

22 Toward Deliberate Practice in the Development of Entrepreneurial Expertise: The Anatomy of the Effectual Ask

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Most people never pick up the phone and call. Most people never ask. And that's what sometimes separates people who do things from the people who just dream about them.

(Steve Jobs in an interview with Santa Clara Valley Historical Association, 1994)

Introduction

This chapter reviews research on expertise in entrepreneurship. Over the past two decades researchers have studied expert performance in numerous professional and organizational domains (e.g. teaching, software, medicine, taxi driving), extending expertise investigations beyond traditional studies in games, sports, and the arts. These streams of literature support the hypothesis that expertise develops and is sustained through both purposeful and deliberate practice in a domain. As Ericsson and Pool (2016) define the terms, whereas naive practice may consist in nothing more than doing something repeatedly, purposeful practice is more focused on continual improvement by repeatedly engaging in practice

tasks with immediate feedback. Purposeful practice is also more effortful in pushing one out of one's comfort zone. Deliberate practice goes one step further than purposeful practice in that it requires supervision from a trained teacher. In entrepreneurship research there is a growing body of work demonstrating the existence of expertise. However, only recently have explicit mechanisms of purposeful practice been proposed and been subject to study. In this chapter we first review over two decades of scholarship on entrepreneurial expertise and then outline our own work that has posited "the Ask" as an important mechanism for purposeful practice in entrepreneurship that can and should be studied if we are to develop entrepreneurship education capable of fostering deliberate practice. The chapter closes with key

implications from entrepreneurial expertise for expertise research more generally, and outlines an agenda for future research on expert entrepreneurial performance.

A Brief History of Entrepreneurship Research Leading up to a Focus on Expertise

Entrepreneurship research is relatively young, with empirical work commencing only in the 1980s. Although some theories of entrepreneurship can be traced back to economists in the first half of the twentieth century and even earlier (Cantillon, 1959 [c.1730]; Knight, 1921; Mises, 1949; Schumpeter, 1934), most empirical work before the 1980s consisted of informal case studies and surveys and interviews of dubious rigor. A few studies used formal economic and econometric models, but narrowly focused on occupational choice (Banerjee & Newman, 1993; Ginzberg, Ginsburg, Axelrad, & Herma, 1951; Parker, 2009). This research modeled the choice between employment and entrepreneurship as one driven by individual-level variables such as risk propensity (Kihlstrom & Laffont, 1979).

Risk has been a preoccupation of economists all the way back to the very origin of the term “entrepreneur” in which Cantillon (1959 [c.1730]) pronounced the entrepreneur to be an individual who assumes the risk of running a firm. Another variable modeled in occupational choice research was liquidity constraints (i.e. the availability of funding) (Evans & Jovanovic, 1989; Minniti & Lévesque, 2008). However, subsequent research showed that risk preferences have either limited or no impact on this career choice (Miner & Raju, 2004; Zhao, Seibert, & Lumpkin, 2010) and capital constraints have no impact at all (Cressy, 2002; Hurst & Lusardi, 2004; Kim, Aldrich, & Keister, 2006). Instead, studies show that whereas entrepreneurs self-report being risk tolerant, objective data strongly suggest they are risk avoidant (Sarasvathy, Simon, & Lave, 1998; Simons &

Åstebro, 2010). Additionally, because startups can be bootstrapped on budgets to suit every wallet (Bhide, 1991) and banks are increasingly forthcoming with credit (de Meza & Webb, 1987), access to capital proves not to be a major constraint.

Given inconclusive results, recent research has acknowledged the need to examine occupational choice in conjunction with various other factors such as motivations and resources of the entrepreneur (Lévesque, Shepherd, & Douglas, 2002). Moreover, as Åstebro, Chen, and Thompson (2011) have shown, at least a third of entrepreneurs do not make this choice at all. Instead these “hybrid” entrepreneurs start new ventures while continuing to work full time or part time in the labor market. Finally, research on entrepreneurial expertise offers specific insights into occupational choice, such as the affordable loss principle we elaborate upon later in this chapter (Dew, Sarasathy, Read, & Wiltbank, 2009).

Pioneered by McClelland (1965), another important body of work that developed early in entrepreneurship research concerned individual psychological traits associated with entry into entrepreneurship and subsequent success. McClelland argued that one reason individuals pursue entrepreneurial careers has to do with their desire to achieve something, a construct he termed “nAch” (need for Achievement). Furthermore, he argued that entrepreneurship may better satisfy this need than other career choices. McClelland’s work marked the beginning of a research effort to decode the entrepreneurial personality profile. Dozens of personality variables were researched as part of the “traits” approach. However, by the late 1980s, a consensus emerged from reviews of this work that relationships between personality and entrepreneurship are inconsistent and weak, leading to call to abandon the traits approach (Brockhaus & Horwitz, 1986; Gartner, 1988).

Yet this conclusion proved premature, even though it hung over the field for two decades until a new generation of researchers began to revisit prior studies of personality using meta-analytic

methodology (Zhao & Seibert, 2006). Reanalyzing prior results led to findings in favor of modest relationships between certain personality variables and new business creation and success. Among those variables are nAch (Stewart & Roth, 2007) and openness to experience (Zhao et al., 2010). The latter, in particular, highlights the notion that entrepreneurial success may be enabled by dispositions favoring new ideas, creativity, unconventional values, and learning.

In addition to the economics of occupational choice and the psychology of entrepreneurs, a third stream of work in entrepreneurship examined the role of knowledge and skills. Early papers in this stream drew on Gary Becker's (1964) concept of "human capital." Initial studies suggested that since many entrepreneurs had little formal education, the skills and knowledge needed to start up and manage new ventures must be developed from on-the-job experience (Cooper, Gimeno-Gascon, & Woo, 1994; Reuber & Fischer, 1994). Through experience, entrepreneurs accumulate knowledge about products, technologies, markets, customers, investors and suppliers, etc. Researchers observed that venture investors (e.g. angel funders and venture capitalists) prioritized entrepreneurial experience in their evaluation and selection of venture funding proposals (Zacharakis & Meyer, 2000). Studies also noted an increasing emphasis on knowledge and skills in other work environments outside of entrepreneurship.

Consequently, numerous entrepreneurship studies acknowledged and built on Becker's (1964, 1975) works on the role of human capital (defined primarily as education and job training) in entrepreneurial success. Findings showed that success in venturing is significantly higher for specific, task-related human capital than for general education (Unger, Rauch, Frese, & Rosenbusch, 2011). Specific human capital here refers to skills and knowledge acquired in previous new ventures or in the same industry as the new venture. Since many new ventures are founded by

teams, the mix (heterogeneity of capabilities and synergy therein) of human capital present in the founding teams has also been found to be a significant predictor of startups' fortunes (Colombo & Grilli, 2005). Recently, studies based on human capital have been complemented with studies of social capital and social networking (Baron, 2000; Davidsson & Honig, 2003).

In connection with the above three streams of research, each with a long history, it is important to point out that the "mother" disciplines of economics, psychology, and sociology (Baum & Singh, 1994) dominated research in entrepreneurship. Home-grown theories of entrepreneurship remained rare during the first two decades of entrepreneurship research with the result that researchers in the "field" of entrepreneurship remained preoccupied with a perceived lack of legitimacy. Until the seminal article by Venkataraman (1997), there was considerable debate about whether entrepreneurship really is an academic domain in itself or not. At the same time, it was becoming increasingly clear that entrepreneurship was not just a buzzword, that there was a genuine phenomenon worthy of study by serious scholars. Attention was driven to the area by the global impact of entrepreneurs, in particular in new technology (Steve Jobs, Bill Gates, etc.), by student demand for entrepreneurship classes in universities (Katz, 2003), and by policy-maker interest in acknowledging entrepreneurship as a driver of jobs and economic development (Audretsch, Grilo, & Thurik, 2007). While historians such as Cantillon (1959 [c.1730]) and Braudel (1982) have for a long time noticed the role of entrepreneurs, business scholars, educators, policy-makers, and even economists only recently came to the consensus that entrepreneurship is an important phenomenon and a distinct domain worth studying on its own. It is interesting to note that this growing consensus developed in tandem with a rising tide of studies on entrepreneurial expertise.

Studies of Entrepreneurial Expertise

Ronald Mitchell's dissertation (1994) was the first empirical investigation specifically on expertise in entrepreneurship. The studies in the dissertation focused on new venture formation as well as the composition and classification of expert information processing within this setting. Mitchell and colleagues (Mitchell, Smith, Seawright, Morse, 2000) investigated expertise using a seven-country sample of entrepreneurs with differing levels of experience. The research used a script-scenario instrument that presented participants with paired response choices, of which one response represented script mastery and the other represented a socially desirable (distractor) cue (Mitchell et al., 2000, p. 982). For example, question 40 in the instrument offered two alternative completions to the starting phrase: "The new venture stories I recall ... (a) illustrate principles necessary for success or (b) are a telling commentary on the foibles of human nature which can rarely be predicted" (Mitchell, 1994, p. 79). (a) represents an expert understanding that prior experience builds principles for future success, while (b) exemplifies a distractor response indicative of a lack of expertise.

The study used a panel of accomplished entrepreneurs to develop the script-scenario instrument. Thereafter, the degree of expertise in venture formation was inferred from participants' responses to the script-scenarios in the instrument. Although the study used variation in simple experience to operationalize expertise, it was nonetheless the first systematic attempt to measure expertise in new venture formation. Furthermore, the results suggested important commonalities across country samples that indicated expert entrepreneurial scripts may be generalizable (Smith, Mitchell, & Mitchell, 2009, p. 821).

Sarasvathy et al. (1998) subsequently used think-aloud protocols to study a representative sample of expert entrepreneurs, operationally defined in the established traditions of expertise

research (Ericsson & Simon, 1993). In the study, four entrepreneurs and four bankers spent an hour thinking aloud as they worked through a set of five decision problems focused on risk and uncertainty. Results revealed that the bankers and entrepreneurs exhibited a "discernibly distinct cognitive approach for managing various types of risk" (Sarasvathy et al., 1998, p. 217). Entrepreneurs in the study accepted risks as irreducible, saw the worst-case scenario as a focal point for orienting their action, and worked toward influencing and controlling outcomes. Bankers picked a level of return (profit) they were comfortable with and then worked on managing risk.

Another attempt to delineate pattern recognition capabilities in entrepreneurs came from Baron and Ensley (2006). The study used a retrospective interview technique with a participant pool consisting of entrepreneurs with differing levels of experience. Although like Mitchell (1994), the study did not operationalize expertise according to the traditions of cognitive science, it nevertheless uncovered clear differences between more and less experienced entrepreneurs regarding their appraisal of business opportunities. The authors noted that the cognitive frameworks used by experienced entrepreneurs, "tended to focus on factors pertaining to financial success, rejecting ideas for new products or services that did not appear to offer manageable risk, the capacity to generate positive cash flow, and so on" (Baron & Ensley, 2006, p. 1340). By contrast, first-time entrepreneurs highlighted the novelty of the business idea, its competitive superiority, new technology, and their gut feel about the opportunity.

Finally, a study by Unger and colleagues (Unger, Keith, Hilling, Gielnik, & Frese, 2009) of 90 South African business owners who founded and ran businesses investigated purposeful practice in entrepreneurship (Ericsson, 2016; Ericsson, Chapter 38, this volume; Ericsson, Krampe, & Tesch-Römer, 1993). The authors defined the practice that they studied as "[I]ndividualized self-regulated and effortful activities aimed at

improving one's current performance level" (p. 21). This practice is affected by education and cognitive ability, and is linked strongly to entrepreneurial knowledge (and both directly and indirectly to business growth). Drawing on work by Dunn and Shriner (1999) and Sonnentag and Kleine (2000) Unger et al. (2009) made four important suggestions: (1) the relevant practice activities may necessarily differ across domains (e.g. teaching, insurance, small business compared to sports, arts, and games); (2) ill-structured tasks or domains lead participants to practice a range of activities rather than repetitively practicing a few focal activities; (3) persistent, mindful engagement in activities for the sake of learning and improvement is the essential aspect of effective practice; and (4) though both are correlated with skill, current amount of practice activities is more correlated than that amount of accumulated past practice.

A question that emerges from the abovementioned empirical work is: to what extent does experience at entrepreneurship lead to high performance or entrepreneurial success? The literatures on learning and human capital argue that new knowledge and skills are gained via experience (Kolb, 1984; Wang & Chugh, 2014), and that these are connected to performance (Becker, 1964; Cassar, 2006). However, empirical work on entrepreneurial human capital suggests that the overall experience–performance relationship is weak. In a meta-analysis that included 183 studies of small and medium businesses, Mayer-Haug and colleagues (Mayer-Haug, Read, Brinckmann, Dew, & Grichnik, 2013) found a mean correlation between experience and performance of less than 0.1.

Yet even small "effects" can be practically significant (Unger et al., 2011). Research at the firm level is suggestive of why this may be the case. Thompson's (2010) review of the learning-by-doing literature in economics suggests that performance improvements otherwise attributed to learning are usually accompanied by other

factors. For entrepreneurship this potentially suggests a hybrid model of learning that is more applied, action-oriented, and interaction-related. Adding to the learning debate, Frankish and colleagues (Frankish, Roberts, Coad, Spears, & Storey, 2013) investigated variables accounting for firm survival. They reject the learning-from-experience hypothesis. In their analysis, the lack of repetition opportunities (owing to task diversity) and the difficulty of interpreting the various causes of new venture survival, suggest that entrepreneurs improve performance only partially based on their experience at running new ventures. Toft-Kehler, Wennberg, and Kim (2014) also show this result for modest amounts of entrepreneurial experience. In their analysis, the performance impacts of entrepreneurial learning are only evident once entrepreneurs have gained *extensive* experience. Not until entrepreneurs were on to their third venture were performance differences attributable to learning observed.

Such findings are consistent with the idea of passive learning. Ericsson (2004) pointed out that traditional models of learning suggest that when participants are introduced to a new activity they seek to attain an acceptable level of performance. As they gain initial experience, they make fewer mistakes and automate required skills. This results in less need to concentrate deliberately in order to perform acceptably. Fifty hours or fewer represent enough practice to become socially competent in many recreational activities (for example, driving a car). However, once individuals achieve sufficient performance, improvement plateaus because they stop paying deliberative attention to the learning process. Thus, while the literature on entrepreneurial learning discussed above supports Ericsson's observation, it does not answer the larger question he posed: "The fundamental theoretical challenge is to explain how most people and professionals reach a stable performance asymptote within a limited time period, whereas the expert performers are able to keep improving their performance for years and decades"

(Ericsson, 2004, p. S73). There exists a stream of research in entrepreneurship that tackles this question. We turn to that next.

Summary of Effectuation Research

Following cognitive science traditions of research into expertise, Sarasvathy (2001) used think-aloud protocols with a sample of 27 expert entrepreneurs to reveal their reasoning heuristics. The study was the first to directly draw upon Ericsson and Simon (1993). Participants in the study had, on average, 21.6 years of entrepreneurship experience, had founded multiple new ventures (average 7.3 ventures started) and had taken at least one firm public (revenues were between \$200 million and \$6.5 billion). In other words, they had experienced everything entrepreneurship had to offer, and had demonstrated proficient performance in entrepreneurship. Industries and locations of the founded firms varied across the gamut of possibilities, ensuring the sample did not contain industry or geographic bias.

The heuristics that were of interest in the study were termed “effectuation.” This concept came from Sarasvathy’s observation that while much of the managerial literature focused on causation, using historical data to predict outcomes in the environment, the expert entrepreneurs in her sample eschewed prediction, instead seeking to proactively “effect” changes into the environment combining their actions with those of their stakeholders (Sarasvathy, 2001). Participants were presented with a problem central to the domain of entrepreneurship: transform an idea into a new firm. The problem was broken into ten typical decisions in a 17-page protocol that each participant was asked to think through aloud. The instrument with the first two decisions in the problem is presented in the Appendix.

While the cognitive capabilities underpinning expertise might be expected to be somewhat similar across domains, the purpose of studying a specific domain is to understand the distinctive

heuristics and cognitive processes experts use in that domain (Chi, Glaser, & Rees, 1982). Analysis of the protocols led to the identification of the decision-making heuristics (Sarasvathy, 2001), summarized in Table 22.1. Note that while these are a set of heuristics, they are bound together through an overarching logic that came to be called “effectual.”

In sum, the study found that with the accumulation of expertise, entrepreneurs develop a set of heuristics to deal with the uncertainty inherent in creating new ventures. According to Knight (1921), while risk consists of unknowns that are drawn from a known distribution, uncertainty has to do with unknown and even unknowable distributions. Therefore, entrepreneurial expertise consists of heuristics that minimize or eliminate reliance on prediction. Predictive strategies are more useful in dealing with risk. Effectual heuristics help deal with uncertainty. Expert entrepreneurs generally rejected heuristics based on prediction and forecasting. In the words of one of the experts: “I’ve always tended to be very skeptical about market research studies” (E14, Sarasvathy, 1998). Instead, their experience encouraged heuristics that sought to exert control over the environment. They shunned the notion of “placing bets” based on business plans, and in general challenged assumptions underlying predictive reasoning. In their view the future is an endogenous creation shaped by willful human beings. Hence it is not very useful to invest in predicting it. Unlike forms of expertise rooted in prediction, and typically associated with errors in judgment (Shanteau, 1992), effectuation internalizes “complex indeterminate causation” (Hoffman, Klein, & Miller, 2011) by incorporating co-creative human activity into the heuristics, to shape desired outcomes.

The expert process for building new ventures emphasizes commitments from self-selected stakeholders driven by multiple motivations (in Table 22.1, the Crazy Quilt principle) as well as using unexpected contingencies as inputs along

Table 22.1 Differences between predictive and effectual thinking

Issue	Predictive frame	Effectual frame
Definition	A process that takes a particular effect as given and focuses on selecting between means to create that effect.	A process that takes a set of means as given and focuses on selecting between possible effects that can be created with that set of means.
Pilot-in-the-Plane View of the future	Accurate prediction is both useful and necessary. Control flows from the ability to predict.	The future as shaped (at least partially) by willful agents. Preference for working with factors perceived as directly controllable.
Bird-in-the-Hand (Basis for taking action)	Goals, constrained by limited means, determine actions.	Courses of action are based on what is feasible with means at hand.
Affordable loss (Predisposition toward risk and resources)	Pursue risk-adjusted maximum opportunity and raise resources required to do so. Focus on upside potential.	Pursue satisfactory opportunities without investing more resources than stakeholders can afford to lose. Focus is on limiting downside potential.
Crazy Quilt (Attitude toward outsiders)	Pursue stakeholders needed to fulfill venture goals and plans at minimum cost.	Stitch together partnerships with customers, investors, etc. to shape the trajectory of the new venture.
Lemonade principle (Attitude toward unexpected contingencies)	Contingencies are obstacles to be avoided.	Contingencies are seen as opportunities for novelty creation, and hence to be leveraged where possible.

the way (the Lemonade principle). As a result, a new venture might develop in directions that are completely unforeseen at the time it was founded, e.g. it might start off in beer but end up in biotech – a path actually taken by Kiran Mazumdar-Shaw, founder of Biocon, and today one of India’s richest women. Indeed, it would have been impossible to predict in 1977 when she quit her job in the beer industry, having been told she would not advance “because it’s a man’s work” (Krishnan, 2012) that she would go on to launch a startup that first produced enzymes and gradually expanded into pharmaceuticals. Thus, expert entrepreneurs learn that unpredictability grows out of their own actions as well as choices made by incoming stakeholders who negotiate and reshape the growing venture’s goals. Therefore, expert entrepreneurs have figured out that it is unwise to draft plans atop predictions and forecasts when they don’t know what business they are going to be in or

which market they would enter or reshape or even co-create from scratch.

In science, we are used to equating perceptions of control with the ability to predict things. However, we can already see that in the uncertain yet human domain of entrepreneurship, perceived control may be better served by relaxing the relationship between prediction and choice as much as possible. The control orientation in effectuation (the Pilot-in-the-Plane principle) is centrally concerned with preferring to work with factors directly within one’s control, and less with predicted factors outside one’s control (Sarasvathy, 2008).

The above realization leads expert entrepreneurs to naturally work with means they already control as their starting point for action. Means under their control include their existing knowledge and networks as well as tastes, traits, and values (the Bird-in-the-Hand principle). Such

inputs may or may not be connected with clearly defined end-goals. Specific goals emerge through the effectual process itself rather than from predetermined criteria for decisions. Complementing this means-driven heuristic is the fact that expert entrepreneurs are less interested in developing business plans aimed at raising outside resources than in working with people who want to work with them and using whatever resources these self-selected stakeholders bring with them. Finally, expert entrepreneurs operationalize control by focusing on the downside to reduce the worst-case scenario rather than placing a bet on the upside (the Affordable Loss principle). By letting their choices be guided by acceptable downsides, they exercise more perceived control over financial outcomes (Dew et al., 2009). Typically, this means small step investments and starting a new venture on minimal financial resources or what the trade press calls “bootstrapping.”

In sum, effectuation consists in a set of control heuristics revealed from studying expert entrepreneurs. It is also important to point out that effectuation does not make any assumptions about personality characteristics of individuals or their motivations for starting a new venture. It merely presumes a modicum of individual initiative. Put differently, in contrast to more familiar strategies that offer necessary but insufficient criteria for good decisions, effectual reasoning offers sufficient yet unnecessary conditions for decisions and actions.

Effectuation has gained strong interest within the entrepreneurship community, and dozens of articles have been published relating effectuation to a variety of topics (see Read, Sarasvathy, Dew, & Wiltbank, 2016b for a comprehensive review of over 200 articles). But despite its roots in the study of expertise and even while acknowledging the conceptual importance of it (Read & Sarasvathy, 2005), extant research into effectuation has not yet provided a comprehensive answer to Ericsson’s (2004) fundamental theoretical challenge, namely, why experts do not plateau.

Before we advance toward the beginnings of an answer, a word about the domain specificity of entrepreneurship within the more general domain of management. While it may be easy to confound entrepreneurship within the broader scope of business in general, past research has found significant differences between managers and entrepreneurs (Busenitz & Barney, 1997). Perhaps owing to the uniquely uncertain situation in which entrepreneurs operate (Knight, 1921), our own research corroborates stark differences between managers and entrepreneurs. When we replicated the original study of expert entrepreneurs with expert managers, we found systematic differences between the two groups in the sort of expertise each accumulates within its domain (Read, Dew, Sarasvathy, Song, & Wiltbank, 2009).

Purposeful Practice in Entrepreneurship

Bridging the gap between acknowledging the importance of deliberate practice and actually showing its use by entrepreneurs requires the identification of constituent element(s) of deliberate practice *in the entrepreneurial domain* so it/they can be differentiated from (ordinary) experience. Although Unger et al. (2009) is the only study we are aware of that empirically investigated how entrepreneurs’ practice is related to achievement, other empirical works theorize about the connection. Importantly, the concept of effortful practice used in the Unger study draws on prior research on purposeful and deliberate practice in ill-structured domains, i.e. teaching, insurance agents, and software engineers (Dunn & Shriner, 1999; Sonnentag & Kleine, 2000; Sonnentag, Niessen, & Volmer, 2006). These studies conceive of effective practice as being less constrained than the criteria for deliberate practice used in the foundational deliberate practice literature (Ericsson, 2016; Ericsson, 38, this volume; Ericsson et al., 1993). It is argued

that in ill-structured domains, natural units of purposeful practice do not exist, standards of performance are fuzzy, and appropriate feedback is lacking. Therefore, Dunn and Shriner (1999) proposed a change to the concept of deliberate practice by eliminating some of the defining constraints: “At the foundation of the notion of deliberate practice . . . is the fact that deliberate practice refers to activity that provides . . . opportunity for learning and skill acquisition. It is possible that activities may look very different across domains yet serve this same purpose (p. 633). Sonnentag and Kleine (2000) add that: “[D]eliberate practice activities performed within work contexts may differ from deliberate practice in other domains . . . [T]here are no specific types of activities per se that qualify for being deliberate practice” (p. 89, emphasis added). Instead, they recommended refocusing on two criteria: (1) the goal of competence improvement and (2) regularly executing an activity, which essentially encapsulate Ericsson and Pool’s (2016) concept of purposeful practice.

Thus, for identifying high potential candidates for purposeful practice in entrepreneurship, we need to find specific practicable cognitive activities in which entrepreneurs engage. Prior work indicates that knowledge and skills developed in the new venture setting, or of direct relevance to the new venture, are more significantly connected with entrepreneurial performance than general work experience or general education (Unger et al., 2011). However, it is not clear: (a) how activities as diverse as those necessary to start a venture map to improvements in specific knowledge structures that generate superior performance and (b) what kind of expertise develops from these activities. Thus, as intuitively appealing as these approaches are, significant questions remain regarding the kind of expertise (e.g. general problem-solving?) that develops from such activities and whether such activities actually contribute to improved entrepreneurial performance.

An alternative to the strategy above is to take up Ericsson’s suggestion of focusing on *representative* activities that define the essence of a domain and can be mastered through deliberate practice (Ericsson, 2004). For example, in the domain of medicine Ericsson highlights that doctors may develop expert levels of performance in: (i) diagnosing test results; (ii) patient diagnosis, and (iii) surgical procedures. These are frequently occurring activities central to the domain that clinicians and surgeons practice frequently. Similarly, we can select activities every entrepreneur must perform to sustain a new venture. The goal is to identify activities that are central to the domain of entrepreneurship and that can be learned through repetition and feedback over the course of building new ventures. In order to identify such activities for research into entrepreneurial expertise, we need theoretical guidance. So we turn to that next.

Toward Deliberate Practice in the Development of Entrepreneurial Expertise

One reason for not embarking on empirical investigations of practice in entrepreneurship is the disagreement among entrepreneurship researchers regarding the degree to which type of practice may be important in the development of entrepreneurial expertise. According to Mitchell et al. (2007), “Mounting evidence in recent entrepreneurship literature suggests that the path to becoming an entrepreneur is not special, but is in fact general – rooted in the cognitive systems created by deliberate practice” (p. 14). Krueger (2007) makes a similar claim, and Smith et al. (2009) asserted that “It is now well accepted that entrepreneurial scripts are . . . susceptible to, for example, deliberate practice-based change” (p. 821).

However, in a critique of effectuation research as it stood in 2009, when only a small number of empirical papers on the topic had been published,

Baron (2009) raised the important issue of practice in effectuation in particular and in entrepreneurship more generally, posing a key challenge: “In what tasks or activities do successful entrepreneurs demonstrate expert performance?” Given the importance of deliberate practice in the development of expertise in general, Baron’s critique is a legitimate and important one. Baron and Henry (2010) went on to argue that deliberate practice may not be possible in entrepreneurship, and that entrepreneurs instead either learn vicariously or (despite the domain-specificity hypothesis in expertise research) transfer skills learned via practice in other domains into their new ventures. This is in line with the notion of deliberate performance in Fadde and Klein (2010). Baron and Henry (2010) suggested several key activities amenable to on-the-job expertise acquisition such as: (1) recognizing and evaluating business opportunities; (2) building effective social networks; (3) acquiring essential resources; (4) making effective decisions; and (5) metacognition or self-regulation.

Informed by the growing body of work on effectuation, we conducted a detailed examination of candidate activities amenable to purposeful practice that could then become the basis for deliberate practice in teaching entrepreneurship. We undertook a series of studies ranging in method from experience sampling to field experiments and in-depth qualitative interviews and case studies (Read, Sarasvathy, Dew, & Wiltbank, 2016a). Through these we found ourselves concurring with Yates and Tschirhart (2006) that it is extremely difficult to study and evaluate individuals’ overall skills in a domain, “But it is often feasible to isolate and examine how people deal with specific process elements” (p. 427). Therefore, *decomposing the entrepreneurial process into its constituent activities* is a critical step in examining what aspects of performance might be conducive to deliberate practice (Shepherd, 2015). In our view the practice tasks in entrepreneurship may be more granular than Baron and Henry (2010)

proposed (e.g. building effective social networks) and more homogeneous than Unger et al. (2009) proposed (e.g. they cover “a wide range of activities”). These aspects – granularity and homogeneity – are essential requirements that have been codified in the research on purposeful and deliberate practice (Ericsson, 2016; Ericsson, Chapter 38, this volume; Ericsson et al., 1993). Purposeful practice must meet the following criteria: (i) activities must be decomposed or transformed into tasks that are meaningfully related to target performance; (ii) activities must be amenable to repeated practice; (iii) practice is motivated by a greater objective to improve performance; (iv) feedback on performance is available; (v) practice activities must take account of the performer’s current skill level; and (vi) activities must be within a “zone of proximal development” (Vygotsky, 1978), to be associated with the accumulation of expertise (Hoffman et al., 2013). To qualify as deliberate practice it is necessary to meet one additional criterion, namely that the practice is supervised and designed by a teacher, who has successfully trained other individuals to attain the target performance.

In our search for such an activity conducive to purposeful and deliberate practice in entrepreneurship, we observed one in which entrepreneurs engage across all types of ventures, geographies, and times. We call this activity “The Ask.” In building a venture, entrepreneurs continually and iteratively interact with other people. Almost all of these interactions involve Asks. Asks can cover a variety of inputs necessary to creating a new venture that may include both intangibles (advice, introductions to network contacts) and tangibles (resources such as customer orders, supplier materials, labor, and money). While the “what” of The Ask differs across stages of the venture and particular stakeholders and situations, our observation is that the “how” of The Ask has repeatable common elements capable of continual practice and improvement. Likewise, while the “who” of

The Ask differs (the identity of The Askee, from family, close friends, and network contacts to complete strangers), the activity of asking remains comparable.

This led us to posit “The Ask” as one of the most important activities on which purposeful practice may be applied to improving entrepreneurship. Most importantly, asking is intrinsic to the early stages of the entrepreneurial process. Whether they like doing it or not, entrepreneurs have to engage in The Ask on multiple occasions each day in the course of launching a new venture. Hence repeated practice of The Ask is an inevitable feature of the startup environment (Ericsson & Smith, 1991).

The Ask also fulfills the three other criteria identified from the literature on purposeful and deliberate practice. The Ask itself may not be inherently motivating for an entrepreneur but the larger objective is motivating, e.g. of successfully establishing a new venture. This provides the entrepreneur with powerful incentives for getting better at asking. Furthermore, an Ask typically creates spontaneous natural feedback for an entrepreneur, whether verbal or non-verbal, from The Askee or from surrounding observers. Immediate feedback in the form of rejection, acceptance (with the provision of new resources), or the introduction of new alternatives (perhaps an introduction to another person) provide the sort of feedback necessary for diagnosing failures and identifying improvement opportunities (Ericsson, 2004, p. S77). Lastly, The Ask may be tailored to the skill level of the entrepreneur. Indeed, we can precisely conceptualize a natural progression from apprentice to higher proficiency levels of asking.

An Ask familiar to anyone who has experienced entrepreneurship is the investor “pitch.” Pitching is well known from business plan competitions as well as TV shows such as *Shark Tank* (in the US) and *Dragon’s Den* (in the UK). The process of obtaining resources from investors is widely perceived to be quite central to the

entrepreneurial process for at least three reasons: (1) entrepreneurs may believe they do not have sufficient personal resources to fund their new venture; (2) entrepreneurs may not want to fund a firm with their own money; or (3) entrepreneurs may need outside funding to grow a firm quickly. The pitch has a particular recipe in that the entrepreneur is usually targeting either angel investors or venture capitalists (who) with a defined request for resources (what) based on an opportunity the entrepreneur envisions (why). The pitch is carefully crafted to target investors who can best provide the required resources, and entrepreneurs may shuttle from one prospective investor to another pitching and pestering until they either get what they are seeking, get turned away, or get a “maybe later” response (Hellman, 2007). The sales pitch is another example of the same generic type of Ask, targeted at potential customers instead of investors.

It is our observation that the nomenclature of “the pitch” hides at its heart a causal (or predictive) as opposed to an effectual (or co-creative) Ask. The pitch consists of an Ask where The Asker knows exactly what he or she wants and from whom and an estimate of the upside to induce The Askee to invest. It is not difficult to imagine less targeted and less goal-driven Asks (i.e. more effectual than the pitch). In other words, the pitch is only one type of Ask. In the daily practice of entrepreneurship, we observe four different types of Asks:

- The first is familiar to people as “the pitch.” In its most simple form, it consists of an entrepreneur predicting who has what he or she wants and targeting particular stakeholders and saying “Please” (... give me X...).
- The second is the Transactional Ask. This is also a causal Ask in which an entrepreneur targets particular stakeholders but this one includes negotiation on a quid pro quo basis. The heart of this Ask is “You give me X and I’ll give you Y,” with Xs and Ys that can vary

through interaction between The Asker and The Askee.

- A third type of Ask is what we describe as a Tentative Ask. This is an Ask that is low on both prediction and negotiation. It asks “Might you be willing to . . .?”
- Lastly, there is a Co-creative or effectual Ask, which can be exemplified by “What would it take for you to . . .?” This Ask is the most open-ended because it allows stakeholders to set their own terms (i.e. “This is what I would need . . .”) without the entrepreneur having to predict them in advance. It also allows stakeholders to help shape the venture in return for their commitment to become involved in some way. Stakeholders thus have a hand in co-creating the new firm.

These examples indicate the breadth of possibilities for purposeful practice based on The Ask. For example, novice entrepreneurs can start with tentative Asks and practice their way to co-creational relationships involving multiple complex intersubjective Asks over time that are the hallmark of entrepreneurial expertise.

We have field-tested The Ask as a potential candidate for purposeful practice in entrepreneurship. Although the empirical studies of The Ask are currently in progress, we propose that Asks are indeed a major building block in the development of expertise in entrepreneurship. For the purposes of the rest of this chapter, however, we focus on the implications of The Ask that go beyond the field of entrepreneurship.

Implications of The Ask: Purposeful Practice in Domains Characterized by Complex Indeterminate Causation

As mentioned earlier, one of the distinguishing characteristics of entrepreneurship as a domain of expertise consists in its having to deal with uncertainty (Knight, 1921; Alvarez & Barney, 2007; Foss & Klein, 2012). That suggests an interesting

connection with the concept of “complex indeterminate causation” (Hoffman et al., 2011). As presented by the authors, complex indeterminate causation (CIC) represents a situation in which rational individual decision-making is hindered by an inability to discern a clear chain of causality. “In real-world settings, the evidence for causation is typically too ambiguous to permit valid (i.e., deductive) reasoning, so [rationality] is not a generally useful standard” (Hoffman et al., 2011, p. 419). Among other things, CIC offers an explanation for why some domains lend themselves to the accumulation of expertise that has been studied in much of the existing literature. Termed “Type 1 domains,” environments such as the game of chess, where it is relatively easy to establish a causal connection between proficiency at specific activities that can be practiced and performance within the domain, have provided the foundation for much of the study of expertise. In contrast:

Type 2 domains are ones in which the ostensive principal task goals involve the prediction of individual or aggregate human activity. Human activity fails to provide the needed cues for timely feedback, which is one of the reasons why it can be difficult to achieve expertise. At a collective level, human activity is subject to too many unpredictable events and decisions. (Hoffman et al., 2011, p. 405)

Expertise researchers sometimes identify Type 2 domains as problematic, and as one source of errors and biases that have been observed in the judgments of experts (Shanteau, 1992). But because it is precisely these complex and uncertain situations which are the domain of the entrepreneur, we suggest a reconsideration of expertise that is specific to CIC and Type 2 domains. From our work on effectuation, one overarching finding is the rejection of prediction in the decision-making heuristics of expert entrepreneurs. Our findings indicate that causality, or even the search for causality through prediction, is rejected by our expert entrepreneur sample. Instead it is replaced

with alternative heuristics centered on control that seems to emerge as entrepreneurs accumulate expertise. Simply put, instead of trying to predict the future, the expert entrepreneur subjects in our studies dealt with causality by endogenizing it. By taking the actions they can, with the resources they had available, at risk levels they found acceptable, and with partners who are committed to working with them, they view their own actions as setting off a causal chain of events over the outcomes of which they have some influence.

Such a view of the world inverts CIC from a liability (if you are counting on prediction to help establish causality) to an asset (if it is you who is both creating CIC and the desirable outcomes it engenders). Entrepreneurship offers a domain of expertise that is perfectly suited to viewing the world this way. In entrepreneurship we observe active agents actually initiating the events and decisions that generated the effects described by Hoffman et al. (2011, p. 406):

What counts as an “effect” is predicated upon events and decisions that are themselves influenced by forces and abstractions. They in turn give rise to new (or continuing) events and decisions that are in turn embodied in new (or continuing) forces and abstractions.

To the extent that CIC settings involve human actions and interactions, we believe a closer and deeper examination of stakeholder relationships would be key to developing expertise in Type 2 domains. Whether The Ask itself would be the appropriate practice task in all of these domains would be an interesting empirical question. More generally, this insight opens up an interesting philosophical basis for expertise studies involving CIC, namely the role of intersubjectivity (Mead, 1927) and design (Simon, 1969).

Entrepreneurship is inherently co-creative, requiring not just interaction within teams but also engagement with others outside the firm in order to be successful. As one example, the

specific activity of asking ranges from simple types of interaction between two people to complex intersubjective interactions in which learning cannot be cleanly separated into the individual cognition of each person involved. This suggests the need to examine expertise acquisition from the perspective of situated and social cognition as well as from the point of view of individual cognition (Cornelissen & Clarke, 2010; Mieg, 2006; Mitchell, Randolph-Seng, & Mitchell, 2011).

Of course, the notion that the appropriate practice task (and therefore expertise acquisition) might involve teams and constellations of individuals does not uniquely emerge from or relate to entrepreneurship (Taylor & Thorpe, 2004). Acknowledging this, Hoffman, Feltovich, and Ford (1997) urged researchers to consider the “expert-in-context” as the minimum unit of analysis. The minimum unit of analysis for expert performance in a fundamentally interactive context is one that intrinsically involves information exchange, decisions and actions by other people that affect the performance of the activity. For instance, when activities incorporate disclosures of information from another party that may facilitate or hinder performance at an activity, the performer’s outcomes are contingent on the other party (Heide & Miner, 1992).

We already have insights regarding the value that may be added by incorporating ideas and concepts from situated and social cognition into expertise studies. Mieg (2006) provided the macro-social view on expertise, emphasizing that a “social conception of the expert differs from other ones discussed . . . such as the expert as an outstanding individual nominated by peers . . . and the expert defined by his/her superior performance” (p. 743). Instead, Mieg explained the problematic nature of defining expertise from a broader social perspective where almost anyone can be an expert under the right circumstances, and where “expert” may simply mean that you are regarded as one by others, particularly within a profession (Abbott, 1988). An important take-

away from Mieg's analysis is the socially defined nature of performance criteria for expertise. Here, the social impinges on expertise primarily from *without* by governing standards for activity performance as well as structuring the broader context in which activities are valued.

But the social also impinges on activities from *within*, i.e. when the thoughts and actions of others affect the performance of an activity by an individual. Continuing with our focus on The Ask, social psychologists have made important discoveries about how individuals' help-seeking behavior is affected by their perceptions of others' willingness to help (Flynn & Lake, 2008). It turns out that these perceptions significantly affect an individual's performance in the activity of asking in a strongly negative way, i.e. help-seekers underestimate the likelihood that others will help them by as much as 50 percent. Non-expert askers appear to systematically believe that others will say no, even when they have no hard evidence on which to base such an assumption. Expert entrepreneurs, however, achieve better calibration through the actual practice of asking. Furthermore, extant evidence suggests that for the critical activity of asking in entrepreneurship, the mutuality of the situation can have a strong influence on activity performance. In other words, just the fact that other people are involved changes the nature of the activity in important ways.

Compare, for example, the appropriate practice tasks in industrial process control with those in law. A process control analyst may practice observation and monitoring. The focus is on the process, which can be objectively measured and refined. By contrast, the representative activities that define the essence of the legal domain (e.g. client preparation, in-court performance) are likely to intrinsically involve lawyerly interactions with other people in which those people (e.g. clients, judges, or juries) take an active role rather than a passive one. The activities to be worked on are fundamentally interactive.

- We have studies of taxi drivers' expertise (e.g. memorization capabilities; Kalakoski & Saariluoma, 2001) and expert salespersons (Ko & Dennis, 2004) so why not studies of expert headhunters (since the crucial activity of hiring is also fundamentally interactive) of salespeople selling?
- We also have studies of designers' and inventors' expertise acquisition (Cross, 2004; Mieg, Bedenk, Braun, & Neyer, 2012) so why not studies of innovators' activities in realizing a useful and/or commercial application for such inventions (e.g. in which success depends on interaction with partners, clients, and providers of complementary goods/services)? This "why not" may add depth to the context of entrepreneurship we consider in our research as well as shedding light on the perhaps surprising finding that many inventors do not wish to become entrepreneurs (Kassicieh, Radosevich, & Banbury, 1997).
- We have studies of expert firefighters (Klein, 2009) so why not studies of master marriage counselors (e.g. where performance as a mediator intrinsically depends on the engagement and co-participation of parties to the dispute)?

The common attribute to all of our "why nots" is that each of these domains involves individual or aggregate human action and interaction, an area of emerging interest to expertise scholars (Hoffman et al., 2011). In sum, investigations along these lines offer several research avenues, as follows.

First, human beings are by nature social and embodied (Joas, 1996). As a consequence, we must consider loading sociality into the conceptual structure of the activities that experts become very good at, in addition to considerations of the individual actor. This will require an emphasis on mutuality in the *situation*, i.e. the influence of others on the immediate activity environment.

Second, because activities such as The Ask are inherently intersubjective, one way of framing

them is as joint problems which different parties are looking for solutions to. Research suggests that the construction and maintenance of a shared conception of a problem is a fundamental characteristic of mutual learning in these situations (Roschelle & Teasley, 1995). Shared conceptions may be developed tentatively via dialogue on an ad hoc, on-the-fly basis. Such a perspective builds well atop current work in team cognition (Hoffman et al., 2013), expanding the canvas to include looser constellations of more diverse stakeholders jointly engaged in the activity of co-creation (Aarikka-Stenroos & Jaakkola, 2012). Such a perspective might open questions regarding the exchange and spillover of fine-grained information among individuals, both deliberate and accidental. In situations characterized by CIC, it is difficult to determine what information is salient, what might be useful, and what should be held as proprietary. For example, in entrepreneurship, asking a user to try out your service might involve learning about the problems they experience, their goals and plans, e.g. asking them to share proprietary information. There may be correction of errors and misperceptions. In this example, a degree of open information sharing reduces the information asymmetry that otherwise exists between the entrepreneur and potential users. Determining what constitutes purposeful and deliberate practice and expertise in such tasks may prove a useful research direction.

Lastly, once we embrace situations involving CIC and seek to explicitly incorporate individual or intersubjective human activity into expertise models, we will need to consider a multiplicity of motivations and intentions (Ainslie, 2001; March, 1978). As with the introduction of sociality, shared conceptions, and information exchange, multiple motivations and intentions introduce dynamism into the activity space. It is possible that expertise in such activities may incorporate skills such as persuasion and negotiation, which are inherently intersubjective. There may also be connections to contemporary work in

expertise research on individual preferences for explanations of complex events or those with indeterminate causality (Klein, Rasmussen, Lin, Hoffman, & Case, 2014).

Agenda for Future Research

In this section, we outline three empirical designs that seek to incorporate the intersubjective into expertise research. The first applies the method of experience sampling to a hypothetical design of our own creation. The second adapts an existing design from psychology and the third represents a more speculative possible design. We cast these examples as specific to investigations of entrepreneurial expertise and the superior performance of asking. But each of these also represents ways to investigate situations characterized by CIC and can therefore be extended to studies of expertise in domains other than entrepreneurship.

Experience Sampling

Our first design uses an experience sampling methodology (ESM) (Flugel, 1925; Csikszentmihalyi, Larson, & Prescott, 1977). The goal of the study would be to track The Asks of small business owners over time and then use content analyses to examine the data (Ericsson & Simon, 1993). With such an approach, we could compare data both within participants (looking for sequences that represent the impact of experience and purposeful practice) and across participants (looking for differences that might stem from expertise, situational factors, or personal factors). More generally, experience sampling seems well suited to work that seeks to understand the nature of expertise in situations characterized by CIC. Scollon, Prieto, and Diener (2009, p. 8) articulate the virtues of the method as:

First, ESM allows researchers to better understand the contingencies of behavior. Second, ESM takes

psychology out of the laboratory and into real-life situations, thus increasing its ecological validity. Third, ESM allows for the investigation of within-person processes. Fourth, researchers can avoid some of the pitfalls associated with traditional self-reports, such as memory biases and the use of global heuristics. Fifth, ESM answers the call for the greater use of multiple methods to study psychological phenomena.

Investigations specific to expertise that is developed intersubjectively could consider designs that sample both sides of the interaction, using powerful approaches like protocol analysis to draw insights from the significant quantity of data such a design might yield.

Helpfulness Experiment

This design is a modified replication of a study within the domain of entrepreneurship. Interestingly, the study already uses an Ask task. Flynn and Lake (2008) showed that people underestimate the helpfulness of others and overestimate their ability to help. In a series of studies where subjects had to ask strangers for a variety of favors (completing a questionnaire, borrowing a cellphone, getting a tour of the gym, etc.) the authors found their subjects systematically underestimated the likelihood (sometimes up to 50 percent) that a stranger would respond positively to their request. This study could easily be replicated with entrepreneurs.

Our proposed adaptation of the study would record the entrepreneurs in the actual process of asking. We would pair entrepreneurs to engage in the activity of asking each other for help regarding their venture. We would then follow Flynn and Lake (2008) in analyzing what they asked for, if they got something useful, and how they phrased the question. With these and additional data we would collect from recordings or from dyadic asking interactions, we could isolate the mechanisms that inhibit and promote asking behavior in entrepreneurship.

Such an approach would lend itself to manipulations of both the focal Ask and also of the subject entrepreneurs. We know that entrepreneurs vary on numerous important dimensions such as economic context (Boyd & Vozikis, 1994), or level of (over)confidence (Koellinger, Minniti, & Schade, 2007). The use of experimental methods may allow us to delineate specific relationships between variables of interest to behavioral economists and social psychologists with outcomes of interest to entrepreneurship researchers and cognitive scientists focused on the development of expertise.

Sequencing

Seeking to understand the heuristics of individuals engaged in The Ask, we imagine developing a deck of cards, each of which represents a possible action in an Ask sequence (Frese et al., 2007). The content of these cards would necessarily be derived from observing actual entrepreneurs engaged in the practice of The Ask, perhaps a by-product of one of the first two studies. The cards could be used in a variety of ways. After identifying a representative sample of entrepreneurs, we could create a study where we compare the planned sequence of actions the entrepreneur prepared before an Ask against the actual sequence used during The Ask. Or we could contrast sequences prepared by experts with sequences prepared by novices. Selection (or non-selection) of particular actions could be as important as the sequence itself. Additionally, such an instrument offers significant teaching possibilities as well. In domains where the actions are contingent and intersubjective, turning the cards into a game where people play in dyads and use the cards instead of communicating might yield advancements in understanding which patterns emerge from practice. This would be in line with recent work on “ShadowBox” training designs in which apprentices compare themselves with experts (Klein & Borders, 2016).

Conclusion

We live in a time marked by accelerating technology, interconnectedness, and complexity. Entrepreneurship offers one of the most promising domains for research that embodies those characteristics. In fact, extant studies into entrepreneurial expertise have already underscored the need to expand our understanding of expertise to that of the intersubjective expert. Fortunately, recent work on expertise provides a foundation to take on these ambitious challenges, and points to some of the rewards we can expect from undertaking those challenges. We look forward to intersubjectively addressing some of these challenges not only with our colleagues in entrepreneurship research and in research into expertise, more generally, but also with others who would like to self-select into this co-creative enterprise. In addition, the scientific study of entrepreneurial expertise illustrates the prospects for taking the broader field of expertise studies into new areas and domains that are interestingly and significantly different from the domains that have been “classically” studied.

APPENDIX

The Venturing Instrument

Introduction

In the following experiment, you will solve two decision problems. These problems arise in the context of building a new company for an imaginary product. A detailed description of the product follows this introduction.

Although the product is imaginary, it is technically feasible and financially viable. The data for the problems have been obtained through realistic market research – the kind of market

research used in developing a real world business plan.

Before you start on the product description and the problems, I do need one act of creative imagination on your part. I request you to put yourself in the role of an entrepreneur building a company – i.e. you have a little money of your own to start this company, and whatever experience you have to date.

Throughout the experiment you should talk aloud the thoughts you are having. Please start by reading aloud the following instructions.

Description of the Product

You have created a computer game of entrepreneurship. You believe you can combine this game with some educational material and profiles of successful entrepreneurs to make an excellent teaching tool for entrepreneurship. Your inspiration for the product came from several reports in the newspapers and magazines about increasing demand for entrepreneurship education; and the fact that a curriculum involving entrepreneurship even at the junior high or high school level induces students to learn not only business-related topics but math and science and communication skills as well.

The game part of the product consists of a simulated environment for starting and running a company. There are separate sub-simulations of markets, competitors, regulators, macroeconomic factors, and a random factor for “luck.” The game has a sophisticated multimedia interface – for example, a 3D office where phones ring with messages from the market, a TV that will provide macroeconomic information when switched on, and simulated managerial staff with whom the player (CEO) can consult in making decisions. At the beginning of the game, the player can choose from a variety of businesses the type of business he/she wants to start (for example:

manufacturing, personal services, software, etc.) and has to make decisions such as which market segment to sell to, how many people to hire, what type of financing to go for, etc. During the game, the player has to make production decisions such as how much to produce, whether to build new warehouses or negotiate with trucking companies, etc.; marketing decisions such as which channels of distribution to use, which media to advertise in and so on; management decisions involving hiring, training, promoting, and firing of employees, and so on. There is an accounting subroutine that tracks and computes the implications of the various decisions for the bottom line. The simulation's responses to the player's decisions permit a range of possible final outcomes – from bankruptcy to a “hockey stick.”

You have taken all possible precautions regarding intellectual property. The name of your company is *Entrepreneurship, Inc.* The name of the product is *Venturing*.

Problem 1: Identifying the Market

Before we look at some market research data, please answer the following questions – one at a time. (Please continue thinking aloud as you arrive at your decisions.)

- (1) Who could be your potential customers for this product?
- (2) Who could be your potential competitors for this product?
- (3) What information would you seek about potential customers and competitors – list questions you would want answered.
- (4) How will you find out this information – what kind of market research would you do?
- (5) What do you think are the growth possibilities for this company?

Problem 2: Defining the Market

In this problem you have to make some marketing decisions. Based on *secondary market research* (published sources, etc.), you estimate that there are three major segments who are interested in the product:

Segment	Estimated total size
Young adults between the ages of 15 and 25	20 million
Adults over 25 who are curious about entrepreneurship	30 million
Educators	200,000 institutions

The estimated dollar value of the instructional technology market is \$1.7 billion.

The estimated dollar value of the interactive simulation game market is \$800 million.

Both are expected to grow at a minimum rate of 20 percent p.a. for the next five years.

The following are the results of the primary (direct) market research that you have completed

Survey #1: Internet users were allowed to download a scaled down version (game stops after 15 minutes of playing) of the prototype and were asked to fill out a questionnaire

You get 600 hits per day; 300 actually download the product. You have 500 filled out questionnaires.

Willing to pay (\$)	Young adults (%)	Adults (%)	Educators (%)
50–100	45	26	52
100–150	32	38	30
150–200	15	22	16
200–250	8	9	2
250–300	0	5	0
Total	100	100	100

Survey #2: The prototype was demonstrated at 2 Barnes and Noble and 3 Borders bookstores

Willing to pay (\$)	Young adults (%)	Adults (%)	Educators (%)
50–100	51	21	65
100–150	42	49	18
150–200	7	19	10
200–250	0	8	7
250–300	0	3	0
Total	100	100	100

Survey #3: Focus group of educators (high school and community college teachers and administrators)

The educators who participated in the focus group find the product exciting and useful – but want several additions and modifications made before they would be willing to pay a price of over \$150 for it. As it is, they would be willing to pay \$50–80 and would demand a discount on that for site licenses or bulk orders.

Both at the bookstore demo and the focus group, participants are very positive and enthusiastic about the product. They provide you good feedback on specific features and also extend suggestions for improvement. But the educators are particularly keen on going beyond the “game” aspect; they make it clear that much more development and support would be required in trying

to market the product to them. They also indicate that there are non-profit foundations and other funding sources interested in entrepreneurship that might be willing to promote the product and fund its purchase by educational institutions.

Based on your market research, you arrive at the following cost estimates for marketing your product

Internet	\$20,000 upfront + \$500 per month thereafter
Retailers	\$500,000 to \$1 m upfront and support services and follow-up thereafter
Mail order catalogs	Relatively cheap – but ads and demos could cost \$50,000 upfront
Direct selling to schools	Involves recruiting and training sales representatives except locally

Competition

None of the following four possible competitors combine a simulation game with substantial education materials – you are unique in this respect.

Company	Product	Description	Price per unit	Sales (\$)
Maxis	Sim City	Urban planning simulation	29.95	30 m
Microprose	Civilization	Civilization building simulation	50.00	20 m
Sierra On-Line	Caesar	City building simulation	59.95	18 m
Future Endeavors	Scholastic Treetop	CD-ROMs of scholastic books	n / a	1 m (New Co. < 1 yr. old)

The game companies are making a net return of 25 percent on sales.

At this point, please take your time and make the following decisions: **(Please continue thinking aloud as you arrive at your decisions)**

1. Which market segment/segments will you sell your product to?
2. How will you price your product?
3. How will you sell to your selected market segment/segments?

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