exercising newly learned approaches. "To Piaget . . . the individual is most interested in that which is moderately novel. That is, interest is highest in that which is neither too familiar nor too novel to correspond to existing schemas" (McNally, 1973: 11). In the contingency model presented here, students have an opportunity to dynamically and incrementally learn new approaches to entrepreneurship and apply them as they make sense in terms of novelty, appropriateness, and cognitive development. This model maintains that business planning is a dynamic activity, as opposed to a summative one. Following each iteration of new learning, students are expected to move the approach toward a position of disequilibrium, one that will be satisfied only when they successfully incorporate a new learning activity. In sum, the contingency model presents a learning structure that focuses on dialectical synthesis, as opposed to one based on the accumulation and application of static information and techniques.

Unlike the previous two models, students using the contingency planning model are encouraged to pursue divergent thinking (Getzels & Jackson, 1962). *Convergent thinking* assists students in obtaining a single precise answer, while *divergent thinking* encourages students to discover alternative solutions based on the same information (Sternberg & Lubart, 1999). Completing any and all of the modules provides a systematic method of collecting the necessary information to explore divergent thinking. It follows Piaget's model of equil-

ibration by providing intellectual tools to access the environment, as well as accommodating cognitive changes necessary when new unanticipated experiences occur (Piaget, 1950). According to Piaget, the autonomous individual attempts to find optimal solutions to situations by attempting to regulate certain fundamental constructs through other means, such as, for example, social relations (Kavathatzopoulos, 1994). Thus, individuals moderate and adjust their world view to solve problems in incrementally novel ways.

In addition to promoting divergent thinking, there is no expectation that any or all modules be completed before beginning entrepreneurial activity. This is helpful in supporting entrepreneurs to act on the moment, maximizing opportunity, as opposed to waiting and deliberating with further analysis. Speed is one of the critical factors in providing competitive advantage to new entrepreneurs over larger, existing firms. Rather than expecting a nascent entrepreneur to complete a range of activities, this model suggests that students learn instead how to master discrete evaluation models that are designed to encourage reflexive and creative thinking. Thus, instead of solving a particular problem, the modules are designed to identify what the problem might be (Runco, 1994).

More closely attuned to a method incorporating effectuation (Saravathy, 2001), the contingency model of business planning allows for a phased, cyclical approach, complete with feedback paths, at each critical stage of organizational development. There is no a priori assumption that any exercise must occur before the organization is created, and there is no expectation that activities proceed through a sequential manner. Instead, the entrepreneur is free to select discreet modules, such as market analysis, marketing, production and development, financial planning, and human resource strategy, as they become necessary. Each package is autonomous in that it does not rely on information provided by other modules; however, there are informational feedback loops in each module allowing for the incorporation of new knowledge based on current information available to the entrepreneur.

REDESIGNING BUSINESS PLANNING EDUCATION

Education is a surprisingly durable and inflexible social institution, not necessarily rooted in efficiency (Meyer & Rowan, 1977). There is little incentive, and so it is quite unlikely that many professors of entrepreneurship will suddenly remove the

ubiquitous business plan from their syllabi. Teaching entrepreneurship students how to write a business plan is so firmly entrenched in our educational, financial, and social system, that it may persist in the face of any critical empirical data.

Perhaps one of the weakest aspects of existing models of business planning education is that, for the most part, they focus on idea convergence. Students are taught an ideal method of conveying or marketing their ideas, and they are encouraged to conform as closely as possible to this ideal. The process supports thinking "inside the box" as opposed to outside it, and may serve to reduce rather than expand the range of activities and potential solutions pursued by nascent entrepreneurs.

I have introduced two proposed alternative models of teaching entrepreneurship here, each with a range of different properties and characteristics. Both utilize Piaget's theory of equilibration, whereby the individual is believed to learn in moments of assimilation and accommodation that iteratively increase in terms of complexity. The experiential model requires the development of new pedagogical aides that provide worthwhile simulations resulting in high-quality learning experiences. The objective of these simulations is to advance beyond the analytical skill development in contemporary entrepreneurial education toward the promotion of self-confidence and motivation, both the result of an increased tolerance for risk. Simulations are typically designed with a particular set of solutions, supporting convergent thinking. With careful attention to design, however, it may be possible to develop experimental models incorporating simulations that focus on idea divergence into the entrepreneurship curricula. For example, software might be designed to incorporate new solutions provided by players, by way of the game administrator. So, too, can a careful monitoring of the environment, in order to include current situations into the simulation decision tree. For example, as both new accidents and new solutions to avoid accidents are discovered by the Federal Aviation Authority, they are fed into pilot simulators for updated training routines.

The contingency model of entrepreneurial education represents a second alternative pedagogical perspective. Instead of insisting that students learn to package the components of a contemporary business plan at one point in time, this model suggests the promotion of new behaviors, as well as the development and utilization of new tools that exercise and enhance reflective, longitudinal analysis. The proposed model makes extensive

use of Piaget's concept of equilibration by providing the analytical tools as well as the experiential opportunity to combine problems and solutions dynamically with the environment. Because the contingency model allows for continual reevaluation as well as for iterative feedback opportunities, it is both dynamic and dialectic, resulting in a synthesis of assimilation and accommodation. Students are taught discrete modules that pertain to unique events contingent upon time and place. No expectation is made that any or all modules are completed before start-up activities begin, and, unlike with simulations, there is no necessity to introduce elements and characteristics of the business environment *ex ante*. This more closely tracks the genuine business environment faced by entrepreneurs and nascent entrepreneurs, yielding increased believability and therefore a higher potential opportunity for intellectual development. It is particularly appropriate for environments that lack a sustained or static structure, such as that experienced by entrepreneurs who engage in new activities, or who are highly subject to a barrage of changing resource factors in the marketplace. Thus, while certain business subjects can be reliably taught by relaxing one theoretical environmental constraint at a time (e.g., finance), entrepreneurship is an integrative subject that virtually precludes this type of systematic and static and incremental knowledge building. For entrepreneurship education to be effective, it must adhere as closely as possible to the genuine business environment.

One obvious weakness of the contingency model is that it leaves educators with an assessment quandary—they can no longer demand a completed written business plan at the end of a term, as is customarily required. Instead, the instructor will have to be content with completed modules that may or may not be related to one another, undoubtedly a more complex set of products to evaluate. Further, students will be faced with the uncomfortable fact that the tools and modules they are being taught may be inadequate for public consumption, and that they may need to complete a formal business plan to satisfy investors, regardless. These limitations suggest the need for specific research examining both the utility of the contingency model as a pedagogical device and its currency in the competitive world of investment. Of course, not all problems faced by entrepreneurs require divergent thinking. Some, such as financial evaluations, require convergent thinking. Thus, a blend of Models 2 and 3 may be most appropriate.

A significant portion of contemporary entrepreneurship education appears to be atheoretical and largely unsupported by empirical evidence of its practical effects. Given the importance of entrepreneurial education in the academic and public sectors, and given the increasing sums of money allocated for the various promotional activities, the need for careful pedagogical analysis and design is both immediate and critical. Entrepreneurship education requires a body of empirical literature all its own. Rather than accepting at face value standardized activities and routines, we should begin examining our learning interventions in order to identify those activities most suitable for present and future entrepreneurs we hope to assist.

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