

MARKETING UNDER UNCERTAINTY: THE LOGIC OF AN EFFECTUAL APPROACH

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ABSTRACT

How does one approach marketing in the face of uncertainty, where the product, the market and the traditional details involved in market research are unknowable *ex ante*? We use protocol analysis to evaluate how 27 expert entrepreneurs approach such a problem, compared to 37 managers with little entrepreneurial expertise, with all 64 subjects being asked to think aloud as they make marketing decisions in exactly the same unpredictable situation. Our hypotheses are drawn from literature in cognitive science on (a) expertise in general and (b) entrepreneurial expertise in particular. Results show significant differences in heuristics used by the two groups. While those without entrepreneurial expertise rely primarily on predictive techniques, expert entrepreneurs tend to *invert* these. In particular, they use an effectual or non-predictive logic to tackle uncertain market elements and co-construct novel markets with committed stakeholders.

S-D logic suggests that organizations exist because the entrepreneur, with his or her bundle of skills, is able to (1) envision service that people want and will pay to obtain and (2) integrate together microspecialists to offer and provide this service. In this sense one of the most important operant resources in society and the economy is the entrepreneurial spirit, and mental skills of the individual entrepreneurs and their collectivity.

--- Vargo and Lusch (2006: 53) *SDL: What it is, what it is not, what it might be*

INTRODUCTION

A knock on the door. “Good morning, Professor. I was in your modeling course. I just got a job offer to run marketing for a startup. Though uncertain, it looks like an exciting opportunity, and I hope you can introduce me to some best marketing practices in this setting because I haven’t done anything like it before...”

There is little theoretical foundation for a normative articulation of how marketing strategy decisions should be made in situations of uncertainty.¹ Uncertainty is an attribute not only of entrepreneurial settings, but also of virtually every environment in which marketing happens today. Drivers of this trend toward market volatility and uncertainty include market fragmentation, competitive pressures and new customer tastes (e.g., various kinds of ideological concerns such as those for “green” products and services).² Traditional market definition and segmentation using market research, based on what Vargo and Lusch (2006) call “G-D Logic,” is problematic when the market is nebulous and the data anecdotal. Their alternative paradigm based on “S-D Logic,” while extremely optimistic about the role of the entrepreneur (as evidenced in the quote at the beginning of this paper), also offers little normative guidance as to how to *do* marketing in the face of uncertainty.

In this paper, we begin to fill the gap between existing marketing tools and the needs of managers facing uncertainty by giving a representative task to individuals with related real-world

¹ There is, however, useful “practitioner” literature on this topic (Jagpal 1998).

² We thank a thoughtful reviewer for pointing out the more general applicability of marketing under uncertainty.

expertise, and comparing their strategies to those without such experience. The theoretical lens we use to focus our research design comes from entrepreneurship, particularly a cognitive science-based logic of entrepreneurial expertise called effectuation. Effectuation has substantial overlaps and synergies with recent developments in marketing theory as represented in the conversations (ex: Levy 2006) stemming from Vargo and Lusch's (2004, 2008a, 2008b) exposition of S-D Logic. Throughout this paper, we strive to clarify and connect key themes from both effectuation and S-D logic with a view to co-creating value in the contribution of each to the history of ideas and the practice of marketing.

We start by introducing effectuation (Sarasvathy 2001a) as a specific logic under the larger umbrella of decision-making under uncertainty. We also trace effectuation's roots in the general literature on cognitive expertise and then outline its particular implications for marketing under uncertainty. We do this first through a review of psychological research on expertise, followed by the development of hypotheses relating to marketing under uncertainty that we empirically test against a contrasting sample of managers with little entrepreneurial experience, but training in normative marketing research (managers) and entrepreneurs with significant new venture experience (expert entrepreneurs).

The crux of our conceptualization of "uncertainty" consists in Knight's (1921) demarcation of it into known, unknown and unknowable distributions. The first two, both in theory and practice, are conventionally tackled using predictive techniques. Recent literature on entrepreneurial expertise (Read and Sarasvathy, 2005) claims the third may be tackled using effectual logic, which eschews prediction. Our aim in this study is to take a first step toward applying this non-predictive logic to marketing in any firm, large or small, new or old, faced with making marketing decisions under uncertain, unknowable conditions. Therefore, we derive

a set of propositions on how expert entrepreneurs using effectual logic and managers schooled in contrasting predictive techniques differentially solve marketing problems in uncertain situations.

We use comparative verbal protocol analysis to test our propositions (Ericsson and Simon 1993; Ericsson 2006a). This method involves presenting expert entrepreneurs and a comparison sample of managers who have little entrepreneurial expertise with a hypothetical business scenario wherein they think aloud continuously as they (a) envision products/services that people will pay for and (b) make specific marketing decisions such as selection of target segments, channels and pricing. Results show that whereas managers follow the predictive techniques presented in traditional marketing textbooks, expert entrepreneurs often *invert* these techniques through effectual logic. The fundamental difference in the way the two groups make decisions is embodied in a set of heuristics that is internally consistent and hence provides a clear, normative logic for making marketing decisions under uncertainty. Moreover, this logic has much in common with the evolution of a new paradigm in the discipline of marketing.

LITERATURE REVIEW

Effectuation: A Logic of Entrepreneurial Expertise

Developed as a baseline against which to evaluate entrepreneurial expertise, effectuation inverts several principles central to normative theories of predictive rationality. Particularly in the second half of the twentieth century, predictive rationality has been questioned in a variety of ways. Simon's (1991) assault on its empirical validity, based on the cognitive bounds of the human mind, inspired research on heuristics and biases that *deviate* from rationality. Effectuation was inspired by Simon's work and developed in close collaboration with him (Sarasvathy 2002; Sarasvathy and Simon 2000). While bounded rationality has been construed by some as a *subset* of predictive rationality, and the vast literature on heuristics and biases is considered a set of *deviations* from rationality, effectuation is an *inversion* of predictive rationality. In a nutshell, as

Sarasvathy and Simon (2000) put it, effectuation turns predictive rationality upside down to answer the question:

“Where do we find rationality when the environment does not independently influence outcomes or even rules of the game (Weick 1979), the future is truly unpredictable (Knight 1921), and the decision-maker is unsure of his/her own preferences (March 1982)?”

A static outline of the theory can be found in Sarasvathy (2001a/b) and its dynamics have been worked out in Sarasvathy and Dew (2005a). Applications of effectual logic to firm strategy are examined in Wiltbank et al. (2006) and a book-length exposition is forthcoming in Sarasvathy (2007). For the purposes of our study, we begin with a concise summary of effectuation including five key constructs that differentiate it from normative theories based on predictive rationality, as described in Table 1.

----- Insert Table 1 about here -----

Effectuation inverts the fundamental principles, solution process and overall logic of predictive rationality. Predictive rationality rests on a logic of foresight – i.e. to the extent we can predict the future, we can control it. Effectuation rests on a logic of non-predictive control – i.e. to the extent we can control the future, we do not need to predict it. Predictive rationality takes the environment as largely outside the control of the decision-maker who therefore seeks to predict and adapt to changes in it. In an effectual view, the environment is endogenous to the actions of effectuators who therefore seek to co-create it through commitments with a network of partner, investor and customer stakeholders. Effectuation also specifies three types of intangible resources with which the effectuator co-creates new ends (including new firms, products/services and markets) through an iterative and interactive process of stakeholder acquisition. This process is graphically presented in Figure 1 and described in more detail in the next section. The point to note is that, like SDL, effectual logic is “focused on intangible resources, the co-creation of value, and relationships” (Vargo and Lusch 2004: 1). Before we describe other overlaps and

distinctions between effectuation and predictive logic, we provide an empirical example to illustrate our theoretical exposition.

Predictive Rationality and Effectuation: Empirical Examples

In Table 1, we present a series of constructs from predictive rationality that is inverted in effectuation. One major thread of research in entrepreneurship sets out a predictive process that begins with the identification, recognition or discovery of an opportunity, followed by a series of tasks that include (a) developing a business plan based on (b) extensive market research and (c) detailed competitive analyses, followed by (d) the acquisition of resources and stakeholders for implementing the plan, and then (e) adapting to the environment as it changes over time with a view to (f) creating and sustaining a competitive advantage (Gartner 1985; Varadarajan and Jayachandran 1999). In this predictive view, if a manager with little entrepreneurial expertise wanted to open a restaurant, she would start by identifying a high potential location, analyzing the competition in the area, identifying particular target segments, developing marketing strategies to fit the targets, obtaining necessary funding, hiring the appropriate chef to develop the right menu and then opening the doors to the restaurant.

----- Insert Figure 1 about here -----

As Figure 1 shows that effectuators, in contrast, would start with the means available. Based on who they are, what they know and whom they know, they start with a list of things they can afford to do. In the restaurant example, the effectual entrepreneur may or may not start with a location; this would depend on who the effectuator is. If the effectuator is a cook, he may forego identifying high potential locations to start a catering service, a lunch service, or even just hire himself out as a chef who does house calls – it depends on what he can afford to invest in terms of money, time and emotion. He would start by calling people he knows and putting

together commitments from partners. For example, if he knew a grocery store owner, he might start by making dishes for their deli or if he knew someone in the popular media, he might start producing cooking videos, and so on. The nature of the venture will depend on which stakeholders come on board and the contingencies that occur along the way. Using this stakeholder-dependent process, the effectuator sets in motion two contrasting cycles. The first is an expanding cycle that increases the resources available to the venture; the second, accretes constraints on the venture that converge into specific goals over time.

The result of the predictive process is determined by the initial “opportunity” identified and the adaptive changes made in marketing strategy over time to fit a pre-selected “market” and/or “vision.” The end product in effectuation is fundamentally unpredictable at the start of the process. In fact, the opportunity and even the market itself can be *an outcome of* and *generated through* the very process of effectuation. In other words, both market and opportunity are contingent upon who comes on board and the actions and goals they enable and constrain; initial goals and visions of an opportunity seldom determine who comes on board or what resources are gathered under an effectual approach.

The exaggerated dichotomy described here creates a powerful theoretical separation between effectuation and predictive rationality. Empirically, of course, both predictive and effectual processes may be at work in tandem. We expect, therefore, data to contain decisions and actions that confound the two. Yet, preliminary investigations in expert entrepreneurial decision-making (Sarasvathy 2001b) and early stage investing (Wiltbank et al. 2008) indicate that strong patterns of effectual and predictive decisions can be isolated. In the current study, we aim to apply these principles of effectual expertise to specific marketing problems under uncertainty. In order to do this, we need to grasp the methodological roots of effectuation in the

larger literature on cognitive expertise as well trace its theoretical connections to conceptions of uncertainty. We turn to these tasks next.

Expertise

Investigation of expertise using modern approaches began about 30 years ago, focusing on understanding chess masters (Chase and Simon 1973).³ Despite expectations to the contrary, early studies of expert chess players concluded that intelligence had no correlation with chess mastery (Doll and Mayr 1987). Expert players had learned unique ways of storing information (Butterworth 2006), perceiving problems and generating solutions (Gobet, and Charness 2006; Greeno and Simon 1988). While early empirical efforts focused on chess, subsequent work has validated and expanded these findings to more dynamic and complex settings such as medicine (Norman, Eva, Brooks, and Hamstra 2006; Rikers et al. 2002), fire-fighting (Klein 1998), software development (Sonntag, Niessen, and Volmer 2006) and consumer decision-making (Alba and Hutchinson 1987). Experience alone does not develop the unique decision-making heuristics observed in experts (Camerer and Johnson 1991). Evidence of superior performance is also necessary. And though expert intelligence is not subject to age-related decline (Masunaga and Horn 2001), expert decision-making heuristics can be negatively impacted by biases, particularly involving prediction of outcomes (Shanteau 1992).

Managerial Expertise in Marketing

Scholarship in marketing has largely ignored the role of managerial expertise. In the earliest piece identified in our search, Larreche and Moinpour (1983) show experts "...provide significantly better estimates than those obtained by other approaches," but go on to lament, "...the relevant issue, of course, is identifying 'experts.'" Given the strength of their findings, we were surprised to locate only four subsequent pieces on the topic. Viewing them chronologically,

³ de Groot (1946/1978) began sporadic work on the topic as early as 1946.

Sujan et al. (1988) demonstrated more sophisticated knowledge structures in expert sales people than in those with less experience. Perkins and Rao (1990) showed that higher levels of uncertainty surrounding a problem increased the positive impact of experience on performance. Spence and Brucks (1997) argued the greatest difference between expert and novice performance exists when a task is ill-structured, but that performance is reasonably similar for well-structured and completely unstructured tasks. The most recent work we found on marketing expertise argues entrepreneurs with more experience are better able to make use of information inputs such as marketing data and marketing management support systems than their peers with less experience (VanBruggen et al. 2001).

Entrepreneurial Expertise in Uncertainty

According to Hebert and Link (1988), since the earliest history of economic thought concerning entrepreneurship, it has been inextricably intertwined with uncertainty. Entrepreneurial expertise, in short, equals expertise in uncertainty. The canonical thesis on this equality can be found in Knight's (1921) seminal work on the relationship between profit and unpredictability. Knightian uncertainty removes the assumption that phenomena can be modeled and predictions can be accurately made based on historical data. Situations where the past is not a reliable predictor of the future are where our work finds its home, as effectuation provides heuristics that use the non-predictive techniques characteristic of expert decision-making in entrepreneurial settings. In order to apply effectuation to marketing under uncertainty, we need to connect both its roots in expertise and its branches in heuristics to hypothesize how to overcome uncertainty in explicit marketing decisions. We take up this task in the next section.

PROPOSITIONS

Effectuation, Expertise and Marketing Strategy

The central concept in effectuation is the logic of *non-predictive* control. Our central proposition based on effectuation, therefore, relates to the use of predictive information:

Expert entrepreneurs are likely to ignore or underweight predictive information in making marketing decisions in the new venture setting, instead relying on strategies that enable them to directly control, co-create and transform situations toward positive outcomes.

Merely based on symmetry, we can argue managers without entrepreneurial expertise would do the opposite – i.e. rely on predictive information for making marketing decisions. This argument is also borne out by common sense and published evidence. Normative work, offered in textbooks (Kotler and Armstrong 1999) and popular literature (Ries and Trout 1985), has largely followed the old dominant logic in marketing. This has meant applying predictive approaches based on market research and competitive analysis to the development and execution of marketing strategies in order to achieve the highest possible returns and market share for existing and new ventures.

As Vargo and Lusch (2004) describe, at least part of the reason for the way concepts and theories within marketing have developed over the twentieth century, is rooted in the macro-economics of exchange of physical and manufactured goods and the micro-economics of profit maximization by the firm. Understandably, the empirical bases for this theoretical evolution are studies of large and/or established corporations operating within well-defined or mature markets. In spite of rising discontent in the last decade of the twentieth century evidenced in calls for a new paradigm (Achrol 1991; Webster 1992; Day and Montgomery 1999; Sheth and Parvatiyar 2000), most basic marketing courses in business schools continue to emphasize the 4Ps (price, product, promotion and placement) and a variety of tools designed to better predict demand and analytically capture predetermined markets rather than the co-creation of both through

innovative deployments of operant resources in ongoing relationships between marketing stakeholders.

In sum, while we cannot be sure what the average person on the street, utterly unschooled in marketing, might do when faced with a marketing decision, we can expect the manager trained in normative marketing (whether acquired formally in a business school or through the popular press), but without entrepreneurial expertise is likely to take predictive information seriously and seek to invest in it heavily.

We take up as our next task, the provision of sturdy legs to support this broad central hypothesis; legs consisting of particular heuristics relevant to marketing decisions under uncertainty. We draw both from the larger literature on general expertise, as well as the more specific literature on entrepreneurial expertise. The first four propositions stem from an integration of effectuation with the expertise literature. The final three relate effectuation heuristics to predictive principles of marketing. After we describe data, analysis and results involved in testing these hypotheses, we turn to an in-depth discussion of how an alternative set of prescriptions for marketing under uncertainty based on effectual logic may cohere and cumulate with recent new developments including Vargo and Lusch's (2004) notion of S-D Logic, Hunt and Morgan's (1997) resource-based arguments, Jaworski and Kohli's (2006) co-creation perspective, Rust et al.'s (2004) conceptualization of customer equity, and Berthon and John's (2006) seven value dimensions of interactions as perceived by clients.

Hypotheses Based on Expertise in General

Market Research

Our first proposition stems directly from our central hypothesis based on effectuation – namely expert entrepreneurs will likely ignore predictive information. This proposition is reinforced by the literature on expertise in general. Experience and deliberate practice are the

sources from which experts develop much of their knowledge (Ericsson 2006a). In contrast, those without experience rehearse skills in the context of “classroom” or practice problems, divorced from the actual domain of decision-making (Schenk et al. 1998). This distinction is critical: managers with limited exposure to real-world problem solving have little of the episodic knowledge at the disposal of expert entrepreneurs, resulting in distinctly different problem solving approaches.

Because expert entrepreneurs spend more time trying to understand decision problems and have refined perceptual abilities based on intensive practice and familiarization in their domain (Hutton and Klein 1999), they are more likely to carefully define the relevant features of decision problems and consequently, are less likely to be reliant on predictive information. Experts also process and organize significant bodies of knowledge (Glaser 1996) necessary to make good decisions without a great reliance on external inputs, particularly predictive ones (Rikers et al. 2002). Instead, experts have learned to automatically filter information from external sources (Leifer 1991), validating it against patterns from previous experiences (Chase and Simon 1973).

In marketing management, this limited reliance on predictive information is an important factor distinguishing expert entrepreneurs. They have an ability to judge typicality based on their store of patterns built over years of deliberate practice. They recognize environments in which the value of predictive information is low, both because such information is perishable in fast-moving uncertain environments and because this information does not account for the impact of actions they will take (Heerde et al. 2005). George Bernard Shaw once said, “In literature, the ambition of the novice is to acquire the literary language; the struggle of the adept is to get rid of it.” Similarly, in uncertain situations, those without domain-specific experience learn the

textbook tools of market research while expert entrepreneurs seek alternatives. Therefore, although some managers may have great stores of semantic or factual knowledge of a domain, they are lacking practical experience in dealing with uncertainty. Given the predominant emphasis of research and textbook literature on using predictive information, such as historical market data to build sophisticated models, we expect that:

Proposition 1 (market research): While making marketing decisions in an uncertain business situation, individuals higher in entrepreneurial expertise are more likely to be skeptical about market data, while those lower in entrepreneurial expertise are more likely to take market data as given and credible.

Prior Experience and Analogical Reasoning

What knowledge mechanisms expert entrepreneurs substitute for market research is the subject of our next proposition. Through deliberate practice, they have, among other things, developed a database of patterns which they can access when solving future problems (Gobet and Simon 1996). The question is whether entrepreneurial experts will actually apply this unique knowledge to the modeling of solutions for problems in the uncertain situations of product development and market creation as chess and computer programming experts do to their tasks (Adelson 1984). From prior work, we know experts automatically store information according to outcomes (Ericsson and Kintsch 1995). As they match and recognize stored patterns against existing situations (Reingold et al. 2001), they are likely to retrieve strategies they already know they can implement (Kalakoski and Saariluoma 2001). Take, for example, the think-aloud protocol study by Dahl and Moreau (2002) of real-world industrial designers that showed the importance of pattern recognition and analogical reasoning in new product development. From a summary of this work, which includes variation in the indicators of expertise, we expect that while managers are likely to use given problem data given as the basis for taking action, expert entrepreneurs build strategies that draw on analogies to prior experience. Formally:

Proposition 2 (prior experience): While making marketing decisions in an uncertain business situation, individuals higher in entrepreneurial expertise are more likely to use analogical reasoning based on experience than those lower in entrepreneurial expertise.

Affordable Loss

Expert entrepreneurs are also likely to differ from managers in how they employ available resources. Effectuation suggests that expert entrepreneurs know through past experience and actual practice that success cannot be predicted when facing uncertainty, but that the occurrence of failure can be significantly controlled (Sarasvathy 2001a; Sarasvathy and Menon 2002). Affordable loss refers to the tendency of expert entrepreneurs to evaluate an investment according to whether they could survive the total failure of an initiative. A preference for the cheapest, if not free, options, for quickly realized small successes and small failures tends to dominate. In contrast, the predictive method of forecasting expected values and selecting initiatives based on their predicted worth considers investment requirements only against possible returns. By taking action based on affordable loss, rather than on predicted expected values, the risk involved in any one action cannot put an entire project in jeopardy. While this tactic may have unintended consequences, such as under-investing in attractive options or moving too quickly down unproductive paths, it provides a means of achieving some control over the occurrence of failure. Mukhopadhyay et al. (1992) present empirical evidence using protocol analysis of a panel of experts in software project cost estimation employing this heuristic and producing superior performance to mathematical models and computer simulations. As a result, we expect the following:

Proposition 3 (affordable loss): While making marketing decisions in an uncertain business situation, individuals higher in entrepreneurial expertise are more likely to consider how much money they have and what an effort is going to cost than those lower in entrepreneurial expertise.

Decision Framing

Building new organizations, product innovations and/or new markets are non-trivial tasks. Experts in general have acquired a highly adapted set of cognitive skills and a deep understanding of the nature of their own problem domain (Bettman and Sujan 1987; Ericsson and Charness 1994). And because of the uncertainty associated tasks in the domain of new firm, product or market creation, how decision-makers frame problems is critical. Studies of the organization of information by experts and novices in general highlight that experts approach problem situations with more understanding than novices. Experts are more likely to frame problems comprehensively, utilizing a top-down framework or schema, within which they contextualize specific decisions and link them to other decisions. In contrast, those with less experience tend not to frame problems within a conceptual scheme, but approach them from the bottom-up and according to surface characteristics, rather than their underlying structures (Mackay and Elam 1992). Experts' ability to group problems into fundamental categories and relate them to other decisions that need to be made results in knowledge architectures that link multiple occasions of connected decisions in the task domain over time, with feedback and interpretation. This capability of expert entrepreneurs to frame and contextualize problems inherent in marketing a new product or a new venture leads us to expect:

Proposition 4 (decision framing): While making marketing decisions in an uncertain business situation, individuals higher in entrepreneurial expertise will be more likely to explicitly visualize building a whole business, whereas those lower in entrepreneurial expertise are more likely to make isolated marketing decisions.

Hypotheses Based on the Marketing Mix

We now focus our attention on applying effectuation to a specific mix of marketing activities. In each area, we theorize about expert entrepreneurial strategy as guided by effectuation and contrast it with a representative practical expectation from current marketing

texts or literature.

Market and Product

Expert entrepreneurs' experience and practice in uncertain new venture settings teaches them that market targets and product offerings may be considerably transformed along the path from concept to acceptance. So value proposition change is a pattern experts are accustomed to and actively embrace (Sarasvathy and Kotha 2001). In contrast to this view, is the textbook prescription from the old dominant logic in marketing that advises starting with the selection of a target market for a pre-defined product or service and proceeding to build elements of price, promotion and placement around that product or service (Kotler and Armstrong 1999). Theoretical arguments for feedback loops in which the product is generated by the process (Vargo and Lusch 2004) and even exhortations to move to a network perspective (Achrol and Kotler 1999) exist. Yet empirical evidence demonstrates that adherence to well-defined product offerings is still the norm – note for example Biyalogorsky et al.'s (2006) article explaining why marketing managers persist with their offering even when the product has failed in the market. Consequently, we expect that:

Proposition 5 (market and product): In an uncertain business situation, individuals higher in entrepreneurial expertise are more likely to consider more alternative markets, even if the option necessitates product or strategy change, whereas those lower in entrepreneurial expertise are more likely to accept target markets and products as given.

Pricing

Confounding prescriptions from traditional marketing literature make pricing a dilemma. On one hand, producers have incentives to underprice early product in the hopes of penetrating the market, driving adoption (Katz and Shapiro 1986; Rogers 1995) and capturing value later in the cycle. On the other hand, they have contradictory incentives to “skim” profits from early adopters who are typically less price sensitive (Kotler and Armstrong 1999; Nagle and Holden

1994). What is likely to separate expert entrepreneurs from less experienced managers is both the *process* by which they arrive at the pricing decision and the *outcome* of the decision. Expert entrepreneurs approach the pricing issue “locally,” based on information gained from their interactions with stakeholders (Sarasvathy 2001a). They learn what value each customer derives from an evolving value proposition and how this value is derived, and generalize price as the process unfolds. As managers with less entrepreneurial experience are likely to develop pricing based on segmentation ideas and the target market they pre-select, their pricing approach needs to be relevant to the chosen customer segment. In fact, pricing is often a factor that describes the segment itself. Consequently, managers are likely to set price in terms of a “lowest common denominator” for a given segment, while expert entrepreneurs are likely to price based on the highest level of value they have uncovered through interactions with individual customers, à la Berthon and John (2006).

Proposition 6 (price): In an uncertain business situation, individuals higher in entrepreneurial expertise are more likely price higher to capitalize on the value they have identified to a specific customer (skim pricing), whereas those lower in entrepreneurial expertise are more likely to price lower to penetrate entire target segments (penetration pricing).

Channel

Effectuation predicts expert entrepreneurs are cognizant that successful ventures involve complete and complex webs of stakeholder relationships, with stakeholders bringing resources and ideas to a new venture as well as obligations (Sarasvathy 2001a). We expect expert entrepreneurs will build stakeholder relationships directly, one step at a time, as part of the process of creating a market, firm or product. One of the results of this effort is that experts will generate rich, first-hand knowledge relating to the effort and will quickly have a sense of whether the business has real promise. However, this practice will also color the way they approach distribution of the product as relationships will create the market. As a result, we

expect the channel strategy used by expert entrepreneurs will be contingent on partnerships and will, therefore, be relatively narrow. In contrast, managers will sell to as many segments as they rationalize to be profitable through channels that have broad reach and appeal.

Proposition 7 (channel): In an uncertain business situation, individuals higher in entrepreneurial expertise are more likely to develop a focused channel strategy around partnerships to serve a narrow customer group, while those lower in entrepreneurial expertise will be less focused, selling to more segments through more channels and being less dependent on partnerships.

THE STUDY

Method

First, expertise was operationalized as a set of criteria for sample selection. Second, a research instrument was developed to present an uncertain situation and capture the information-seeking tasks involved in discovering and/or creating the market for a new product. Third, subjects completed the think-aloud task and their concurrent verbal protocols were collected. And fourth, protocols were coded, analyzed and reported.

Protocol Analysis

As our objective was to understand the heuristic differences in decision-making associated with entrepreneurial expertise, we selected the method of concurrent verbal protocol analysis. Pioneered largely in psychological studies of expertise, this approach calls for analysis of the transcripts of subjects thinking aloud during problem solving tasks. As designed, the intent of the method was to gain insight into real-time cognitive processing (Ericsson and Simon 1980), initially using the game of chess (Charness 1989). The method was designed to minimize the bias associated with retrospective recall and to gain visibility into the decision-making steps often obscured using stimulus-response methods which only analyze decision outcomes, not

processes.⁴ Some examples of protocol analysis studies in entrepreneurship include: venture capitalist investment selection criteria (Hall and Hofer 1993), and entrepreneurial decision framing (Dew et al. 2008). Examples in marketing include: consumer choice processes (Cooper-Martin 1993), pretesting questionnaires (Bolton 1993), brand extension (Boush and Loken 1991) and retail sales projections (Cox and Summers 1987).

Subjects

Our study includes a sample of 27 expert entrepreneurs and 37 managers with little entrepreneurial experience, with a robustness check using 34 executives. We operationalized expert entrepreneurs as having founded one or more firms and remained with at least one of the ventures through 10 years of operation, initial public offering (IPO), and the achievement of a minimum of \$200 million in annual revenues. These criteria ensured our expert entrepreneurs spent the required amount of time in domain-specific deliberate practice, achieved an extraordinary level of performance in a situation and could be considered experts (Ericsson and Lehmann 1996). These expert entrepreneurs were identified by combining a list of the one hundred most successful entrepreneurs from 1960 to 1985 (Silver 1985), and the list of national winners of the Entrepreneurs of the Year awards, compiled by Ernst & Young. The expert entrepreneur sample contains broad industry diversity, ranging from transportation to medical devices and consumer products and is all male. The sample is 90% American, ages range between 40 and 82 and two-thirds have advanced degrees. On average, subjects had founded seven firms.

Our requirements for a comparison sample of managers included a) having sufficient

⁴ This is particularly problematic for experiments which are sufficiently simple that a subject can generate the solution in his or her head (Ericsson and Simon 1993). If the solution can be generated in a single step, the researcher will fail to glimpse into the black box, and will consequently not gain insight into the process of cognitive processing. As our scenario has no correct answer and offers subjects a nearly infinite solution set, we have some comfort we have mitigated this risk and have gained meaningful insight into the heuristics of expert entrepreneurs. We appreciate the input of one of our reviewers in pointing this out.

knowledge to address the questions in the research instrument, but b) not having entrepreneurial expertise. We selected 37 graduate students in business administration. Subjects were 97% American, between the ages of 26 and 46, with experience primarily in large organizations. Like the experts, they had diverse industry backgrounds, including acquisitions and procurement, supply and logistics, human resources, operations and medical services. Only one had started multiple ventures (two) and 87% had never been part of a startup.

The choice of MBA students as a comparison sample follows a precedent of using students in expertise experiments from psychology (Lehmann and Norman 2005) as well as in the marketing research (Armstrong and Collopy 1996). In order to conduct an additional robustness check on the uniqueness of our expert entrepreneur sample – namely to ensure that the differences we observed are indeed due to their *entrepreneurial* expertise, we validated our findings against a second sample of 34 executives with an average of more than 14 years of experience and senior positions at major multinational firms spanning functions, industries and geographies, but without any significant new venture experience. As is evident from Table 3, business executives differ from expert entrepreneurs on all of the same dimensions as the students, except pricing and use of personal selling.

Research Instrument

One of the principal investigators administered the instrument to subjects individually, in a standardized format. First, one of the investigators presented subjects with a detailed written description of an imaginary game of entrepreneurship called Venturing. After a subject finished reading the description, one of the principal investigators presented the following five written questions and asked the subject to read the questions aloud to ensure subjects experienced the questions in the same order and format:

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?

Once the subject had finished responding to the first five questions, one of the primary investigators presented the subject with two pages of market research information relating to the opportunity for the Venturing product. When the subject had a chance to review the information, one of the primary investigators presented the following three additional written questions, again in a standardized format and order:

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?

The entire interaction was recorded and transcribed by a professional service. All subjects were asked to commit a minimum of 30 minutes to the experimental task. All of the subjects completed the interaction without time pressure and members of both groups remarked that they found both scenario and questions to be engaging and representative of the kinds of issues they faced or might expect to face in the context of creating a new opportunity.

Coding

The principal investigators developed a coding scheme to extract relevant variables and counts using the helix process described in Ericsson and Simon (1993). This process generates scheme items along a particular axis, such as the dimensions of expertise in general and marketing decisions in specific, using sequential coding iterations. The iterations began with one of the principal investigators randomly selecting two expert entrepreneur and two manager

protocol transcripts, and creating a list of specific scheme items. The same researcher expanded the list by adding items from other protocol transcripts, testing, adding, deleting and refining items iteratively until new protocol transcripts yield no modifications. The converged scheme was then tested by two other principal investigators who used the coding scheme to independently recode the same protocol transcripts. During these iterations, three minor modifications were made, resulting in the inventory of variable descriptions and operationalizations described in Table 2.

----- Insert Table 2 about here -----

To check inter-rater reliability, an independent coder, otherwise not involved in the study recoded both the expert entrepreneur and the manager protocols using the scheme presented in Table 2. The two sets of codings were compared for reliability. The first pass at independent codings revealed strong agreement on all but two variables. Further clarification of the variable definitions between the principle investigators and the independent coder resulted in a strong mean inter-rater agreement across all variables in this study of 0.78, with no agreement less than 0.62, calculated using the proportional reduction in loss (PRL) approach proposed by Rust and Cooil (1994). PRL inter-rater agreement scores are reported for each variable in Table 3. Analyses were performed with ANOVA or chi-squared tests depending on whether the variables were scale or dichotomous.

RESULTS

----- Insert Table 3 about here -----

Proposition 1 (Market Research):

We expected that managers with less entrepreneurial experience would be more likely to take market research data as given, while expert entrepreneurs would be more likely to question

it. We looked for comments that reflected skepticism regarding the data presented in the scenario or in market data in general and we tagged participants making such comments “non-believers.”

“Believers” did not question the data. An example of a non-believer’s transcript follows:

Expert Entrepreneur 15: I don’t win much from market research. It’s always been very bad in my projects.

Interviewer: Very very bad or don’t you believe in it? Which one?

Expert Entrepreneur 15: I don’t believe in it.... I think so many people fail in getting something done because they analyze too much.

This approach is contrasted with an example from Manager 10, a believer who accepts the numbers and is willing to base his market strategy choice simply on their magnitude.

Manager 10: I am looking at the market here, it talks about estimated dollar value of instructional technology is \$1.7 billion. You got the dollar of the interactive game, which is \$800 million, and both expect to earn 20%. So, both are good markets. Obviously, \$1.7 billion is grabbing my attention, because it seems like a bigger market, and would probably be able to make more money in that market just from looking at it.

A chi-squared comparison of the expert entrepreneur and manager groups revealed expert entrepreneurs significantly more likely to not to believe market data ($p < 0.001$), supporting proposition 1.

Proposition 2 (Prior Experience and Analogical Reasoning)

As expert entrepreneurs have developed superior pattern matching and pattern recognition skills for uncertain situations, compared to managers, we expected expert entrepreneurs would draw on prior experience in decision-making more frequently than managers. To test this, we counted each instance where a participant referred to previous experience. A comparison of the expert entrepreneur and manager groups offers support for proposition 2, as expert entrepreneurs are more likely to utilize previous experience than managers ($p < 0.001$). Below we present a transcript excerpt from a manager and an expert entrepreneur drawing on prior experience to make a decision:

Manager 20: I would look at business schools, the better business schools and colleges across the United States. Going back to my own experience, I went to Miami in Ohio and I think that the type of atmosphere that that business school created would lend itself well to this type of research and I'm sure that that's not limited to just that school.

Expert Entrepreneur 22: I like all but retailing. I would not spend that money. And that's a huge cost to do it. And I know that from my own experience with the company. How do you get shelf space? And the right shelf space? How do you get the minds of people to understand your product and want it?

Proposition 3 (Affordable Loss)

As with propositions 1 and 2, we did not ask any specific questions about cost so as not to prime subjects on the topic. We did not even present subjects with a fixed amount of money to work with in the scenario. Instead, we analyzed the transcript data looking for comments and questions regarding the amount of money available to the project, and looking for decisions where one of the factors was the cost. We found expert entrepreneurs significantly ($p < 0.001$) more likely to consider available financial resources in making decisions around the scenario, supporting proposition 3. In the transcript chunks below, expert entrepreneur 11 considers cost three times (underlines added to highlight mentions) as he makes a channel decision, while in contrast, manager 10 is drawn to the opportunity associated with the greatest possible financial upside, and with no mention of cost.

Expert Entrepreneur 11: So the Internet seems to really be, actually a surprisingly effective way to communicate at a pretty low cost. So the bookstores, that seems very, quite expensive. With a lot more support needed. And direct to educational institutions seems also a lot more complex... needing training... I think I have a little difficulty making the decisions not knowing how much money, maybe I do know how much money I have to work with.

Manager 10: I tend to want to look over the information here a little more just to get a better feel. I guess the biggest thing I want to focus on is, as an entrepreneur, you want to go up with a product that you think is going to earn you the most money, revenue and profits.

Proposition 4 (Decision Framing)

We expected expert entrepreneurs to think holistically about building a business as

opposed to simply answering the questions in the scenario. We counted the number of thoughts a participant offered which related to the business, but were outside the scope of questions presented by the scenario to determine the degree to which subjects went beyond the data to make decisions. We found expert entrepreneurs significantly more likely to think holistically about the scenario ($p < 0.001$) than managers. Further supporting proposition 4, we also counted the number of thoughts a participant had with regard to long-term issues around the business. As we did not ask about long-term issues, we felt this also reflected the degree to which subjects thought beyond the scenario and envisioned the business as a whole. As expected, expert entrepreneurs were significantly more likely ($p = 0.002$) to be concerned about long-term issues than managers. In the quote below, Expert entrepreneur 25 references the long term and uses an analogy to trace a possible trajectory of how his venture would endure over time:

Expert Entrepreneur 25: Again I'm looking at a long-term play here. That market, if we were doing an analysis of institutional, instructional technology market and the interactive simulation market, let's go back and look at some examples. The Apple computer is an excellent example of how you can come into a market, get great market play and then blow out, for all the reasons I said I wanted to avoid. I wanna have flexibility, I want to be able to deal in multicultural situations, I want it in fact to be current, so that it doesn't become stale...

Proposition 5 (Market and Product)

We found expert entrepreneurs significantly more likely than managers to identify or pursue markets not mentioned in the *Venturing* product scenario ($p < 0.001$), even if that choice implied a change to the product articulated in the scenario, supporting proposition 5. The key to this difference was the way expert entrepreneurs chose to interact with stakeholders to redefine and transform the initial product. Starting with exactly the same hypothetical product, the 27 expert entrepreneurs ended up creating 28 different and unique market definitions with product adaptations to match. Conversely, the 37 managers were less likely to reformulate the concept of the market, generating only 12 new market definitions.

Further, expert entrepreneurs were more open to considering new markets at least in part because they were not as tied to the articulation of the product as presented in the scenario. While we could not find a reliable way to operationalize this difference quantitatively, we present three quotes from expert entrepreneurs reflecting their willingness to make product changes, enabling them to consider new market definitions.

Expert Entrepreneur 6: ...find out actually who your customers are and from that you might change your advertising approach and change the design of the product....

Expert Entrepreneur 11: ...find out how the training operations of larger companies, how they inform themselves about what kind of courses they can offer, and the decision process they go through, and the kind of criteria they set in terms of what a product of this nature should look like.

Expert Entrepreneur 18: One of the ways I find that you get buy-in to anything is to make the potential customer feel that they have a part in developing the product....

These quotes illustrate three mechanisms used by expert entrepreneurs to reconceptualize product in uncertain situations: customers, process and partners. There may be other mechanisms at work as well. We do not attempt to exhaustively determine all possible mechanisms and their potential relationship with the reconsideration of target markets and products here and instead offer this as a potentially interesting avenue for future research.

Proposition 6 (Price)

In order to examine the initial price preferences of expert entrepreneurs and managers with less entrepreneurial experience, we first looked for explicit strategy remarks about pricing decisions. We identified statements reflecting a strategy of pricing high to maximize profit and coded these as skim strategies. We also identified statements reflecting a strategy of pricing low to drive early product adoption and coded these as penetration strategies. We found expert entrepreneurs significantly more likely to base pricing decisions on a skim pricing strategy and managers significantly more likely to base pricing decisions on a penetration pricing strategy

($p=0.002$). This significant difference was evidenced in the quantitative prices as well ($p=0.046$), where mean expert entrepreneur price was \$157 and mean manager price was \$75, supporting proposition 6. Below is a quote from Manager 3 setting penetration pricing for a market share, contrasted with Expert Entrepreneur 3 articulating entry with a skim strategy:

Manager 3: I think that probably given the primary data, probably price it in the \$50 to \$100 range. I would want to get a higher percentage of people at first to be able to take, especially, if it is offered through the Internet initially. You have got to be able to keep the price down to get people interested.

Expert Entrepreneur 3: ...all the traffic will bear...no question you are going to charge as much as you can ..looking for the inflection point on the curve as to when you're going to get the higher volumes.. sometimes it pays to try to figure out a two tier pricing. ... so you have the platinum game and you have the B-average game in some form or another...

Proposition 7 (Channel)

To analyze channel choice, we began by coding all channel strategies according to the categories in Table 2. To determine whether a participant based channel strategy around an individual customer or around a whole segment, we began by looking only at the channel where either choice was viable – direct sales. We first examined the difference between expert entrepreneurs and managers with less entrepreneurial experience on their predisposition toward direct selling in general and found no significant difference ($p=0.954$). Looking only at those subjects that chose to sell direct, we analyzed thoughts describing a strategy that involved the founder doing the initial selling. The difference between the groups on a strategy of personal direct selling showed expert entrepreneurs significantly more likely to make initial sales themselves and managers more likely to engage a sales force to approach a segment ($p=0.024$). Below is an example of expert entrepreneur 10 articulating a personal, direct selling strategy, contrasted with manager 7's approach which excludes direct customer contact in all three selected channel alternatives (direct, Internet and retail):

Expert Entrepreneur 10: Because I figured since I'm here in Boston and we have a really

fantastic environment for, to create feedback, where I personally can be involved. Rather than have to get it translated through some kind of representative.

Manager 7: The educators, yeah, I would have to, you would have to rely mostly on recruiting and sales guys to go around and hit up the school boards. Definitely the Internet and the retailers to get the direct end user customers, especially the Internet would probably be some where you find the 19 to 25 year olds. You would have to hire the recruiters and the Internet and the retailers.

Further support of proposition 7 is offered by our analysis of differences in the use of partnerships by expert entrepreneurs and managers with less entrepreneurial experience. We counted the number of thoughts relating to partnership activities and found expert entrepreneurs significantly ($p=0.001$) more likely to incorporate partnerships into their decision-making as they solved problems during the scenario. And while we did not find any significant difference between the groups with respect to the number of channels chosen ($p=0.864$), we did find managers significantly more likely to select more segments than expert entrepreneurs ($p=0.019$). Taken in sum, we find a majority of support for the components of proposition 7, excepting number of channels chosen.

To summarize the results, expert entrepreneurs are significantly more likely to use heuristics based on an effectual logic in making marketing decisions under uncertainty than managers with little entrepreneurial experience who rely on predictive approaches prescribed in marketing textbooks.

IMPLICATIONS AND CONCLUSION

Effectual logic provides an internally consistent set of prescriptions for making marketing decision-making under uncertainty, detailed in Table 1, which contrast significantly with textbook prescriptions in the field of marketing. In all fairness, however, we must acknowledge at least two facts in interpreting this evidence: (a) most, if not all, of the textbook prescriptions are derived from studies of marketing within large well-established corporations and not in

entrepreneurial settings; and (b) there are several strong movements in marketing scholarship away from the old dominant logic underlying textbook prescriptions and toward exactly the sort of principles and heuristics advocated by an effectual logic.⁵ We outline a few of these and discuss one in particular below.

Effectual Logic: Coherence with Co-creational Theories of Marketing

In his foreword to the recent book edited by Vargo and Lusch (2006), Webster avers:

For the past decade or so, marketing thought leaders, both in academe and business, have expressed increasing concerns about the state of marketing, both as a science and as a practice, and the strained relationship between the two. There is more agreement about the nature of the problems facing the field than there is about required changes and future direction. (2006: xiii)

In the ensuing discussion, we keep in mind the ongoing and unfinished nature of this conversation and offer our contributions as exciting possibilities for profitable collaboration with the works-in-progress on entrepreneurial effectuation rather than as competing alternative theories. Expert entrepreneurs' use of effectual logic both coheres with and lends credence to several recent insights from marketing and the resultant angst about the field. In a nutshell, effectual logic is relational (Arndt 1979; Macneil 1980; Dwyer et al. 1987; Morgan and Hunt 1994), network-oriented (Achrol and Kotler 1999), equity driven (Rust et al. 2004) and co-creational (Jaworski and Kohli 2006). Also, in line with Vargo and Lusch (2004), effectual logic is human-centered and operant resource-based.

Hunt and Morgan (1997) identified a large slate of resources including both operand and operant resources and posited Resource-Advantage (R-A) theory as a candidate for a general theory of competition. R-A theory, of course, is a close cousin of the resource-based view (RBV)

⁵ At the same time, it is also true that neither uncertainty nor entrepreneurship is afforded much mind-space even in the conversation around the evolution of a new dominant logic for marketing. Witness, for example, that these two words did not even make it into the subject index of Vargo and Lusch (2006) and the only instance of either we found was contained in the quote at the beginning of this paper.

in strategic management. In many ways, effectual logic is indeed resource-based, yet it differs from both RBV and R-A theory in important ways. RBV has recently come under criticism because it uses “valuable” as one of the characteristics that defines a resource.⁶ R-A appears to be susceptible to a similar critique. Take, for example, Hunt and Madhavaram’s (2006) definition: “A firm resource is any tangible or intangible entity available to the firm that enables it to produce efficiently and/or effectively a market offering that has value for some market segment(s).” This is dangerously close to being fodder for the criticism that “...that bad marketing is also marketing...” (Levy 2006). Effectual logic seeks to sidestep this problem by explicitly assuming any and all means at hand – irrespective of whether they turn out to be valuable ex post or not – as possible inputs into the process. For example, new ventures frequently use waste or slack resources (i.e. those perceived to have little or no economic value – such as the time and effort of stay-at-home moms in the case of Mary Kay Cosmetics) as key operant resources to develop new business models. More recently “waste equals food” has become a mantra for environment-friendly ventures inside and outside corporations (McDonough and Braungart 2000). The emphasis in entrepreneurial effectuation is really on what the effectuator does with the means at hand rather than any value – potential or otherwise – embodied in the resources themselves, whether operand or operant. In this, the effectual resource-based view is procedural rather than substantive.

R-A theory, like its cousin RBV, posits relationships between a firm’s resources and its position in the competitive landscape. Dynamism enters into the landscape as firms struggle to obtain resources that are either unique or relatively difficult to imitate or move and therefore serve as sources of sustainable competitive advantages. As Hunt and Morgan put it,

⁶ Note for example the dialog between Barney (1991) and Priem and Butler (2001) published in the *Academy of Management Review*, also cited in Hunt and Madhavaram (2006).

[Competition] consists of the constant struggle among firms for comparative advantages in resources that will yield market positions of competitive advantage and thereby, superior financial performance. (Hunt and Morgan, 2006: 72)

In effectuation, in addition to the resources that might have such long term potential, what people do with the resources matter. The effectual process itself, therefore, can make any given resource more or less valuable, more or less capable of producing long term advantages. Take the case of coffee before the appearance of Starbucks. As Koehn (2001) chronicles, coffee was considered a commodity in the late 70s, for which prices had been going down for over two decades. But through the actions of a handful of entrepreneurs and their early stakeholders, an entire new industry of specialty coffee was co-created, greatly enhancing the value of coffee, transforming it from a basic commodity to a premium consumer experience. This argument about the process of co-creating new value is just as applicable to that most important of operant resources – the human being. Entrepreneurs throughout history (sometimes out of societal concerns, but more often out of economic necessity or opportunity) have invested in and improved the value of human resources. Koehn writes of Josiah Wedgwood as early as the 18th century:

The task... was to make artists of mere men. It made no sense to rely on the local labor market because “few hands can be got to paint the flowers in the style we want them. I may add, nor any other work we do. We must make them. There is no other way.” (Koehn, 1997: 44).

Expert entrepreneurs do not take resource value as exogenous to the co-creation process. They are well aware that co-creation provides financial and psychological ownership to all stakeholders engaged in the process and often ends up making even mundane resources more valuable. In the age of the world wide web, this has become inescapable – customers of firms such as Netscape, Google and Amazon literally purchased equity to make them blockbuster IPOs. The phenomena of open source and crowdsourcing offer further testaments to the notion

that co-creation increases the value of the resources of the firm, be it share value, brand value or the social and reputational value of its intangible resources. Effectuators explicitly embrace and leverage this endogeneity of resource value to the dynamics of the co-creational process. Here, it is co-operative shaping of the market rather than a competitive scramble for (predicted to be) valuable resources that drives industry dynamics.

In this connection, effectual expertise poses a nuanced but important challenge to an unstated assumption in current marketing theorizing that may be worth highlighting: co-creation not only with customers and suppliers but with a variety of other stakeholders. Common to almost all current marketing research, including the recent collection of articles in Vargo and Lusch (2006), is the existence of a class of people exclusively called “customers.” As marketing scholars, we tend to ignore or, in some cases, assume away the fact that customers may play multiple or ambiguous roles – i.e., they may also be investors or suppliers or may not themselves know if they are or want to be customers at all.

By focusing on a co-creation process that includes any and all persons as potential stakeholders and allows negotiation and re-negotiation between self-selected stakeholders as the way to determine subsequent roles and relationships in the growing network, effectuation offers a practical process for tackling both role and goal ambiguities in value co-creation. This suggests it may be profitable for researchers to consider how they might generalize marketing insights to stakeholders as a whole. In a very recent article on managing the co-creation process, Payne et al. (2008: 94) echo this call for future research into “the role of non-supplier partners and intermediaries in co-creation.”

In conclusion, whereas the exact nature and extent of effectuation’s contribution to the development of a new paradigm in marketing is an empirical question, there is a *prima facie* case

for considering its theoretical contribution to the field. Additionally, there are significant managerial implications. We outline these next.

Managerial Implications

Here we return to the marketing student knocking at the professor's door and consider how we should respond to the question of designing winning strategies under uncertainty. It is important to note here that the use of effectual logic is neither a necessary nor a sufficient condition for achieving marketing or entrepreneurial success. Yet, the findings from the current study are not without normative implications for performance.

The findings regarding market research and pricing are particularly striking in this regard. Not only are the specific heuristics addressing market research and pricing consistent with a relational and co-creational as opposed to a transactional view of marketing, they also provide distinct mechanisms for keeping costs down and pushing revenues up. Therefore, irrespective of any exogenous probability of success or failure, they work in the directions we would want them to work with regard to endogenous variables. Moreover, when we take into account the fact that co-creational and non-predictive aspects of effectuation tend to endogenize more variables than traditional approaches that take those variables as exogenous, there is room for optimism in terms of our pedagogical and practical recommendations.

Market research: Our finding that expert entrepreneurs are skeptical of market research suggests that marketing managers facing uncertainty should fully consider the value of alternatives to conventional market research activities. Expert entrepreneurs replace market research with co-creational or partnership strategies with potential customers, suppliers and investors that they work with directly. They think of all 4Ps as iterative and interactive outcomes of a co-creational process driven by self-selected stakeholders that include customers. We speculate that this process generates several implications.

First, by interacting with and “listening in” (Urban and Hauser 2004) to specific stakeholders, companies in the initial stages of new market, product and service development are not only more likely to generate novel information, but the kind of information they generate is more likely to be useful and valuable. Compared to traditional market research, this increases the likelihood of creating realistic new market opportunities because firms learn at every step what stakeholders will actually commit to and – just as importantly - what they will not commit to. This enables the firm to fail fast on poor product and service ideas and to bring good ideas to market earlier.

Second, rather than investing time, money and managerial effort up front in market research, new ventures can move directly to selling a potential or actual product or service to customers on the basis of affordable loss. Here again, one implication is faster feedback at lower cost than market research activity would typically enable. Furthermore, in many instances stakeholders may pay for or contribute to the costs of creating the early stage product or service, which distributes risk and cost among stakeholders, thus lowering cost and risk to the new venture.

And to the extent that each stakeholder also invests only what he or she can afford to lose, the firm may be able to carry out more iterations of the product or service development process thereby increasing experimentation and consequent generation of valuable novelty at lower cost.

Pricing: Probably no strategy dominates startups run by managers with little entrepreneurial experience more than promising customers “more for less”: more valuable products and services at lower prices. This conjecture is borne out in our study: such managers consistently price lower than expert entrepreneurs. Expert entrepreneurs have learned that “more-

for-less” is not a good pricing strategy for new products and services. We speculate that this has several implications for practicing managers.

First, in the case of new or uncertain product/service offerings, customers are not likely to have been exposed to prior price information. The initial pricing for a new product or service will act as a reference for the niche (Mazumdar et al. 2005). Using a negotiated pricing process (rather than predictive pricing) would be more likely to result in new ventures establishing an accurate range for a high reference price that customers still perceive as fair (Bolton and Lemon 1999).

Second, by directly negotiating with early customers and achieving bi-directionality and mutual satisfaction in pricing decisions (Oliver 2006), the company locks in customer commitment not only to the value proposition, but also to the new venture itself, thereby increasing the probability that customers will become repeat purchasers and perhaps active promoters of the company’s offerings (Bendapudi and Leone 2003).

Before we conclude the article on a high note, it would be useful to specify certain limitations and contingencies on the use and misuse of effectual logic. Since this study is an early step in understanding effectuation, rather than speculating on where these boundaries may lie, we tackle these through an examination of future research possibilities.

Future Research

One of our core findings suggests that expert entrepreneurs are skeptical of market research. A limitation of our study is that we did not examine the moderating effects of variables such as product type, customer target or competitive intensity. Future research might profitably examine the conditions and approaches in which market research may improve new venture success. For example, we may expect that while market research is not positively correlated to performance for radical innovation, it may be beneficial for entrepreneurs to conduct market

research if the new firm is creating incremental products meeting existing market needs. And while assessing segment size may be useful to a new venture intending to offer mass-produce standard product, it may be irrelevant to a new service venture that can customize each and every engagement.

Future research could also investigate effective strategies and targets for co-creation. For example, while much literature has looked at funding partners, a critical supplier may be a more important co-creation partner for a new venture, which typically lacks both resources and expertise (Song and Di Benedetto, 2008). Suppliers that are involved early in the product design, testing and commercialization phase can make early investments in equipment, tools and training, identify design errors early on, observe what works and what not, and will be aware of the market launch and product positioning strategy from the outset. The new venture, however, also lacks prior experience with potential suppliers and is thus may not necessarily be a desirable partner from the supplier's point of view. So how can the new venture with no prior relationships gain commitments from a key supplier in the co-creation process? Future research might usefully unpack the complex and integrative nature of pre-commitments and co-creational relationships.

Conclusion

We have shown a relationship between expert entrepreneurs and unique, effectual approaches to decision-making under uncertainty that are not evident in their manager peers. This is relevant because virtually all categories of products and services we now model, analyze and predict were once novel and uncertain. And even predictable markets can change abruptly due to disruptive inventions, regulatory actions and events outside the control of even the best marketers. From our work, we extracted some common decision strategies of expert entrepreneurs faced with uncertain business problems and from these findings, made inferences to aid our understanding about the genesis of products, firms and markets.

In sum, effectual logic not only overlaps with the ways in which marketing theories are evolving, but also brings texture to the entrepreneurial spirit of marketing. Marketing is central to creating valuable new ventures both at the level of individual stakeholders in the firm and for the economy and society as a whole. Yet, scholarship in entrepreneurial finance is better developed than research at the interface of entrepreneurship and marketing. Furthermore, marketing as a science finds itself in exciting times, caught up in the heady vortex of developing a new dominant paradigm. Perhaps a more detailed understanding of how expert entrepreneurs make marketing decisions will help coalesce some of the elements of the new paradigm. The results from the current study relating effectual logic to marketing under uncertainty certainly hark back to Vargo and Lusch (2006) quoted at the beginning of this paper: *In this sense, one of the most important operant resources in society and the economy is the entrepreneurial spirit.*

TABLE 1

Differences between Predictive and Effectual Thought (Sarasvathy and Dew 2005a)

Issue	Fundamental Principles		Solution Process
	Predictive Approach	Effectual Approach	Key Managerial Questions Under Uncertainty
View of the Future	Predictive. Predictive logic casts the future as a continuation of the past. Accurate prediction is both necessary and useful.	Creative. The future is co-created (at least in part) by willful agents that may include investors, partners, and customers who “pre-commit” to the venture.	<i>Is your environment stable enough that you can reliably base future actions on data from the past?</i> If the answer is no, concentrate your effort on actions that will <i>create</i> an environment where your firm will have an inherent advantage or a leadership position, instead of building elaborate forecasts.
Basis for Taking Action	Goal-oriented. Goals, even when constrained by limited means, determine sub-goals and actions.	Means-oriented. Goals emerge by imagining courses of action which start from available means.	<i>Have you made an inventory of your means?</i> This is the starting point for taking action under uncertainty, so list what you have, what you know, and whom you know – and put these assets to work.
View of Risk and Resources	Expected Return. Pursue new opportunities based on the (risk adjusted) expected value. The focus is on the upside potential.	Affordable Loss. Pursue satisfactory opportunities without investing more resources than stakeholders can afford to lose. Limit downside potential.	<i>Have you examined the worst-case scenario and considered mechanisms to outlive it?</i> Failure is likely in uncertainty. Make small bets so when you fail it is not catastrophic and you can incorporate the learning into the next iteration of the opportunity instead of having to terminate the project.
Attitude Toward Outsiders	Competitive Analysis. Protect what you have and maximize your share of the opportunity.	Partnerships. Share what you have with committed partners, as relationships (particularly with shared rewards) shape the trajectory of the opportunity.	<i>Who can and will create this opportunity with you?</i> And how can you gain their commitment? This means finding partners with complementary skills or assets, and being willing to share in the upside with them so they will engage to create the opportunity <i>with</i> you.
Attitude Toward Unexpected Events	Avoid. Surprise is bad. Prediction, planning and focus enable the firm to minimize the impact of unexpected events.	Leverage. Surprise is good. Imaginative re-thinking of possibilities transforms the unexpected into new opportunities.	<i>Are you looking for positive surprises?</i> Look at surprises not from the perspective of how they upset your existing plans, but how you can shift actions so that you are, or will be, the beneficiary of a surprise.

TABLE 2
Variable Operationalizations

Variable	Coding Question
Market Research	Did this person believe the numbers? Enter Yes or No (Even if you are not 100% sure as to yes or no, please circle based on your overall judgment – whether largely yes or largely no).
Prior Experience	Did this person go beyond making marketing decisions to talk about building the business as a whole? Enter yes or no: If yes, count how many times they mentioned insights from previous experience.
Affordable Loss	Did this person worry about how much money he or she has and what the costs of executing his or her marketing decisions will be? Enter yes or no. If yes, count how many times:
Decision Framing	Did this person go beyond making marketing decisions to talk about building the business as a whole? Enter yes or no.
Decision Framing: Long Term	Did this person go beyond making marketing decisions to talk about building the business as a whole? Enter yes or no: If yes, count how many times they mentioned issues related to the long term.
Market and Product	Check each of the markets listed if person wanted to sell to them (there were a total of 41 categories, we list 3 examples here):
Price: Qualitative	Did this person select price on the basis of it being high with the intent of maximizing profit (skim)? Did this person select price on the basis of it being low with the intent of maximizing adoption (penetration)? Enter Skim, Penetration or No.
Price: Quantitative	Did this person pick a single price or a single price range? If yes, quantitatively -- what was it?
Channel: All Direct Sales	Check off channels they used: Direct Sales
Channel: Personal Direct Sales	Check off channels they used: Direct Sales: I will personally call (other option was: I will recruit salespeople).
Channel: Partnerships	Did this person visualize partnering or building a relationship with someone? Enter yes or no. If yes, count number of partnerships:
Channel: Number of Channels	Check off channels they used:
Channel: Number of Segments	Check off segments they decided to sell to:

TABLE 3
Summary of Variable Descriptive Statistics, Inter-rater Agreement and Analysis Results

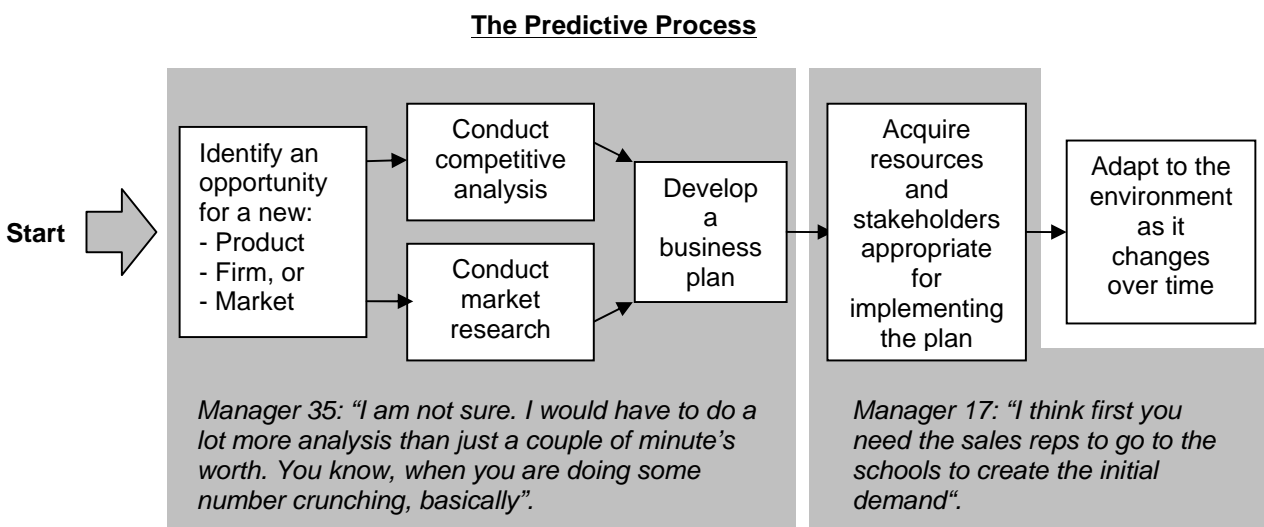
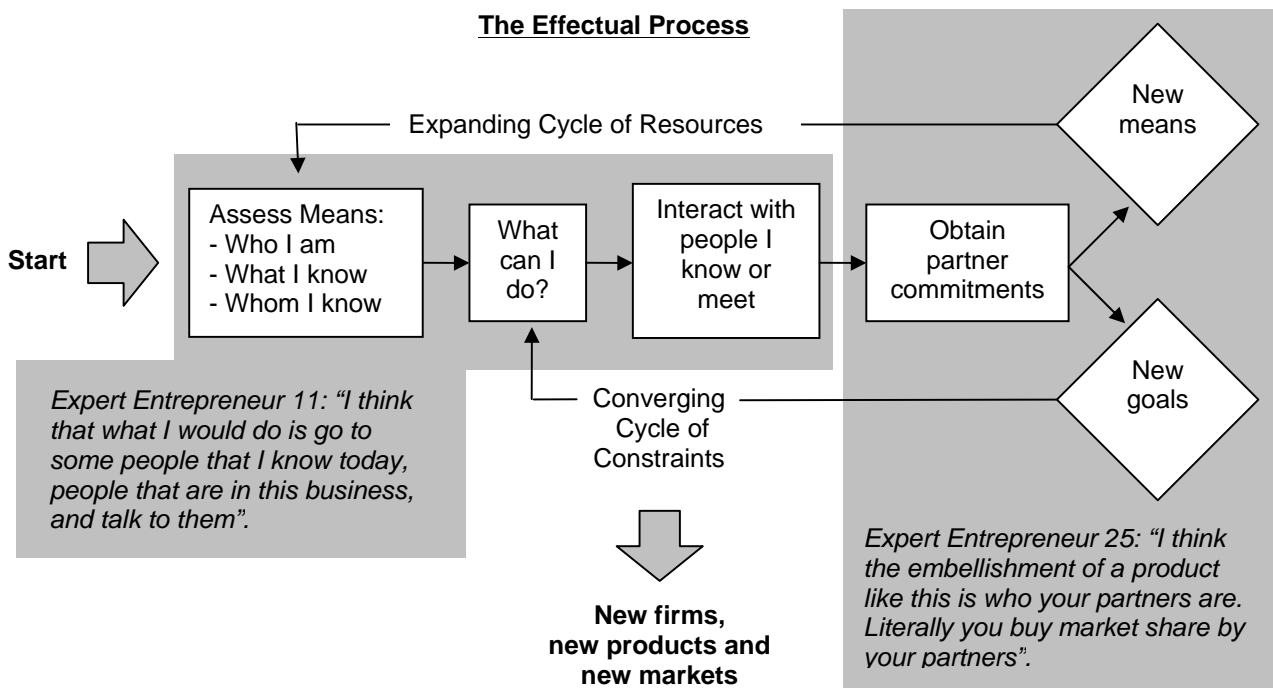
Variable Description	Descriptive Statistics	PRL*	Entrepreneur/ Manager Difference	Entrepreneur/ Executive Difference ⁵	Summary of Findings on the Differences between Expert Entrepreneurs and Managers
Proposition 1 (Market Research)					
Market Research	Expert: 13Y, 14N Manager: 34Y, 3N	0.81	ChiSq = 15.31 p < 0.001	ChiSq = 11.63 p = 0.001	Expert entrepreneurs are less likely to believe and accept market research than managers
Proposition 2 (Prior Experience)					
Prior Experience	Max: 4 Min: 0 S.D.: 0.96	0.77	F = 20.89 p < 0.001	F = 11.01 p = 0.002	Expert entrepreneurs are more likely to draw on experience in uncertainty than managers
Proposition 3 (Affordable Loss)					
Affordable Loss	Max: 10 Min: 0 S.D.: 2.57	0.69	F = 41.52 p < 0.001	F = 18.11 p = 0.000	Expert entrepreneurs are more concerned with project affordability than managers
Proposition 4 (Decision Framing)					
Decision Framing	Expert: 21Y, 4N Manager: 4Y, 33N	0.62	ChiSq = 29.41 p < 0.001	ChiSq = 9.54 p = 0.004	Expert entrepreneurs are more likely to think holistically about the business
Decision Framing: Time	Max: 12 Min: 0 S.D.: 1.77	0.78	F = 10.74 p = 0.002	F = 6.26 p = 0.015	Expert entrepreneurs are more likely to consider the long term

Proposition 5 (Market)					
Market and Product	Max: 8 Min: 0 S.D.: 1.38	0.82	F = 14.93 p < 0.001	F = 3.87 p = 0.048	Expert entrepreneurs identify or create more new markets than managers
Proposition 6 (Price)					
Price Strategy	Expert: 9 Skim, 3 Penetration Manager: 1 Skim, 11 Penetration	0.77	ChiSq = 12.21 p = 0.002	ChiSq = 0.46 p = 0.793	Expert entrepreneurs more likely to price high (skim) to maximize cash; Managers more likely to price low (penetration) to drive adoption
Price Quantitative	Max: \$1000 Min: \$30 S.D.: \$141	0.98	F = 4.19 p = 0.046	F = 0.62 p = 0.435	Expert entrepreneurs price product higher than managers
Proposition 7 (Channel)					
Channel: All Direct Sales	Expert: 6Y, 21N Manager: 8Y, 29N	0.75	ChiSq = .003 p = 0.954	ChiSq = 2.24 p = 0.098	No difference in direct sales channel choice between expert entrepreneurs and managers
Channel: Direct Sales	Expert: 3Y, 3N Manager: 0Y, 8N	0.81	ChiSq = 5.09 p = 0.024	ChiSq = 0.36 p = 0.455	Expert entrepreneurs choosing direct sales are more likely than managers do it themselves
Channel: Partnerships	Max: 3 Min: 0 S.D.: 0.73	0.86	F = 13.24 p = 0.001	F = 3.59 p = 0.032	Compared with managers, entrepreneur experts co-create with distribution partners
Channel: # of Channels	Max: 4 Min: 0 S.D.: 1.03	0.71	F = 0.29 p = 0.864	F = 0.21 p = 0.646	No difference between expert entrepreneurs and managers on number of channels
Channel: Number of Segments	Max: 4 Min: 0 S.D.: 1.02	0.75	F = 5.80 p = 0.019	F = 4.46 p = 0.039	Expert entrepreneurs are less likely to pursue more unique segments than managers

- Chi-squared tests are two-tailed

* PRL provides the proportional loss reduction measure of inter-rater agreement (Rust and Cooil 1994) for the variable.

FIGURE 1
The Effectual Process (Sarasvathy and Dew 2005b)
Contrasted with the Predictive Process (Adapted from Gartner 1985)
Illustrated with Select Transcript Quotes



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