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Can Entrepreneurship Be Taught?

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Abstract: Is entrepreneurship an innate ability or an acquired skill? Can entrepreneurial acumen be achieved and enhanced through education and training, or are certain people “born” to be entrepreneurs or to act entrepreneurially? Economists and management theorists give widely divergent answers to these questions. This paper reviews the major approaches to teaching entrepreneurship, primarily at the undergraduate level, and relates them to economic theories of entrepreneurship. Surprisingly, we find little connection between the leading approaches to entrepreneurship education and economists’ understanding of the entrepreneurial function. We assess likely explanations for the lack of contact between these two groups of scholars and suggest possible improvements.

Key words: alertness, entrepreneurship, innovation, opportunity identification, resource acquisition, uncertainty bearing

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1. Introduction

Entrepreneurship is one of the fastest-growing subjects at U.S. colleges and universities (Gartner and Vesper, 2001; Solomon, Duffy, and Tarabishy, 2002). Entrepreneurship courses, programs, and activities are emerging not only in schools of business, but throughout the curriculum. In 2003 U.S. colleges and universities offered over 2,200 entrepreneurship courses at over 1,600 schools, supported by 277 endowed faculty positions, several dozen refereed academic journals, and more than 100 funded centers (Kuratko, 2003). Entrepreneurship became a Division (specialized interest group) within the Academy of Management in 1987. While the field remains a minority specialization among business school faculty (Katz, 2003), during the 1990s the number of entrepreneurship positions increased by over 250% and the number of candidates nearly doubled (Finkle and Deeds, 2001). Besides the usual business school offerings courses in Social Entrepreneurship, Family Business Management, Technical Entrepreneurship, Performing Arts Entrepreneurship, and the like are popping up in colleges of arts and sciences, engineering, education, social work, and even fine arts.

Colleges of agriculture and life sciences are also expressing interest. Several agricultural economics and agribusiness programs, including those at Texas A&M, Purdue, Vermont, and Cornell offer entrepreneurship majors, minors, or concentrations, and many more departments offer individual courses in entrepreneurship. Since 1998 the national FFA has offered a program in Agri-Entrepreneurship. The University of Missouri-Columbia's College of Agriculture, Food, and Natural Resources established an endowed chair in Entrepreneurial Leadership in 2004 and is working to develop a college minor in entrepreneurship.

While this explosion of interest in entrepreneurship education is a relatively recent phenomenon, economists have been thinking systematically about entrepreneurship since at least the eighteenth century. The concept of entrepreneurship is central to Schumpeter's (1911, 1939) theory of economic development, Knight's (1921) explanation of profit and the firm, Kirzner's (1973, 1979, 1992) account of the market process, and Schultz's (1975, 1979, 1982) theory of technological adoption and diffusion. Yet, most of the literature and teaching materials on entrepreneurship education are only tangentially linked to underlying economic theories of entrepre-

neurship. The entrepreneurship curriculum at many colleges and universities tends to focus primarily on new venture formation and the mechanics of small-business management—routine management tasks, relationships with venture capitalists and other sources of external finance, product development, marketing, and so on. Other courses focus on the personal psychological characteristics of those who found their own companies. While these are undoubtedly important issues, they have little to do with the concerns of Schumpeter, Knight, Kirzner, or Schultz. Few of the major economic theories of entrepreneurship emphasize new ventures over existing ones, small businesses over large ones, or particular personality types, for example.

Can entrepreneurship be taught? Specialists in entrepreneurship education appear convinced that it can, that entrepreneurs are made, not born. According to Kuratko (2003, p. 12), “the question of whether entrepreneurship can be taught is *obsolete*.” What, though, is being taught? The content of most entrepreneurship curricula seems far removed from the concerns of Schumpeter, Knight, Kirzner, or Schultz. In this paper we ask not whether small-business management can be taught, but whether Schumpeterian innovation, Knightian uncertainty-bearing, Kirznerian alertness, or other manifestations of the entrepreneurial function can be taught. Our tentative answer is that some aspects of the entrepreneurial function and the entrepreneurial process can be taught, but many more cannot be.

In what follows we review some important economic theories of entrepreneurship and relate them to the major approaches to teaching entrepreneurship, primarily at the undergraduate level. Our goal is to assess the degree to which the teaching of entrepreneurship is influenced by economists’ theoretical understanding of what entrepreneurship is and what role it performs in the market economy. Surprisingly, we find that the leading approaches to entrepreneurship education are sharply divorced from economic theories of the entrepreneurial function. In part, this is because economists and specialists in entrepreneurship education ask different questions, focus on different phenomena, and use different analytical methods. To answer the question posed in the title of this paper: something is indeed being taught, perhaps very well. Whether that something is “entrepreneurship” is less clear.

2. Economic concepts of entrepreneurship

In the academic management literature, entrepreneurship is often associated with boldness, daring, imagination, or creativity (Begley and Boyd, 1987; Chandler and Jansen, 1992; Lumpkin and Dess, 1996). These accounts emphasize the personal, psychological characteristics of the entrepreneur. Entrepreneurship, in this conception, is not a necessary component of all human decision-making, but a specialized activity that some individuals are particularly well equipped to perform, and one that can presumably be hired on the market like any other consulting service. Another strand of literature, incorporating insights from economics, psychology, and sociology and leaning heavily on Max Weber, associates entrepreneurship with leadership (Witt, 1998). Entrepreneurs, in this view, specialize in communication—the ability to articulate a plan, a set of rules, or a broader vision, and impose it on others. The successful entrepreneur excels at communicating these models to others, who come to share the entrepreneur’s vision (and become his followers). Among labor economists, entrepreneurship is frequently identified simply as self-employment. Entrepreneurship research is thus subsumed under the general topic of occupational choice.

The classic contributions to the economic theory of entrepreneurship, however, tend to take a more “macro” view, focusing not on the individual entrepreneur or his specific venture, but on the role entrepreneurship plays in the economy. While mainstream economists have not completely ignored the entrepreneur, there is little consensus about how the entrepreneurial role should be modeled and incorporated into economic theory. Indeed, the most important works in the economic literature on entrepreneurship have generally been viewed as interesting, but idiosyncratic insights that do not easily generalize to other contexts and economic problems.

Schumpeter

Schumpeter’s (1911, 1939) well-known concept of the entrepreneur as innovator is a prime example of an idea that is much cited, but perhaps little used. Schumpeter’s entrepreneur introduces “new combinations”—new products, production methods, markets, sources of supply, or industrial combinations—shaking the economy out of its previous equilibrium through a process

Schumpeter termed “creative destruction.” Realizing that the entrepreneur has no place in the general-equilibrium system of Walras, Schumpeter gave the entrepreneur a role as the source of economic change. “[I]n capitalist reality as distinguished from its textbook picture, it is not [price] competition which counts but the competition from the new commodity, the new technology, the new source of supply, the new type of organization . . . competition which commands a decisive cost or quality advantage and which strikes not at the margins of profits and the outputs of existing firms but at their foundations and their very lives” (Schumpeter, 1942, p. 84).

Schumpeter carefully distinguished the entrepreneur from the capitalist; while the entrepreneur could be a manager or owner of a firm, he is more likely to be an independent contractor or craftsman. In Schumpeter’s conception, “people act as entrepreneurs only when they actually carry out new combinations, and lose the character of entrepreneurs as soon as they have built up their business, after which they settle down to running it as other people run their businesses” (Ekelund and Hébert, 1990, p. 569). Moreover, because Schumpeterian entrepreneurship is *sui generis*, independent of its environment, the nature and structure of the firm does not affect the level of entrepreneurship. Corporate R&D budgets, along with organizational structures that encourage managerial commitment to innovation (Hoskisson and Hitt, 1994), have little to do with Schumpeterian entrepreneurship per se.

While there is a substantial body of “Schumpeterian” literature, especially in technology management and evolutionary economics, the extent to which this work builds directly on Schumpeter’s ideas is subject to debate (Hodgson, 1993; Mirowski, 1994). Most of the modern literature attempts to model small, continuous changes, while Schumpeter sought to explain radical, discontinuous shifts in technologies and markets. Schumpeter also paid little attention to natural selection, taking the successful innovation as the unit of analysis. As Rosenberg (1986, p. 197) remarks, “many of Schumpeter’s contributions to economic and social thought remain neglected—even by people who would not shrink from the label ‘Neo-Schumpeterians.’”

Kirzner

Another well-known approach in economics is Kirzner's (1973, 1979, 1992) concept of entrepreneurship as "alertness" to profit opportunities. The simplest case is that of the arbitrageur, who discovers a discrepancy in present prices that can be exploited for financial gain. In a more typical case, the entrepreneur is alert to a new product or a superior production process and steps in to fill this market gap before others. Success, in this view, comes not from following a well-specified maximization problem, but from having some insight that no one else has, a process that cannot be modeled as an optimization problem. As in Schumpeter's vision, Kirzner's entrepreneurs do not own capital; they need only be alert to profit opportunities. Because they own no assets, they bear no uncertainty, and hence cannot earn losses; the worst that can happen to an entrepreneur is the failure to discover an existing profit opportunity. For these reasons, the link between Kirznerian entrepreneurship and other branches of economic analysis, such as industrial organization, innovation, and the theory of the firm, is weak. Hence Kirzner's concept has not generated a large body of applications.¹

Cantillon, Knight, and Mises

An alternative to the foregoing accounts is that entrepreneurship consists of judgmental decision-making under conditions of uncertainty. Judgment refers primarily to business decision-making when the range of possible future outcomes, let alone the likelihood of individual outcomes, is generally unknown (what Knight terms uncertainty, rather than mere probabilistic risk). This view finds expression in the earliest known discussion of entrepreneurship, that found in Richard Cantillon's *Essai sur la nature de commerce en général* (1755). Cantillon argues that all market participants, with the exception of landowners and the nobility, can be classified as either entrepreneurs or wage earners:

Entrepreneurs work for uncertain wages, so to speak, and all others for certain wages until they have them, although their functions and their rank are very disproportionate. The General who has a salary, the Courtier who has a pension, and the Domestic who has wages, are in the latter class. All the others are Entrepre-

¹ Exceptions include Ekelund and Saurman (1988) and Holcombe (1992).

neurs, whether they establish themselves with a capital to carry on their enterprise, or are Entrepreneurs of their own work without any capital, and they may be considered as living subject to uncertainty; even Beggars and Robbers are Entrepreneurs of this class (Cantillon, 1755, p. 54).

Judgment is distinct from boldness, innovation, alertness, and leadership. Judgment must be exercised in mundane circumstances, for ongoing operations as well as new ventures. Alertness is the ability to react to *existing* opportunities while judgment refers to the creation of *new* opportunities.² Those who specialize in judgmental decision-making may be dynamic, charismatic leaders, but they need not possess these traits. In short, in this view, decision making under uncertainty is entrepreneurial, whether it involves imagination, creativity, leadership, and related factors or not.

Knight (1921) introduces judgment to link profit and the firm to uncertainty. Entrepreneurship represents judgment that cannot be assessed in terms of its marginal product and which cannot, accordingly, be paid a wage (Knight, 1921, p. 311). In other words, there is no market for the judgment that entrepreneurs rely on, and therefore exercising judgment requires the person with judgment to start a firm. Judgment thus implies asset ownership, for judgmental decision-making is ultimately decision-making about the employment of resources. An entrepreneur without capital goods is, in Knight's sense, no entrepreneur (Foss and Klein, 2005).

Entrepreneurship as uncertainty bearing is also important for Mises's (1949) theory of profit and loss, a cornerstone of his well-known critique of economic planning under socialism. Mises begins with the marginal productivity theory of distribution developed by his Austrian predecessors. In the marginal productivity theory, laborers earn wages, capitalists earn interest, and owners of specific factors earn rents. Any excess (deficit) of a firm's realized receipts over these factor payments constitutes profit (loss). Profit and loss, therefore, are returns to entrepreneurship. In a hypothetical equilibrium without uncertainty (what Mises calls the "evenly rotating econ-

² In Kirzner's treatment, entrepreneurship is characterized as "a responding agency. I view the entrepreneur not as a source of innovative ideas *ex nihilo*, but as being alert to the opportunities that exist already and are waiting to be noticed" (Kirzner, 1973, p. 74).

omy”), capitalists would still earn interest, as a reward for lending, but there would be no profit or loss.

Entrepreneurs, in Mises’s understanding of the market, make their production plans based on the current prices of factors of production and the anticipated future prices of consumer goods. What Mises calls “economic calculation” is the comparison of these anticipated future receipts with present outlays, all expressed in common monetary units. Under socialism, the absence of factor markets, and the consequent lack of factor prices, renders economic calculation—and hence rational economic planning—impossible. Mises’s point is that a socialist economy may employ workers, managers, technicians, inventors, and the like, but it cannot, by definition, employ entrepreneurs, because there are no money profits and losses. Entrepreneurship, and not labor or management or technological expertise, is the crucial element of the market economy. As Mises puts it: managers of socialist enterprises may be allowed to “play market,” to act as if they were managers of private firms with their own interests at stake, but entrepreneurs cannot be asked to “play speculation and investment” (Mises, 1949, p. 705). Absent entrepreneurship a complex, dynamic economy cannot allocate resources to their highest valued use.

Schultz

Schultz (1975, 1979, 1982), like Schumpeter, works in the Walrasian tradition. However, unlike Walras and Schumpeter, Schultz recognizes that markets do not automatically and instantaneously regain equilibrium following an exogenous shock. “[R]egaining equilibrium takes time, and how people proceed over time depends on their efficiency in responding to any given disequilibrium and on the costs and returns of the sequence of adjustments available to them” (Schultz 1975, p. 829). Surprisingly, economists have devoted little attention to this problem. Even Schumpeter, who saw economic progress as the result of disruptions to existing equilibrium states, assumed that equilibrium is quickly regained following such a disruption. Schultz, by contrast, took innovation as given, and focused how economic agents adjust to exogenous shocks. An example is farmers in a developing economy. Such people must “deal with a sequence of changes in economic conditions, which are in general not of their own making because

they originate mainly out of the activities of people other than farm people. For this reason Schumpeter's theory of economic development is far from sufficient to explain most of these changes" (Schultz 1975, p. 832). Moreover, the atomistic nature of agriculture and the unique aspects of farm production generate problems of collective action and by-product behavior (Olson, 1971), making such adjustments lengthier.

In Schultz's formulation, entrepreneurship is the ability to adjust, or reallocate one's resources, in response to changing circumstances. As such, entrepreneurship is an aspect of all human behavior, not a unique function performed by a class of specialists. "No matter what part of the economy is being investigated, we observe that people are consciously reallocating their resources in response to changes in economic conditions" (Schultz 1979, p. 2). Businessmen, farmers, housewives, students, and even university presidents, deans, and research directors make Schultz's (1979) list of entrepreneurs.

Somewhat paradoxically, the degree to which entrepreneurship is manifested in a society is itself determined by supply and demand. The demand for entrepreneurial services is given by the expected gains from adjusting one's resources in the face of the disequilibrium, itself a function of some characteristics of that disequilibrium. The supply of entrepreneurial capacities is given by agents' abilities to perceive and exploit opportunities. Like any economic good, entrepreneurship is valuable and scarce (Schultz 1979, p. 6). Knight and Kirzner treat entrepreneurship as "extra-economic," meaning that it is the driving force behind the pricing process, but is not itself traded and priced on the market. Schultz (1979) insists that entrepreneurial ability, like other services available for hire, is a resource with a market price and quantity, though he did not develop this insight into a fully specified theory of the supply of and demand for entrepreneurship.

Schultz conceives entrepreneurial ability as a form of human capital. Like other forms of human capital, this ability can be increased through education, training, experience, health care, and so on. While education and other human-capital investments also lead to improvements in technical and allocative efficiency, Schultz argues that efficiency improvements cannot account for all of the effects of education on economic performance, particularly in agricultural communities during periods of modernization. At least part of the returns to education are the returns to

improved abilities to adjust to change, for instance by adopting new technology and organizational practices. Moreover, an economy's aggregate stock of entrepreneurial ability can also be increased by the immigration of people with particular entrepreneurial experiences and skills (presumably in response to increased opportunities for entrepreneurial gain).

3. Approaches to teaching entrepreneurship

As the foregoing sketch makes clear, "entrepreneurship" is a highly elastic term, even within economics. The academic study of entrepreneurship has been described as "a broad label under which a hodgepodge of research is housed" (Shane and Venkataraman, 2000, p. 217) and a "cacophony of results and ideas" (Gartner, 1999, p. 27). Underscoring this heterogeneity in theoretical foundations and research methods, Morris, Kuratko, and Schindehutte (2001) identify no less than twelve distinct conceptual approaches or frameworks within the entrepreneurship literature.

In this context, it is not surprising that entrepreneurship curricula vary widely in content and approach. Some focus on particular skills or attributes, while others emphasize a broader "entrepreneurial way of thinking." Most programs and courses are housed in business schools, rather than economics or agricultural economics departments, though this appears to be changing. For these reasons, the question, "Can entrepreneurship be taught?" (or, alternatively, "How can entrepreneurship be taught?") is too broad. The question must be asked separately for different approaches to entrepreneurship, or for groups of skills or abilities or modes of thinking commonly described as entrepreneurial.

Consider, for purposes of the following discussion, a broad notion of the entrepreneurial act. The Ewing Marion Kauffman Foundation, the largest private foundation dedicated to entrepreneurship research and teaching, defines the entrepreneur as "one who takes advantage of knowledge and resources to identify and pursue opportunities that initiate change and create value in one's life and those of others." The University of Illinois's Academy for Entrepreneurial Leadership describes entrepreneurship as "a process that can lead to creative solutions to social problems or the formation of new and innovative enterprises." As such, entrepreneurship "spans opportunity recognition and resource acquisition and leads to innovation and invention." Three as-

pects of the entrepreneurial process are identified in these definitions: opportunity recognition, resource acquisition, and innovation. Schumpeter's interpretation of entrepreneurship includes all three of these aspects, while Schultz's idea of adjustment to exogenous economic change is largely covered by opportunity recognition and resource acquisition. Knight's, Kirzner's, and Schultz's concepts of entrepreneurship also suggest a fourth aspect: the management of existing resources in a new or established organization. All these aspects of entrepreneurship involve bearing uncertainty, the hallmark of Cantillon's and Knight's approaches.

How, and how well, are these aspects taught? Consider each in turn, grouped by decreasing order of popularity and increasing order of subtlety or complexity.

Managing existing resources. Effective management of existing resources, whether in new or established organizations, requires not only technical business skills (accounting, marketing, finance, operations, business law), but also leadership and strategic decision making. These subjects, of course, constitute the core of most undergraduate business programs. Curiously, while none of the established economic theories of entrepreneurship specifically emphasize new venture formation, courses emphasizing these skills and activities are usually only classified as entrepreneurship courses if they specialize on new or small firms.³ Such courses typically employ a combination of traditional classroom instruction (lectures and discussion), applied team projects, and, increasingly, the case method.

Acquiring new resources. Many undergraduate entrepreneurship courses focus on the acquisition of new resources: writing business plans, acquiring venture or angel capital, marketing new products, acquiring intellectual property, and so on. These skills are usually taught through a combination of basic analytical principles, historical case studies and examples, classroom simulations, and real-world projects. (Management of ongoing projects is usually left to other business courses, as described above.) While "resources" can be defined broadly (as is indeed the case within the resource-based approach to the firm), these entrepreneurship courses typically

³ Stewart et al. distinguish conceptually between entrepreneurship and the management of existing enterprises, though they acknowledge considerable overlap between the two.

emphasize financial capital over other resources. The venture capitalist or angel investor is the party of interest.

Identifying existing opportunities and creating new ones. An increasing number of entrepreneurship courses focus not on the mechanics of running a business enterprise, but on identifying opportunities for creating new sources of value.⁴ Opportunity identification involves not only technical skills like financial analysis and market research, but also less tangible forms of creativity, team building, problem solving, and leadership (Long and McMullan, 1984; Hills, Lumpkin, and Singh, 1997; Hindle, 2004). It can involve both the recognition of already existing opportunities and the creation, *ex nihilo*, of new opportunities (Alvarez and Barney, 2005). While value can of course be created not only by starting new activities, but also by improving the operation of existing activities, courses in opportunity identification tend to emphasize the launching of new ventures (firms, products, or services).

Opportunity identification is typically taught through innovative problem-solving and creative-thinking exercises and techniques rather than traditional classroom activities (though some courses also emphasize financial analysis, intellectual property protection, new products marketing, and so on). But can the necessary attributes be acquired in the classroom? McGrath and MacMillan (2000) argue that particular individuals have an “entrepreneurial mindset” that enables and encourages them to find opportunities overlooked or ignored by others, and that this mindset is developed through experience, rather than formal instruction. Entrepreneurs with experience owning and operating small businesses tend to be better at identifying new opportunities than those potential entrepreneurs who lack such experience. This suggests that opportunities for teaching opportunity identification may be limited.

Bearing uncertainty, exercising alertness, fostering technological or organizational innovation, and adjusting to change. As discussed above, the economics literature tends to emphasize broad concepts of the entrepreneurial role such as uncertainty bearing (Cantillon, Knight, Mises), alertness (Kirzner), innovation (Schumpeter), and adjustment to disequilibrium (Schultz). Be-

⁴ While entrepreneurship educators have traditionally focused on the creation of economic profit, an increasing number of courses focus on broader notions of value—social, cultural, artistic, religious, etc.

cause these are economic *functions*, rather than attributes of particular individuals, it is less clear how such activities can be taught through formal instruction. Mises expresses strong skepticism on this point. Entrepreneurship, Mises writes, is a fundamentally creative activity: “What distinguishes the successful entrepreneur and promoter from other people is precisely the fact that he does not let himself be guided by what was and is, but arranges his affairs on the ground of his opinion about the future. He sees the past and the present as other people do; but he judges the future in a different way” (Mises, 1949, p. 585). Because the future is essentially open-ended (characterized by Knightian uncertainty, rather than mere probabilistic risk), the entrepreneur’s understanding of the future “defies any rules and systematization. It can be neither taught nor learned” (Mises, 1949, p. 585).

It is clear, moreover, in Kirzner’s formulation, that “alertness” cannot be learned, that it cannot be acquired through investments in education and training or from on-the-job experience. While the entrepreneurship education literature often associates opportunity identification with Kirznerian entrepreneurship (e.g., Gaglio and Katz, 2001), Kirzner appears to have a different concept in mind. Kirzner’s entrepreneur identifies opportunities, but “identification” here means simply “awareness of,” not “systematic pursuit of.” Entrepreneurs are *naturally* alert to profit opportunities, but they do not search systematically for opportunities previously known to exist. “Entrepreneurship does not consist of grasping a free ten-dollar bill which one has already discovered to be resting in one’s hand; it consists in realizing that it is in one’s hand and that it is available for the grasping” (Kirzner, 1973, p. 47).⁵ This *realization*, as Kirzner sees it, is an innate ability, one that cannot be acquired through formal education. In the broadest sense, moreover, alertness is a universal characteristic of all human action, though some individuals specialize in being particularly “alert.”

Koppl (2003) tries to reconcile Mises’s and Kirzner’s skepticism about entrepreneurship education as follows:

⁵ Ricketts (1987, p. 58) gives the following illustration: “Stigler’s searcher decides how much time it is worth spending rummaging through dusty attics and untidy drawers looking for a sketch which (the family recalls) Aunt Enid thought might be by Lautrec. Kirzner’s entrepreneur enters a house and glances lazily at the pictures which have been hanging in the same place for years. ‘Isn’t that a Lautrec on the wall?’”

It is true, of course, that no one can teach an entrepreneur the specific innovation that he creates. What, indeed, would that mean? But one can teach business students the tools and skills required to transform a new idea into a practical business plan. We can also teach them to be not afraid. We can teach them, that is, that new ideas can become business plans and that they are perfectly free to found new enterprises and think new things.

Or, as Harvard Business School professor Howard Stevenson puts it, “if people have innate musical talent, you can't necessarily teach them to become Beethoven. But if they have that innate talent, then they probably would still benefit from piano lessons” (Stevenson et al., 2002).

We agree that certain skills are undoubtedly necessary for translating entrepreneurial visions into practice. However, it is not clear that alertness itself can be taught, or even operationalized.⁶ Indeed, our own experience teaching entrepreneurship to undergraduates convinces us that while certain aspects of entrepreneurship—primarily, the process of new venture formation and the manner in which entrepreneurship manifests itself in the economy—can be studied systematically, it is not generally possible to teach discovery, recognition, decision-making under genuine uncertainty, and the nature of the “entrepreneurial” personality.

4. Discussion and conclusions

The foregoing remarks indicate a gulf between economists’ conceptions of entrepreneurship, as the driving force behind the market economy, and those practical manifestations of entrepreneurship studied in the classroom. One source of this gulf may be that economists and management scholars approach entrepreneurship through different lenses, with fundamentally different purposes. Schumpeter, Knight, Mises, Kirzner, and other theorists reviewed above sought to define entrepreneurship as a *function*, as a necessary ingredient to a comprehensive understanding of how a market economy works. This resulted in *instrumentalist* concepts of entrepreneurship in which entrepreneurship itself is a black box. For Schumpeter, entrepreneurship is that which causes technological change and economic growth; for Knight and Mises, it is that which generates economic profit, as opposed to interest; for Kirzner, it is that which sets in motion the ten-

⁶ For an attempt to operationalize Kirznerian discovery, in the form of a classroom experiment, see Klein and Demmert (2003).

dency for market clearing; and so on. In these formulations, questions about *who* is an entrepreneur, *how* entrepreneurship is manifested in the economy or society at large, what techniques are useful for *training* individuals to be entrepreneurs or recognizing which individuals have entrepreneurial talent, are simply irrelevant. Hence the leading economic theorists of entrepreneurship have offered little of value, beyond inspiration and a set of citable scientific authorities, to entrepreneurship educators.

An analogy may be drawn from the economic theory of the firm.⁷ Economists have recognized the importance of the business enterprise from the earliest days of the discipline. However, the development of an explicit economic theory of the firm is a recent phenomenon, dating from the 1970s. Just as it is possible to say much about, say, earthquakes without having a theory of the nature and causes of earthquakes, it is possible to say much about the firm—the size of a firm, the size distributions of firms, firms’ market behavior, market structure, and the like—without having a formal theory of why firms exist, what determines their boundaries and internal organization, how they use incentive compensation, and so on. The relatively detailed account of firms’ production and selling decisions found in intermediate microeconomics texts (or even in advanced treatments such as the Arrow-Debreu model) may constitute a theory *about* the firm, even though they do not contain a theory *of* the firm.

One reason economists neglected the theory of the firm is that they thought the internal workings of the business firm were beyond the scope of economic analysis. In Pigou’s (1921, p. 463) words:

It is not the business of economists to teach woollen manufacturers to make and sell wool, or brewers how to make and sell beer, or any other business men how to do their job. If that was what we were out for, we should, I imagine, immediately quit our desks and get somebody—doubtless at a heavy premium, for we should be thoroughly inefficient—to take us into his woollen mill or his brewery.

Robbins (1932, p. 33) argued similarly that “[t]he technical arts of production are simply to be grouped among the given factors influencing the relative scarcity of different economic goods.

⁷ This example is taken from Foss and Klein (2006).

The technique of cotton manufacture . . . is no part of the subject matter of economics.” Likewise, the technical arts of managing existing resources, acquiring new resources, identifying and creating opportunities, bearing uncertainty, and innovating—the subjects of most entrepreneurship courses—are perhaps regarded as outside the economist’s legitimate expertise.

Contact between economics and entrepreneurship research appears to be increasing, however, as scholars in both fields begin to recognize potential gains from trade (Foss and Klein, 2005). Ultimately, these gains may be small, on the margin, or even nonexistent. The fact that exchange opportunities are being explored at all is an encouraging sign, however. The increasing recognition by economists that entrepreneurship, like the firm, is worthy of analysis, and the parallel recognition by entrepreneurship specialists that a more thorough grounding in economics may be necessary, should lead to more rigorous and consistent approaches to the teaching of entrepreneurship.

Are economists well positioned to do the teaching? On the one hand, we bring some baggage to the table. Our focus on measuring parameters in static optimization models is not particularly useful for understanding a dynamic, inherently unpredictable process. Our limited concept of uncertainty (mere probabilistic risk) sheds little light on how entrepreneurs make decisions in situations characterized by ambiguity regarding key decision variables. Moreover, we are relatively unfamiliar with complementary tools and concepts from management, marketing, sociology, philosophy, etc.

Economists do, however, have a history of teaching economics as a “way of thinking.” Our challenge is to conceptualize and articulate entrepreneurship as a way of thinking, as a multidisciplinary approach to the process of creating economic and social value in the face of uncertainty and limited resources. We look forward to future efforts to meet this challenge.

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