

REFLECTIONS AND EXTENSIONS
ON KEY PAPERS OF THE
FIRST TWENTY-FIVE YEARS
OF ADVANCES

ADVANCES IN ENTREPRENEURSHIP, FIRM EMERGENCE AND GROWTH

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**REFLECTIONS AND
EXTENSIONS ON KEY
PAPERS OF THE FIRST
TWENTY-FIVE YEARS
OF ADVANCES**

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INTRODUCTION

It has been 25 years since the *Advances in Entrepreneurship, Firm Emergence and Growth's* (AEFEG) first volume came out. This is the 20th volume of the series. Either of these accomplishments would represent a milestone, and thus this is indeed an anniversary volume.

Our thought about how to mark the anniversary was to think of the idea of “what is past is prologue.” We did so with Shakespeare’s *The Tempest* in mind more than the *Star Trek: Discovery* episode of the same name, much as one of the editors has been a *Trek* fan since undergraduate days.

The idea behind this volume in our minds was *Reflections and Extensions on Key Papers of the First Twenty-five Years of Advances*. What is key is the work done by our authors, and we wanted to focus on those authors and their papers from earlier AEFEG volumes. To get at what papers were seen as key to our field, we used *Google Scholar* to identify the most-cited chapters from AEFEG. In the end, we decided on six papers. The first three form the basis of this volume. They are:

- Connie Marie Gaglio (1997). *Opportunity Identification: Review, Critique, and Suggested Research Directions*.
- Edward Malecki (1997). *Entrepreneurs, Networks, and Economic Development: A Review of Recent Research*.
- Dean A. Shepherd and Andrew Zacharakis (1997). *Conjoint Analysis: A Window of Opportunity for Entrepreneurship Research*.

Building from this base, we asked each of these authors to also contribute a reflection looking back on their original work and sharing their thoughts on that work, and how they see it today. This resulted in reflection papers from Malecki and Zacharakis and Shepherd, while Gaglio co-authored a reflection with Dimo Dimov. Each of these reflections follows the original paper in the current volume.

We also offered authors the opportunity to help us identify talented researchers who best positioned to extend the current leading edge in the area of entrepreneurship research the original papers considered. This led to papers by Ben Spigel’s (*Envisioning a New Research Agenda for Entrepreneurial Ecosystems: Top-down and Bottom-up Approaches*) building on Edward J. Malecki’s 1997 chapter, and by Matthew Wood’s and J. Robert Mitchell (*Conjoint Analysis in Entrepreneurship Research: End of the Road or a Bridge to the Future?*) building on Shepherd and Zacharakis’s 1997 chapter. These contemporary perspective papers follow the reflection on each of the original chapters.

Connie Marie Gaglio’s *Opportunity Identification: Review, Critique, and Suggested Research Directions* in the 1997 volume took on the three major models of opportunity identification up to that point, [Long and McMullen \(1984\)](#),

Herron and Sapienza (1992), and Kirzner (1973, 1979, 1985). Although recognizing the clear contributions of each, none truly pointed to an operationalizable and testable process for opportunity identification. Building on these approaches, Gaglio developed a more cognitively grounded model for opportunity identification. Given such an approach, Gaglio is able to integrate ideas from the three other models, and use the methodology of decision-making research; particularly, the use of schemas (Fiske & Taylor, 1991) to build and test models of entrepreneurial alertness.

Connie Marie Gaglio and Dimo Dimov's paper, *Opportunity Identification Redux*, is a wide-ranging reflection and update of the original work. It updates the tremendous amount of work done to better define and operationalize opportunities themselves within the context of theories like Gaglio's. The authors take on the challenge to find "(W)hat interesting, surprising and/or important things have we learned about entrepreneurial opportunity and its identification or creation?" Their chapter considers five focal points (What is an *Entrepreneurial Opportunity?* A Socio-Cognitive Process, Bringing in Time, Bringing in Context, and Bringing in Meaning) in terms of where each stood 20 years ago, how the concept evolved, and a section for each called "Going Forward," which considers future work and key questions for researchers to answer. The chapter concludes with suggestions for how to think about opportunities, which is perhaps the best captured by the idea of a "poetic interface" between real-world and research ideas about opportunities.

Edward J. Malecki's *Entrepreneurs, Networks, and Economic Development: A Review of Recent Research* probably did more than any paper of its era to bridge two otherwise disparate but related disciplines – entrepreneurship and economic development. Malecki's monumental literature review covered the major works of both disciplines, interweaving them to show their complementary nature. Along the way, Malecki not only identified the differences and even the contradictions of the two approaches, pointing the way for a generation of research, but also identified key points where shared concepts can make for breakthroughs, in areas such as networks, venture capital, and industrial districts. More than one entrepreneurship researcher who found themselves working on a regional economic development panel has described the resulting chapter as their first read to understand where the economic development specialists were coming from.

In *Entrepreneurs, Networks, and Economic Development Revisited*, Edward J. Malecki updates the current relation of entrepreneurship and economic development, particularly related to the major topics of the original paper, such as networks. The reflection provides a deeper dive into topics of particular importance to seeing the growth of the field, such as the ideas of embeddedness and network heterogeneity, entrepreneurial ecosystems, and the dynamics of regional development and entrepreneurship. True to the original paper, although this reflection when talking about entrepreneurial ecosystems includes mention of Feld's (2012) business bestseller, the focus of the section is on the research findings of entrepreneurship researchers and economic development scholars and continues to intertwine the two.

Ben Spigel's *Envisioning a New Research Agenda for Entrepreneurial Ecosystems: Top-down and Bottom-up Approaches* focuses on one of the major points of Malecki's original article – ecosystems – and provides a detailed literature update,

but also goes deeper into the area. Spigel contrasts and documents the literature on two conceptual and methodological approaches to studying ecosystems, a top-down approach where the focus is on the ecosystem itself, or a bottom-up approach in which the focus on how actors create larger environments for entrepreneurship. In the third portion of the chapter, Spigel suggests that both approaches are necessary and important to understand ecosystems, drawing on Malecki's (1997) paper to point out how the role of networks and relationships is what make ecosystems work.

Dean A. Shepherd and Andrew Zacharakis' *Conjoint Analysis: A Window of Opportunity for Entrepreneurship Research* was important because it showed new research technologies, which could solve some of the most often-mentioned shortcomings in entrepreneurship research, such as retrospective post hoc studies gathering espoused (vs. real) theories of respondent's behavior. Conjoint analysis permitted the capturing of underlying decision-making processes in real-time, and had the added advantage of permitting multilevel analysis, typically of the individual and aggregate subject level. The chapter outlined the procedures and issues in the use of conjoint analysis, as well as pointing to situations where conjoint analysis could dramatically improve entrepreneurship research.

The two chapters that follow Shepherd and Zacharakis's original work on conjoint analysis in entrepreneurship research provide insightful reflections on the topic, while pushing current scholars to bring more rigor to future work using this technique.

In their own personal reflection, Zacharakis and Shepherd trace the evolution of the use of conjoint analysis in entrepreneurship research beginning with their own work on the decision-making of venture capitalist to some of the latest work of today. Taking this historical perspective, the authors first report the increase in entrepreneurship research using conjoint since their initial publication. They then provide interesting pathways to consider for future research by distilling articles by the different type of decision-maker (venture capitalist, angel, banker, entrepreneur, etc.) examined. Zacharakis and Shepherd take us into multilevel research issues and other methodological issues. They conclude telling us that conjoint analysis in entrepreneurship is still in its infancy but that the increasing rigor of entrepreneurship research using conjoint studies provides an opportunity for current researchers to further peel back the black box of the venture investment decision-making.

Matthew Wood and J. Robert Mitchell pay homage to the trailblazing work of Shepherd and Zacharakis and suggest that conjoint analysis is currently at a significant crossroad in their chapter, *Conjoint Analysis in Entrepreneurship Research: End of the Road or a Bridge to the Future?* The authors ruminate on the impact that Shepherd and Zacharakis's original work had on their own research, while also putting forward the possibility "that the 'typical' conjoint study may have reached the end." Early conjoint analysis papers in entrepreneurship were truly novel in both their approach and the insights they uncovered. Wood and Mitchell wonder – and show support for the notion – that too much of today's conjoint work has become vanilla and lacking in impact. From this starting point, these authors offer a combination of mixed method approaches and sophisticated data analysis as potential avenues by which conjoint analysis can regain its standing and impact within the field. Despite their take on the current state of conjoint within entrepreneurship, Wood and Mitchell see a potentially bright and

rich future and conclude that when coupled with impactful research questions, innovative uses of conjoint analysis have an important role to play in the future of entrepreneurship research.

Concluding the volume is a broad retrospective on the first 25 years and 20 volumes of the *Advances in Entrepreneurship, Firm Emergence and Growth* series, authored by founding editor Jerome A. Katz. The chapter considers the history of the field and the circumstances leading to the creation of the *Advances* series and its original companion gathering the Gateways to Entrepreneurship Conference. The chapter goes into the history of the series itself and concludes with a reflection on the current state of the discipline of entrepreneurship and the series in a world where entrepreneurship is far better supported than it was in 1991. Drawing on the idea of “what is past is prologue,” the expectation for the future is an optimistic one.

That sense of optimism is evident throughout this volume. It is evident in witnessing the durability and impact of great ideas, in the reflections of those original authors, and in the excitement contemporary researchers display for building on and extending those enduring ideas in entrepreneurship. In all, this volume should help bring to researchers new to entrepreneurship an idea of some of the important ideas of the field and provide an opportunity to see how ideas develop and inspire further intellectual pursuit.

As noted earlier, six papers were identified in our search. This volume’s three papers set the stage for a companion volume, which will include another three papers, reflections and new works building on the legacy of ideas that are the foundational underpinning of the *Advances* series. We thank you for your readership and support.

Jerome A. Katz
Andrew C. Corbett
Editors

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CHAPTER 1

OPPORTUNITY IDENTIFICATION: REVIEW, CRITIQUE, AND SUGGESTED RESEARCH DIRECTIONS

Connie Marie Gaglio

WHY STUDY OPPORTUNITY IDENTIFICATION?

Theories about the function of entrepreneurs vary widely thereby creating controversy about the nature of entrepreneurship, the need for the construct, and the legitimacy of a discipline devoted to its study.

Economics, the theoretical foundation for the study of market actors and their behaviors, essentially ignores entrepreneurial activity (Barrett, 1989; Baumol, 1968; Casson, 1982; Denisetz, 1983; Hebert & Link, 1988, Kirzner, 1979). The neglect is attributed to the narrow focus of economic theory which defines itself as “the science which studies human behavior as a relationship between ends and scarce means which have alternative uses” (Robbins, 1962, p. 16). Consequently, the central issues for economic theory are how a perfectly decentralized system efficiently allocates resources and how market actors make decisions regarding the allocation of resources (Demsetz, 1983). The measure of efficiency in the market system is the paucity of opportunities and the speed with which they are eliminated. The exploitation of opportunities, such as those indicated by price discrepancies, is the *sine qua non* of economic behavior (Hogarth & Reder, 1986). Historically, economists have been more interested in predicting the outcomes of allocation decisions than in understanding the behavioral decision making process (Hogarth & Reder, 1986; Lopes, 1994; Simon, 1978). Therefore, they make some assumptions about the process. First, they assume all actors intend to

maximize profits while minimizing costs. Secondly, it is assumed that knowledge about the marketplace, including opportunities, resource availability and costs, is universally known and understood. It is also assumed that available resources are insufficient to achieve the fulfillment of all desires. Finally, economists assume that the ends, the means, and the opportunities simply exist.

Schumpeter (1934), the father of modern entrepreneurship, argues that it is necessary to pay attention to the ways in which new opportunities, new ends, and new means arise in the market, if only to explain why an efficient market, which should be stagnant, never is. He advocates the reintroduction of entrepreneurship as the explanation of market change and development. The entrepreneurial tactic is the discovery or creation and subsequent exploitation of market opportunities.

The perception and exploitation of market opportunities form the basis for other entrepreneurial functions such as uncertainty bearing and new venture creation. Economists (Demsetz, 1983; Kirzner, 1979, Schumpeter, 1934) maintain that when entrepreneurs exploit opportunity through arbitrage or new venture creation, they behave in essentially the same ways as other market actors; that is, they display the same kind of rational choice behavior by exercising good management practices in order to maximize the potential profit from committed resources given the constraints of scarcity (Jevons, 1970; Robbins, 1992). Naturally, the scale of resource commitment for a new venture differs from that of a large firm but the overall process and responsibilities for entrepreneurs and managers at this point are the same. However, as agents of the firm, managers do not have an obligation for creating or identifying innovations nor for developing “new combinations of productive means” (Schumpeter, 1971, p. 47) although they do have an obligation to consider viable opportunities as such become available (Hogarth & Reder, 1986).

Consequently, opportunity identification or creation represents a *theoretically distinct difference* between entrepreneurs and other market actors. Understanding the opportunity identification process and event represents a core intellectual problem for scholars interested in developing a theory of entrepreneurship (Kirzner, 1979; Timmons, Muzyka, Stevenson, & Bygrave, 1987). Therefore, it is appropriate to review what, if anything, is known about opportunity identification and examine whether current definitions and frameworks advance our understanding of this discriminating characteristic in ways that also advance theoretical development in the discipline.

The purpose of this chapter is to organize and review the literature regarding opportunity creation and identification: what behaviors are necessary and sufficient for theory? Can we identify and measure them? Can we form predictions about how these variables relate and interact such that an entrepreneurial opportunity is discovered or created (Bygrave & Hofer, 1991; Stevenson & Harmeling, 1990)?

While the area of opportunity identification has not received its fair share of empirical attention, three conceptual frameworks have been published in the literature: Long and McMullan (1984) adapt Schumpeter’s creative person and sketch a process based on creative insights. Herron and Sapienza (1992) adapt March and Simon’s (1958) thinking about the development of innovative programs and model opportunity identification in terms of the motivation to search. Kirzner (1985, 1979) outlines a theory of entrepreneurial behavior that depends on a unique ability,

entrepreneurial alertness. These conceptualizations are not necessarily competing explanations; rather, each seems to emphasize different aspects of the process. A description of each and an evaluation of the available empirical evidence are presented. Finally, an alternative conceptual framework of the opportunity identification process is offered. It is argued that this alternative integrates the useful properties of prior frameworks; provides a testable model; and facilitates both empirical and theoretical comparisons between entrepreneurs and other market actors.

SCHUMPETER'S LEGACY REGARDING OPPORTUNITY IDENTIFICATION

Before delving into the intricacies of each framework, it is worth taking a moment to consider the influence Schumpeter's assertion has had on the way investigators think about opportunity identification. First, it is important to note that Schumpeter does not address the issue of opportunity identification directly, but, like other economists, concentrates on its outcomes, that is, on those innovations entrepreneurs introduce thereby "creatively destroying" (Schumpeter, 1950, p. 83) existing markets. To the extent that Schumpeter does consider the genesis of such innovations, he attributes it to the creative spirit and extraordinary will of individual entrepreneurs, a tradition some investigators try to follow today (Fernalds, 1988; Gilad, 1984; Kirzner, 1979; Long & McMullan, 1984; Whiting, 1988).

The implications of Schumpeter's characterization of entrepreneurs as actors who discover and exploit opportunities are four-fold. First, there is a tension regarding the duality of the role requirements. When making new combinations of production factors, individuals are acting as entrepreneurs; when creating new ventures to produce and distribute these new combinations, individuals are behaving like other rational economic actors. In terms of theory, how far does one have to go before it can be said one is no longer behaving as an entrepreneur? Kirzner (1979) argues that one behaves like an entrepreneur only for that moment when he or she recognizes the commercial potential of an idea. Long and McMullan (1984) believe that one must also determine that the idea can be implemented and is desirable to do so. Herron and Sapienza (1992) attempt to steer a middle ground. Obviously, in the real world, an individual will identify and exploit opportunities but where is the line between these two qualities drawn in order to sustain the analytical distinction that defines entrepreneurship?

Secondly, there is some confusion about the definition of an opportunity. Following the same type of reasoning outlined above, when does an idea become a business opportunity? Kirzner argues that the transformation comes from the mere recognition of the commercial value. The others require some consideration of exploitation issues.

Third, there is also some confusion about the nature of entrepreneurial opportunities. Is there a difference between ordinary business opportunities available in the market and entrepreneurial opportunities? Schumpeter is clear in his intention that there is a difference and the differentiating characteristic is the scale of innovation – incremental innovations are those which efficient markets seize,

entrepreneurial innovations creatively destroy whole industries. Entrepreneurial opportunities, then, are innovations at the industry level and [Schumpeter \(1971, 1934\)](#) provides several examples to underscore his point:

- (1) the introduction of a new product or service;
- (2) the introduction of a distinctive improvement in the level or quality for a product or service;
- (3) the introduction of a new method of production or distribution;
- (4) the opening of a new market;
- (5) the capture or creation of a new source of supply; and
- (6) new forms of organization within an industry.

It is these types of discontinuities that represent problems for traditional economic theory and requires the presence of entrepreneurs as part of the explanation. Kirzner embraces this scale of opportunity but it is not entirely clear whether the others do, partly because both associate entrepreneurial opportunities with new venture creation. Herron and Sapienza do refer to innovation but their discussion suggests that innovation occurring on an individual level (e.g., someone who never ran an art gallery before but starts one now) can be considered an appropriate entrepreneurial opportunity.

The question of scale has methodological implications too. Many surveys operationally define entrepreneurship as venture founders. This definition includes imitative small business owners and self-employed professionals along with Schumpeter's innovators. The resulting noise makes it difficult to detect any true patterns among innovators, if they exist. Furthermore, some (e.g., [Gunderson, 1990](#)) argue that one can perceive Schumpeter's types of innovation only in retrospect. However, as will be shown during the discussion of the alternative framework, this argument confounds the opportunity to innovate with the success of the innovation.

Finally, there is an assumption that opportunity identification is a stochastic process. Long and McMullan and Kirzner accept this characterization while Herron and Sapienza question whether it must be so. If opportunity identification is a randomly occurring event, how can anyone claim to study this entrepreneurial behavior unless one is accidentally looking at just the right moment? This may be one reason why the opportunity identification process has received little empirical attention. Again, the alternative framework suggests some ways around this dilemma.

CONCEPTUALIZATIONS REGARDING THE OPPORTUNITY IDENTIFICATION PROCESS

As noted earlier, the entrepreneurship literature offers three conceptual frameworks about the opportunity identification process. All the frameworks assume that opportunity identification is best explained at the individual level of analysis (that is, in the thoughts, feelings, and actions of individual entrepreneurs or entrepreneurial team). In addition to the differences outlined in the previous section, the frameworks also differ in the relative importance assigned to the various psychological factors.

Opportunity Identification as Creative Insight – Long and McMullan

Background

Long and McMullan (1984) aim to depict the process by which individuals commit to starting new ventures (i.e., become entrepreneurs). The identification of new venture opportunities is a logical precursor to commitment as is the individual’s decision that venture creation is worth the time and effort required versus alternatives. The framework essentially accepts Schumpeter’s assertion regarding the dual nature of entrepreneurship but Long and McMullan portray this as a series of stages; the second stage requiring the creative spark while the subsequent stages require the rational choice allocation of resources.

Conceptual Framework

Long and McMullan (1984) suggest that the opportunity identification process should be thought of as a process occurring over time rather than as a single moment of inspiration. As shown in Fig. 1, opportunity identification is the result of a myriad of personal, social, cultural, and technological forces (PreVision), which somehow meld together and somehow lead to the perception of a possible market opportunity (Vision). In this framework, the Vision represents the good idea, which may or may not be an entrepreneurial opportunity. The idea is then evaluated and refined until the individual has an opportunity or not (Elaboration). The Elaboration stage carries the greatest weight in this system; in fact,

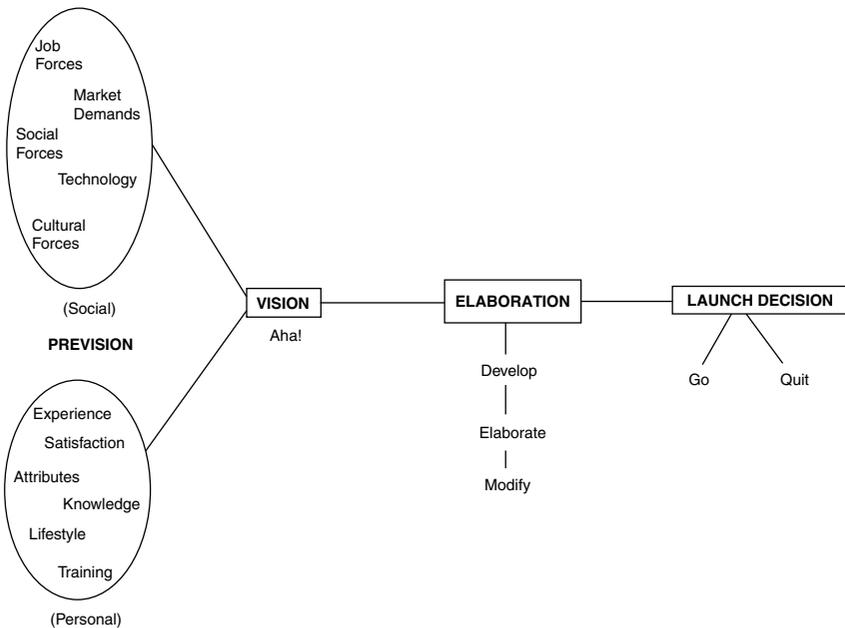


Fig. 1. Opportunity Identification as Creative Insight.

Long and McMullan (1984, p. 573) define opportunity as “an elaborated vision of a new venture which involves a searching preview of the mechanics of translating the concept into a reality within an industrial setting.” Therefore, in this framework, an entrepreneurial opportunity does not exist until the individual has developed a blueprint for the exploitation of his or her idea. Finally, if the entrepreneur has identified a viable opportunity, then he or she must decide to act on it or forget about it (Launch Decision). While the steps are depicted sequentially, it is acknowledged that, in real time, an idea may go through several iterations during the Elaboration stage and ultimately bear little resemblance to the original Vision.

Psychologists who study the creative process (Arlin, 1975–1976; Getzels, 1975; Getzels & Csikszentmihalyi, 1976) suggest that at least two kinds of creativity are required for this conceptualization of the opportunity identification process. The first type, evident in the Vision stage, reflects the creativity associated with *discovered problems*, that is, occasions when the problem itself must be created. Long and McMullan postulate that entrepreneurs experience a creative “Aha!” insight which suddenly emerges from the interplay of forces such as those named in the PreVision stage. The second type of creativity, apparent during the Elaboration stage, is epitomized by the ingenuity and resourcefulness that are the hallmark of good entrepreneurship and problem solving (Stevenson, Roberts, & Grousbeck, 1994). This type of creativity is associated with *presented problems*, where the problem is known but the solution is neither prescribed nor obvious (i.e., the opportunity is identified, the question is how to exploit it).

It is believed that the creative process governing presented and discovered problems are different (Getzels, 1975; Getzels & Csikszentmihalyi, 1976) but little is known about the creative process associated with presented problems while there is a long and rich literature regarding discovered problems, which is what most people have in mind when they speak of creativity.

The creative process. Long and McMullan’s staged framework closely follows the traditional depiction of creativity as a multistep process (Amabile, 1983; Csikszentmihalyi, 1996). In the creative process, the first step, preparation, represents the knowledge an individual acquires regarding the language and rules of the salient domain (i.e., industry); Long and McMullan include preparation in the PreVision stage, with experience, knowledge, and training reflecting the amount and kind of preparation an individual has. The second step in the creative process, incubation, represents the time an individual spends thinking about an issue or created problem although these thought processes are presumed to be outside conscious awareness or direction. Long and McMullan do not specifically identify this step in their framework, although they must assume something like this happens because they believe PreVision leads to Vision or insight, which is the third step in the model of the creative process. This is the moment the individual becomes aware of his or her thinking. The fourth step in the creative process, evaluation, refers to an internal critique of the insight – is it worth further development? The last step in the creative process is elaboration during which the individual brings the idea to life. Long and McMullan collapse the fourth and fifth steps of the creative process into one stage, Elaboration.

Most current approaches to creativity place the process in a broader social context (Amabile, 1983; Csikszentmihalyi, 1996) which acknowledges the influence of

the social domain (e.g., the marketplace or industry) on the structure and content of knowledge, perception of opportunities and the acceptance of creative insights. Consideration of a domain's reaction to creative insights is an important variable in a discussion of entrepreneurship because domains regulate the acceptance and diffusion rates of entrepreneurial solutions. The influence of the social domain is part of the explanation for the observed differences in innovation rates across cultures and across time (Greenfield, Strickon, & Aubey, 1979; McClelland, 1976; Weber, 1958).

The creative vision. Wertheimer (1959) theorizes that creative insights result from a restructuring of the knowledge gained during preparation. He hypothesizes that restructuring arises from a number of perceptual operations during which the entrepreneur might imagine new functional meanings, new functional groupings, or new relationships among the various elements of the domain. Cognitive operations such as assimilation-contrast or perceptual groupings based on common fate or similarity or good form, and so forth, are just some of the reorganizations in which creative thinkers are believed to engage.¹ Divergent thinking, non-linear or lateral thinking, or metaphorical analysis are believed to promote the ability to reorganize information in unusual ways (Arlin, 1975–1976; Guilford, 1968; Prentky, 1980). Non-creative thinkers supposedly do not engage in these cognitive processes (or perhaps as many) because they are mesmerized by the initial structure and content of the information as presented. Indeed, there is some evidence (Slovic, 1972) that most people accept information and situations as presented or encountered.

The creative elaboration. In contrast to the serendipitous nature of events leading to the venture's Vision, the psychological processes believed to be associated with the Elaboration and Decision stages epitomize the principles of maximization and rational choice. The potential entrepreneur sets about estimating probable market size; the necessary production and marketing resources needed; possible operations procedures; potential entry strategies; likely consumer response; return on investment; and exit strategies. This information is then subjected to a rigorous cost-benefit analysis in which potential entrepreneurs evaluate the venture in light of three key criteria: (1) is the most reasonable estimate of the venture's profit potential a sufficient return for the time, money, and effort; (2) is the potential return at least as good or better than other investment or career alternatives; and (3) if so, is the planned deployment of resources the best allocation? Stevenson et al. (1994) note that the time horizon for these answers are compressed and perhaps have more urgency for the entrepreneur.

The creativity demonstrated during this stage lay in the new ways entrepreneurs discover to allocate their access to or control of resources in order to maximize the amount of value obtained from them. It is generally presumed that the new ways represent superior maximization or allocation decisions (Kirzner, 1979; Schumpeter, 1934).

Empirical Record

Direct tests. In the article outlining their conceptual framework, Long and McMullan (1984) postulate that the decision to launch a new venture will be a

function of the expected rewards; the amount of relevant experience the entrepreneur has; and the relative degree to which the opportunity has been elaborated. They offer evidence from three pilot studies in support of their framework. The first pilot study, in-depth interviews with four new venture creators, essentially demonstrates that it is possible to identify the hypothesized four stages preceding venture launch in historical accounts of the startup process. Surprisingly, only two of the entrepreneurs felt they experienced the sudden “Aha!” The others felt they could trace the gradual development of their insight.

The second pilot study, conducted among a sample of 51 startups, asked founders to rate the relative influence of several PreVision factors. As in the first study, a substantial number of founders felt they found their opportunities as a result of careful, deliberate search; they also felt the search was an important influence on their decision to start the venture. They reported their knowledge, derived from work or education, was a more important influence on their decision to launch than the degree of innovation in their opportunity. It makes sense that knowledge, whether through work, education, or information search, could influence the decision to launch a business because knowledge is one way of minimizing risk. What is not clear from these studies is how that particular knowledge set influenced opportunity discovery or creation: does it limit or expand the domain of consideration? Does it need cross-fertilization from other knowledge domains in order to ignite the opportunity identification process? There are many possibilities.

Finally, Long and Graham (1988) discuss the results of additional in-depth interviews with founders who reported on the source of their ideas and their techniques for opportunity identification. Most entrepreneurs felt they themselves were the source of ideas but the authors observed that the more successful entrepreneurs were less likely to name themselves as the source of ideas. Virtually all entrepreneurs stated that their favored technique was to find a market need or a better way. These data do not really indicate whether or what types of creative thinking were used to develop ideas.

However, the results of these early tests cannot be considered conclusive evidence for supporting or refuting Long and McMullan’s conceptual framework for the obvious reasons: small sample sizes; convenience sampling; and so forth. Furthermore, there is a serious methodological concern about the use of retrospection about cognitive processes; psychologists know that this is the least reliable type of data (Ericsson & Simon, 1984) for this line of inquiry.

The publication of this conceptual framework and the results of the pilot studies have not generated additional empirical work. However, there is a body of work which has no theoretical ties to Long and McMullan’s framework but does explore several aspects and can be examined for evidence regarding the validity and usefulness of the framework.

Deliberate search v. serendipity. Contrary to expectations, Long and McMullan found two paths leading from PreVision to Vision: deliberate and serendipitous. There is additional empirical support for both routes. Serendipity, with important qualifiers, appears to be the more popular route. Vesper (1980) reports that most founders attribute the initial idea to serendipity yet it almost always arose

from work experience. Similarly, [Christensen's \(1989\)](#) founders felt the discovery of their niches to be a surprise but also believed that the discovery depended on their technical, market, and strategic expertise.

[Peterson \(1988\)](#) surveyed over 400 small business owners and found that more than two-thirds reported serendipity as their mode of opportunity identification. [Koller \(1988\)](#), however, found both deliberate and serendipitous paths to opportunity identification and the path used seemed to be associated with the individual's motives. The systematic, deliberate search method was used by nearly half the respondents; among this group, most were intent on being self-employed. The serendipitous route seemed to be used by those respondents who really had no intention of self-employment until they had overhead a good idea!

Caution must be exercised when interpreting the results of these data as support for the spontaneous discovery. While many founders may feel they experienced a sudden insight, [Bargh \(1984\)](#) cites a considerable body of evidence indicating that most people generally lack awareness of nearly all their cognitive processes, even those consciously triggered, so the insight experienced may simply reflect a lack of introspective access. The question of serendipitous versus deliberate discovery cannot be settled using retrospective methodology. [Metcalfe \(1986\)](#) has developed reliable measures of sudden insight but the methodology requires the founder to chart these measures throughout the PreVision stage, a formidable logistical challenge for any investigator.

In general, however, the data do seem consistent with the framework of the creative processes associated with the discovered problems: a deep immersion in the specific domain (e.g., work experience, technical expertise, extensive search) precedes any creative insight. Therefore, it is possible, and indeed likely, based on these data, that a systematic and deliberate search precedes the sudden insight. What is of greater interest, but not investigated in these studies, is what kinds of cognitive operations and restructuring produce the sudden insight or the gradual realization that things can be another way.

Role of experience. In this framework, domain-relevant knowledge is considered a necessary factor in the creative process in that it influences the definition of the appropriate problem space and solution criteria ([Amabile, 1983](#)). Cognitive psychologists report that experts, who presumably have experienced-based knowledge, define and organize problem spaces differently than do novices; experts also attend to different features in the stimuli ([Fiske, 1993](#); [Showers & Cantor, 1985](#)). It would appear that experienced-based knowledge (or its lack) initially directs attention, expectations, and interpretation of market stimuli, thus facilitating or thwarting the generation of analogies and ideas. However, experienced-based knowledge can be a hindrance; there is some evidence that expertise does not necessarily enhance the generation of multiple interpretations of stimuli ([Showers & Cantor, 1985](#)) or allow novel performance ([Levine & Resnick, 1993](#)), crucial behaviors for creativity and innovation.

Practitioners and professionals urge would-be entrepreneurs to use the experienced-based knowledge from work or hobbies as the best hunting grounds for opportunity searches ([Timmons, 1994](#); [Vesper, 1980](#)). There is some empirical support for the role of experience in successful venturing ([Gilad, Kaish, & Ronen,](#)

1988; Long & Graham, 1988; Timmons, 1985; Vesper, 1979) but the data do not permit inferences whether experience directly affects the crafting of superior, perhaps more innovative, ideas or simply foster superior implementation.

Source of idea. As part of their empirical investigation of the creative insight framework, Long and Graham (1988) investigated the source of ideas as an indication of the degree of strategic elaboration activities entrepreneurs carry out. Most founders reported they were the source of the originating idea. Peterson (1988) found that small business owners rank spontaneous thought as the most useful source of new venture ideas followed by imitation of a competitor and reading. Christensen and Peterson (1990) report that specific internal organizational problems, customer problems, and informal contacts were the most likely sources of ideas in the high-tech sector.

Perhaps the most interesting aspect of these data is the relative importance and diversity of social sources of information: customers, competitors, informal contacts, and media. These findings are consistent with several sociological studies documenting the role of an entrepreneur's network ties for obtaining information about market niches and business opportunities (Aldrich & Zimmer, 1986; Long, 1979; Pekerti, 1985). It is also consistent with the emphasis psychologists place on the social influences on the creative process. Therefore, the implications of these results suggest that the social or business network should also be posited as a mediating variable between PreVision and Vision, thereby reflecting the social nature of the marketplace.

Opportunity development. Empirical work regarding the Elaboration process reveals that most new venture founders do not demonstrate ideal rational choice behaviors. Crawford (1980) surveyed 33 business owners and learned that most skipped idea development or elaboration and plunged right into production and distribution although the owners claimed to elaborate and evaluate the idea as they went along in the actual business. This scenario is consistent with Weick's (1983) contention that most business people actually think by doing.

Unni (1984) reports that less than half new venture owners use the discipline of the business plan to help them develop an opportunity. Those that do prepare plans receive poor grades from many professional investors such as venture capitalists (Hills, 1985) who complain that entrepreneurs typically overstate demand and avoid or ignore negative information. Smith, Gannon, Grimm, and Mitchell (1988) and Dianich and Gupta (1983) found entrepreneurs produce significantly less comprehensive business plans than corporate managers and generally examined only the best and worst case scenarios, ignoring other possibilities.

These data would appear to contradict the careful maximizing allocation decisions of rational economic actors although Timmons et al. (1987) found that successful entrepreneurs did take time to plan and forecast thoroughly. However, Eisenhardt (1989) and Hughes (1980) argue that, in highly volatile environments, where one is most likely to find entrepreneurial activity, comprehensive elaboration may not be as important as speed, flexibility, and conviction in implementation.

Decision to become an entrepreneur. Long and McMullan propose that an individual's decision to become an entrepreneur is the result of a comparison of the expected rewards of entrepreneurship versus the rewards of the best alternative

use of time, usually wage labor, and resources, usually investment. Campbell (1992) found that economic incentives do matter, but account for such a small portion of the variance explained that other factors must be involved.

The entrepreneurship literature suggests other possible motives influencing the decision to launch a venture. Some scholars choose to emphasize the negative work or social conditions that literally force an individual into self-employment (Brockhaus & Nord, 1979; Gilad & Levin, 1986; Hagen, 1962). Other scholars consider the personal characteristics that foster self-selection of entrepreneurship as an occupation. These characteristics include the need for achievement (Johnson, 1990; McClelland, 1976; Miner, 1993); the need to be in control and independent (Corman & Benjamin-Yancini, 1988); the desire to introduce innovative solutions (Miner, 1993); or the desire to plan and establish goals (Miner, 1993). The empirical record offers modest support for the influence of these motivations. For example, entrepreneurs do exhibit high levels of need for achievement but so do other successful market actors (Carland, 1982; Carsrud, 1988; Deleo, 1982). Issues concerning control and independence do seem to be important to the self-employed (Brockhaus & Horowitz, 1982; Corman & Benjamin-Yancini, 1988) but it is unclear whether these issues are as important to entrepreneurs as to small business owners. Nevertheless, these motives are entrenched in the entrepreneurial folklore and, lacking clear evidence that would rule them out, should be considered along with power and monetary gains.

Long and McMullan placed social and personal characteristics such as need for achievement, and so forth, in the PreVision stage thereby suggesting that these factors directly influence the search for business ideas and only indirectly influence the decision to launch a venture, that is, become an entrepreneur. The empirical research has confounded these distinctions or perhaps Long and McMullan need to alter the pathways in their stage model to accommodate direct personal and social influences on the decision to launch.

Critique of Opportunity Identification as Creative Insight

Long and McMullan's framework of venture creation extends Schumpeter's formulation by specifically importing theories about the creative process. However, neither the framework nor the empirical work really sheds any light on the opportunity identification process – what are these people *doing* that is different from other market actors? Are there no creative managers? Or is creativity among non-entrepreneurial market actors limited to that of presented problems?

If the creative process is assumed to be part of the framework, then it needs to be reflected as a mediating process between PreVision and Vision, ideally with more precise specifications of the relative importance of the antecedent variables and of the possible directions the process can take. Given the state of knowledge in creativity research, it would also be more useful to begin examining the kinds of cognitive operations that produce insights. Furthermore, current thinking about creativity maintains that social influences will directly impact the Elaboration and Decision stages; how this happens needs to be reflected in both the diagram and propositions.

Furthermore, the definition of entrepreneurial opportunities used in this framework implies that there is no real difference between the motive to look for opportunities and the motive to become an entrepreneur. There is no logical reason to believe the two are connected nor is there any logical reason to believe they are not. [Koller's \(1988\)](#) data, while not conclusive, does suggest it may be more useful to distinguish between the two. This area should be explored with greater rigor. In addition, research suggests that the framework needs to be extended to accommodate additional types of motives in the decision to become an entrepreneur.

On a methodological level, a number of improvements are indicated. First, it is important that empirical research be consistent with the conceptual framework and demonstrate its usefulness before expanding it. [Long and Graham's \(1988\)](#) survey examined the importance of experience and the source of ideas but used the economic success of the venture, not the decision to launch, as the dependent variable. As is indicated in [Fig. 1](#), the framework stops with the decision to launch. Secondly, it is important to specify the definition of the entrepreneur being used in research and, since this framework is essentially a restatement of Schumpeter's vision, it would be expected that the sample drawn would reflect only those people and firms that have the potential to fulfill Schumpeter's entrepreneurial scale of innovation. This issue is not consistently considered in the research reviewed. Finally, while surveys requesting the recall of startup activity are a convenient and efficient form of data collection, retrospective techniques will not produce the kinds of information required to test the empirical validity of the process as conceptualized.

In summary, scholars who want to develop this framework need to consider three fundamental issues: (a) ways to improve theorizing, especially regarding the specification of relationships among factors and the specification of underlying processes and dynamics for each stage and for transitions between stages; (b) ways to improve methodology; and (c) ways to compare the behaviors of entrepreneurs as outlined in this framework with the behaviors of other market actors.

Opportunity Identification as Motivated Search

Background

[Herron and Sapienza \(1992\)](#) seek to address a nagging problem in the discipline, that is, the disappointing record of research at the individual level of analysis. The empirical record, criticisms, and counter-criticisms are well known and will not be repeated here. Following [Gartner's \(1988\)](#) recommendation to study entrepreneurial behaviors instead of traits, the authors choose venture creation as their focus. To help explain new venture creation, the authors import [March and Simon's \(1958\)](#) information processing paradigm regarding the construction of new organizational programs, reasoning that new ventures, by definition, require new organizational programs.

[March and Simon \(1958\)](#) consider the construction of new programs to be a form of innovation. In many cases, an organization's innovation also represents an innovation within the industry, and therefore is consistent with Schumpeter's scope, but it is not always the case. For example, adopting a new business practice

may represent an innovation for a conservative firm, but in reality, simply represents the firm's attempt to achieve parity. Unfortunately, Herron and Sapienza do not clearly state their intended scope of innovation within new ventures.

In terms of our theoretical interests, the March and Simon paradigm underscores the cost of information and information-processing. It is consistent with the traditional economic view (Stigler, 1968) of information and knowledge as market resources having acquisition and use costs. Consequently, a rational economic actor will engage in cost-benefit analyses to determine whether the costs of acquisition represent the best allocation of other resources such as time, money, and effort. This framework, then, emphasizes the rational aspects of entrepreneurial behavior.

Conceptual Framework

Herron and Sapienza (1992) assume that an individual, when properly motivated, will engage in a conscious search for a profitable business opportunity. As this search has associated costs, the extent of the search will be consistent with the potential benefit. It also suggests that the search for profitable business opportunities will not be undertaken lightly. The motivation to search for opportunities arises from an intolerable level of dissatisfaction. Specification of the antecedent conditions producing such dissatisfaction is the core of this framework (see Fig. 2). Essentially, dissatisfaction results from a mismatch between an individual's level of aspiration and the conditions of his or her employment (or unemployment) situation.

Herron and Sapienza explain the relationship among the various elements within their framework by advancing a series of propositions which are summarized below.

Propositions regarding the antecedents of search behavior: (1) search behavior is driven by dissatisfaction; the more dissatisfaction one experiences, the more extensive and intensive the search behavior; (2) dissatisfaction is a function of an individual's level of aspiration; (3) skills and motivation interact to determine the intensity of search; (4) skills are a function of the interaction of aptitudes and training – training includes education as well as experience; (5) level of aspiration is a function of the interaction of the individual's skills, values, and personality traits with social influences such as environmental context and societal values.

Propositions regarding search behavior: (6) the type, extent and intensity of a search are commensurate with the type of skills an individual possesses and by the type and intensity of his or her dissatisfactions.

Propositions regarding opportunity identification: (7) some form of subconscious integration of information obtained during search occurs; (8) discovery of an opportunity will involve both a rough context (e.g., an industry) and rough strategy (e.g., a type of business). The authors note that an opportunity does not require a very detailed idea – as Long and McMullan's framework implies – but does require these two elements.

Propositions regarding post-discovery behavior: (9) immediately following the discovery of an opportunity, conscious evaluation of the idea will begin; (10) the

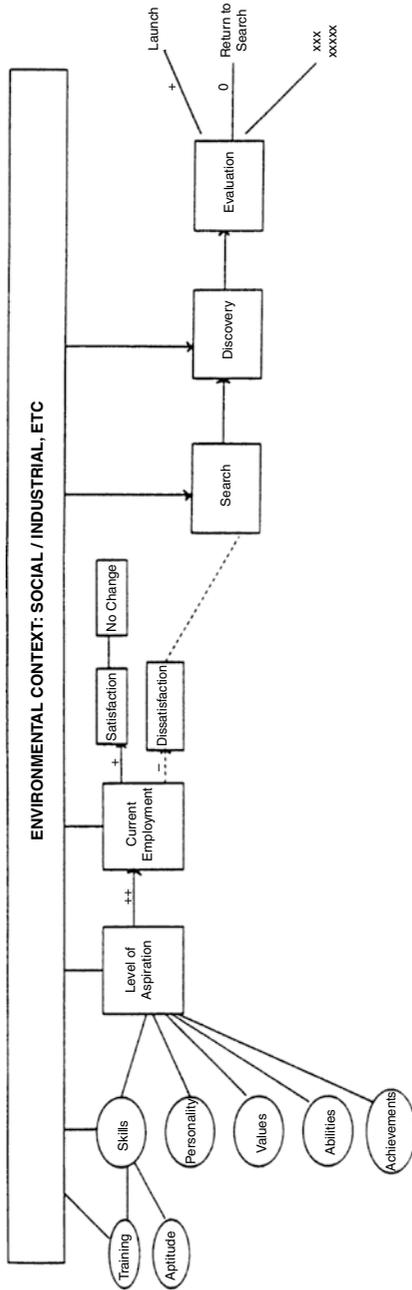


Fig. 2. Opportunity Identification as Motivated Search.

evaluation entails a detailed means-ends analysis, which usually requires further elaboration of the initial strategy via development of a plan and set of tactics.

Propositions regarding decision behavior: (11) the means-ends analysis can yield three outcomes – poor, bland, and good; (12) analyses that yield a “good” outcome will normally be followed by additional activity to launch the venture; (13) analyses that yield a “poor” outcome indicate that the individual needs to return to the search process or needs to adjust his or her level of aspiration upwards or downwards based on the information obtained during analysis; (14) analyses yielding a “bland” outcome may be followed by additional search behaviors with the search focused on possible improvements.

Empirical Record

There are no direct tests of the propositions outlined in this framework reported in the literature. The research regarding the motivation to become an entrepreneur reviewed in the previous section would seem relevant here but, as noted in the prior section, the research examines the decision to become an entrepreneur, not the decision to engage in search, so the same limitations apply here.

Critique

The motivated search framework as proposed by Herron and Sapienza does not contradict the creative insight framework so much as augment it; for example, the motivation to engage in search behaviors and the search process itself could be mediating processes between the PreVision and Vision stages. Like Long and McMullan, Herron and Sapienza presume the entrepreneurial insight arises from unconscious processes. Finally, Herron and Sapienza elaborate on some of the cognitive behaviors and judgments individuals made during what Long and McMullan call the Elaboration and Decision phase. The advantage of Herron and Sapienza’s model is that they attempt to develop testable propositions about each step in the decision to launch a new venture, so in that sense, they might be seen as extending Long and McMullan’s framework.

There is a fundamental difference in Herron and Sapienza’s approach, however. Unlike Schumpeter or Long and McMullan, Herron and Sapienza do not assume a dual nature to entrepreneurial behavior – all entrepreneurial behavior can be encompassed in the information-processing paradigm of rational choice. It is an interesting proposition, worthy of further consideration and attention. Immediately, one must confront the issue of whether entrepreneurs are different from other market actors in any way other than their choice of self-employment. The framework as currently specified suggests not but this conclusion may reflect the brevity of the article rather than the authors’ intentions.

Investigators interested in developing this framework face two substantial tasks. First, the main propositions outlined above need empirical testing. Secondly, assuming that the empirical results are encouraging, additional theoretical development is needed, either rejecting or elaborating on the entrepreneur’s unique role in the market system.

Opportunity Identification as Entrepreneurial Alertness

Background

Kirzner (1985, 1979) asserts that economists are wrong to ignore entrepreneurial activities such as opportunity identification and claims that even Schumpeter (1934) was mistaken in calling entrepreneurs creative destroyers because, in fact, entrepreneurial opportunity identification promotes the market movement towards equilibrium. This assertion rests on some assumptions that run counter to those of traditional microeconomic theory but may be more descriptively accurate of market process. Kirzner (1979, 1973) charges that the key economic question is not how decentralized markets efficiently allocate resources but how does it work at all. He argues that economists must explain how ends are determined, how means-ends relationships become known, how means and means-ends change over time. Furthermore, he notes that change, not stability, is the true nature of markets and that it is almost always the case that information about and arising from change is not equally available to nor equally understood by all market actors. The fundamental features of change and imperfect knowledge produce market disequilibrium.

Entrepreneurs are a unique group of actors who, because they possess *entrepreneurial alertness*, are quick to discern the signals of change and are quick to infer their causes and implications. As entrepreneurs act on their perceptions and understanding (i.e., pursue opportunities) they offer innovative products and services which the market either accepts or rejects. Regardless, new knowledge of the industry is disseminated; over time, other market actors imitate successful entrepreneurs thus creating or restoring market equilibrium. Etzioni (1987, p. 16) calls this the “adaptive reality testing” function of entrepreneurship.³ Since these entrepreneurial activities actually promote market equilibrium, Kirzner concludes it is more logical to include entrepreneurs as an endogenous, if not the focal, variable in microeconomic theory.

While entrepreneurs operate inside Kirzner’s boundaries of microeconomic theory, he does agree with Schumpeter that entrepreneurs are a distinct group of actors who do not behave like consumers, investors, managers, or other market actors. In the market process, non-entrepreneurial actors profit through the optimal allocation of their personal and organizational resources among already identified and legitimated market opportunities. Entrepreneurs, on the other hand, obtain their profits by directing and managing change via the identification of new market opportunities.

Conceptual Framework

Kirzner’s (1985, 1979) central thesis about opportunity identification is that an individual possessing entrepreneurial alertness will, under the right circumstances, develop insights about the market that transcend its current means-ends framework. Furthermore, these individuals apprehend the commercial value of their insights. An important distinction in Kirzner’s conceptualization is the emphasis given to the *perception* of opportunity versus the development of the perception into a viable new venture, a process he essentially ignores except to stipulate that

the ability to develop the opportunity into a business is a necessary precondition of discovery (Kirzner, 1979).⁴

Kirzner (1985, 1979) believes that opportunity identification is experienced as a flash of insight or foresight. However, the experience depends on the interaction of the right person with the right situation. Under such circumstances, an individual will then engage in a set of perceptual and reasoning behaviors that are allegedly different from those of other market actors; these behaviors include veridical perception, assessment reasoning, and breaking the existing means-ends framework. The aforementioned flash of insight or foresight frequently results. As shown in Fig. 3, all other combinations of persons and situations lead to the type of allocative reasoning that characterizes non-entrepreneurial behavior.

Right person – alertness. The “right person” is an individual who possesses entrepreneurial alertness, which is defined as “the ability to notice without search opportunities that have been hitherto overlooked” (Kirzner, 1979, p. 48) or as a “motivated propensity of man to formulate an image of the future” (Kirzner, 1985, p. 56). The ability to notice refers not so much to the perception of changing market conditions or errors in other market actors’ allocative calculations, although perception of these events are logically necessary. The ability to notice refers to the apprehension that these events signal the possibility of creating a whole new approach which can be used to the perceiver’s competitive, if not proprietary, advantage. In other words, Kirzner’s entrepreneur is not only alert to information about the market, but more importantly, is acutely aware of the commercial value of such information; that is, aware of the inherent market opportunities (Kirzner, 1980). For Kirzner, the insight about the commercial value of ideas is the entrepreneurial opportunity. The feasibility and so forth that are an important feature of the other conceptual frameworks Kirzner considers measures of risk.

Inferring the implications of information usually connotes a measure of reflection and higher order reasoning, which seems at odds with the unconscious,

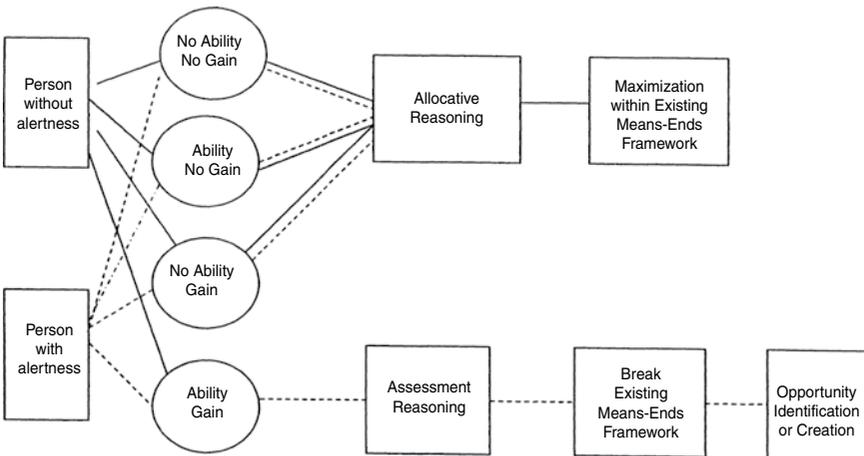


Fig. 3. Opportunity Identification as Perceptual Alertness.

non-deliberate characterization intended by the definition of “notice without search.” In fact, Kirzner (1985) goes so far as to claim that those possessing entrepreneurial alertness are unaware of ownership and therefore cannot invoke it the way they can other cognitive and physical abilities. The non-deliberative quality is important to Kirzner because he is trying to differentiate knowledge derived from alertness from other types of knowledge available to market actors. As noted earlier, modern economic theory treats knowledge like any other resource; it has acquisition and use costs which actors must trade off versus gain (e.g., in the motivated search framework, information search is presumed to be very costly and undertaken only as a last resort). Kirzner (1980) argues that entrepreneurial knowledge, however, is costless in the sense that it does not cost more to *recognize* an opportunity versus not doing so, nor does it cost more to recognize one opportunity versus another. The presence of alertness may not cost more than its absence, but Kirzner is wrong, it is not costless. The limitations of human information processing dictate that attention to something precludes simultaneous attention to anything else (Ericsson & Simon, 1984; Fiske, 1993; Markus & Zajonc, 1985) so while the cost of recognizing Opportunity A versus Opportunity B may be equal versus doing nothing, recognition of either one comes at the cost of not recognizing the other (Demsetz, 1983; Lavoie, 1991). The extremity of Kirzner’s position has led some scholars (e.g., Demsetz) to conclude that alertness is an academic term for luck, a charge Kirzner (1992) vigorously denies without further explanation.

Kirzner (1980) concludes his specification of the “right person” by noting that it is fairly evident that individual differences in the display of alertness exist. Some people have it, others do not. Among those who do seem to have it, some are better than others, implying the ability can be thought of in terms of a continuum. However, his choice of language when discussing individual differences tends toward the ideal case “either/or” which may lead some entrepreneurship scholars to hypothesize that alertness represents the elusive, defining personal characteristic of entrepreneurship, the mythological *E factor*. Kirzner encourages this hope by invoking Schumpeter’s (1934) description of the heroic creative person of extraordinary will in his conception of alertness by arguing it must represent a constellation of factors such as creativity, boldness, vision, determination and perceptual acuity.

By itself, entrepreneurial alertness is a necessary but not sufficient cause of opportunity identification. While individuals cannot consciously deploy alertness, Kirzner (1985, 1979) maintains alertness will not be activated unless the individual has reason to do so. Like most economists, Kirzner interprets this motivational issue in terms of market environments and market incentives. In this framework, the “right situation” for entrepreneurship requires the combination of at least two conditions: ability and gain.

Right situation – ability and gain. In this framework, alertness to market opportunities depend in part on “its ability to be grasped once it has been perceived” (Kirzner, 1979, p. 11). The individual does not necessarily have to possess all the business or technical abilities required nor does the individual need to own the necessary resources but he or she must have realistic expectations of gaining access to and control of such skills, abilities and resources (Stevenson et al., 1994).

More importantly, the ability to exploit an opportunity requires access to the market system itself. If, for example, a society's laws and customs permit only men to own and operate businesses, then few, if any, women would display alertness because women do not have access to the market system (unless they develop ways to work through men). Several scholars (Alexander, 1967; Glade, 1967; McClelland, 1976; Weber, 1958) have observed that societies and industrial sectors vary in degree of access and even this can vary over time.

Another important feature of a market environment is that it provide an incentive for the display of alertness. Kirzner (1980, p. 17) declares that "In order to 'switch on' the alertness of a potential discoverer to socially significant opportunities, they must offer gain to the potential discoverer himself." Profit or gain is the wage the entrepreneur earns for accepting uncertainty, dealing with ongoing market changes, and developing a more accurate hypothesis about future market states. Initially, gain was defined in purely monetary forms but has been expanded to include other forms of gain such as fame, power, prestige, and so forth (Kirzner, 1985). Consequently, motives such as the need for control or need for achievement and the other motives for becoming an entrepreneur mentioned earlier can be incorporated into the entrepreneurial alertness framework as these would be considered a form of psychological gain.

Assessment reasoning. The combination of the right person in the right situation leads to a set of cognitive processes that provide an accurate assessment of the situation (for convenience, these processes will be called "assessment reasoning") which then lead to breaking the existing means-ends framework and to opportunity identification or creation. Entrepreneurial decision making begins with a "shrewd and wise assessment of realities (both present and future) within the context of which decisions must be taken" (Kirzner, 1980, p. 7). A shrewd and wise appraisal actually represents a composite of several cognitive behaviors. First, the entrepreneur must perceive the situation correctly; that is, the entrepreneur must identify the relevant environment, identify the most important factors and correctly interpret their nature and relationships. In doing so, the entrepreneur must determine what is necessary, uncover the implicit information and make it explicit, discard irrelevant information, and note what seems to be permitted and forbidden. Correct perception requires not only the perception of "physical possibilities and constraints but also of the possibilities and constraints imposed by the actions, present and prospective, of others" (Kirzner, 1985, p. 83). Furthermore, correct perception is not susceptible to the distortions caused by uncertainty or by the misperceptions of others. Nor is assessment vulnerable to the delusion of seeing possibilities where none actually exist. Finally, accurate assessment requires the acknowledgement of the true limitations of newly discovered possibilities.

Kirzner (1980) claims that most market actors actually make mistakes in assessment, not in allocative calculations. Common assessment mistakes include not realizing the situation is different from what has been assumed; being overly optimistic or pessimistic about resource availability; being unaware of new resource availability; or being overly optimistic or pessimistic about probable results (Kirzner, 1985). Some of these mistakes perpetuate the status-quo means-ends

framework while others lead to failed pursuits of opportunity. Kirzner does not differentiate among outcomes nor does he speculate about the relationship between types of mistakes and outcomes. Presumably, those with entrepreneurial alertness do not make these mistakes because of their keen discernment. Other market actors make these mistakes because they overlook important information or lack the ability to integrate and synthesize information to effect a meaningful response (Harper, 1996) or perhaps are not motivated to be accurate in their assessment of the situation.

Breaking and creating means-ends frameworks. The heart and soul of opportunity identification lay in the decision to break the mental constraints of the existing means-ends framework: “The crucial element in behavior expressing entrepreneurial alertness is that it expresses the decision maker’s ability to transcend the existing framework of perceived opportunities” (Kirzner, 1979, p. 7). Non-entrepreneurial decisions focus on how to work effectively within the existing framework; as such, theories of allocative behavior presume that the development of the ends and means occurred earlier, and by someone else (Kirzner, 1979). That someone else was an entrepreneur from an earlier time who identified the ends to strive for and the means available.

Alert entrepreneurs come to realize that the existing means-ends framework may no longer work because of significant market changes; these changes or discontinuities produce uncertainty about what ends are appropriate; what means are available and the probable likelihood that the available means will, in fact, promote the desired ends. Other market actors may not even perceive these changes or may misunderstand their significance or may lack the ability or positional authority to overcome the inertia of the status quo. Alert entrepreneurs do not suffer such shortcomings. The newly created framework reflects the entrepreneur’s best guess or vision about the future market equilibrium. These visions or stories compete with the existing means-ends framework as well as with other alternative frameworks offered by other entrepreneurs.⁵ The competition among these frameworks forces a renegotiation of the existing means-ends framework; successful innovations alter the framework which other market actors subsequently use in their allocative decision making.

Consistent with his conceptualization of alertness, Kirzner (1979) invokes intuitive and unconscious cognitive mechanisms for breaking the existing means-ends framework as further support for the alleged differences between entrepreneurs and non-entrepreneurs. A more honest statement is that little is known about how actors select, adopt, or construct their goals or redesign the means-ends framework. The study of the “rationality of ends” (Hogarth & Reder, 1986, p. 4) represents a new frontier for decision making research (Dunegan, 1993).

Empirical Record

The literature includes two pilot tests developed to operationalize entrepreneurial alertness. The investigators interpret Kirzner’s description quite literally and reason that alertness when defined as the ability to notice without search is really another way of saying that entrepreneurs notice opportunities “when they come

across them” (Kaish & Gilad, 1991, p. 48). Consequently, the empirical investigation of alertness has focused on the intensity and extensiveness of information-seeking behaviors on the assumption that the more one seeks, the more likely one will come across opportunities.

Information search. Gilad et al. (1988) conducted in-depth interviews with 21 founders of successful high-growth companies. The investigators discovered that these founders were fairly obsessed and engaged in intensive scanning incorporating a diversity of information sources. In a follow-up study, Kaish and Gilad (1991) hypothesized that entrepreneurs would spend more of their free time searching for opportunities and would be more likely to include unconventional sources in their search. Their data indicate that new entrepreneurs act as hypothesized when compared to managers although experienced entrepreneurs behave more like managers. Cooper, Folta, and Woo (1995) report a similar pattern of results in their survey of 1,100 firms although Busenitz (1996), in an altered replication of Kaish and Gilad’s survey, does not. In addition, Ronen (1983) and Manimala (1992) found that entrepreneurs do not necessarily restrict their scanning to their home industries and prefer to get their information through informal and personal sources, thus lending support to Kaish and Gilad’s hypotheses.

The implications of scanning can be positive and negative. The more information individuals have about a situation or event, the more likely they are to emphasize the positive aspects of the situation (Thomas, Clark, & Gioia, 1993) and the more likely they are to perceive the situation as controllable (Eisenhardt, 1989). Therefore, entrepreneurs may be better at dealing with disequilibrium because they have more information about market conditions. And this may be why entrepreneurs are optimistic about their chances for success (Cooper, Woo, & Dunkelberg, 1988). Sutcliffe (1994) found that managers did accurately note environmental instability if they practiced or had access to large amounts of broad and diverse information inputs, in other words, if they duplicated the scanning behavior of new entrepreneurs. However, Glaser, Steckle, and Winer (1992) found that the possession of information, in and of itself, could be dysfunctional because actors then tend to pay more attention to those aspects most clearly addressed by that information, even if those aspects were not directly relevant to the issue at hand. Kirzner, of course, would argue that entrepreneurs would not make such fundamental assessment mistakes.

Information cues. Another hypothesized dimension of alertness is sensitivity to certain types of information cues. Kaish and Gilad (1991) postulate that three cues would be critical to opportunity identification: (1) familiarity cues, defined as originality of idea or degree of relatedness to current business; (2) economic cues, for example, market size; and (3) risk cues, such as investment to assets ratio, and so forth. Their pilot study indicates that entrepreneurs appear to attend to risk cues while managers attend to cues about market size and profit potential. These data suggest that, contrary to Kirzner’s theoretical expectations, managers, not entrepreneurs, are more attuned to the commercial value of an idea! This finding is consistent with other research (Ronen, 1983) where entrepreneurs explained they pay more attention to the downside risk because they do not want to experience a failure so devastating that it ends their entrepreneurial careers.

However, Busenitz (1996) was not able to replicate these results. Whether this represents a failure of the methodology of the pilot study or a failure of the changes in sampling and measurement Busenitz introduced is unclear but points to the need for further investigation.

Interestingly, the empirical effort displays a neglect of a cue Kirzner deems absolutely essential to alertness – disequilibrium or discontinuity cues. Conversely, the popular literature is replete with suggestions about where and how to look for signals of important market change (Cox, 1985; Gummer, 1986; Olsen, 1986). Drucker (1985) classified these signals as (a) unexpected events; (b) industry incongruities or anomalies; (c) outmoded technology or the need for alternative processes; (d) industry or market changes; (e) demographic changes; and (f) new knowledge that results in changes in moods, meanings, or perceived value. Nutt's (1984) study of organizational response to environmental turbulence reveals that technological innovation; new service possibilities and the sudden availability of new resources were the environmental stimuli managers interpreted as signaling opportunity. However, most managers also reported that they then took a "wait and see" position to learn how other organizations reacted before acting on their interpretation of events. Empirical evidence regarding entrepreneurial response and interpretations is not available; the hypothesis that entrepreneurs are more attentive to discontinuity cues or interpret stimuli differently is an important area for research.

Critique

Kirzner offers a significant contribution to the study of opportunity identification by reconceptualizing the market process so that innovation is an unusual but organic event. Furthermore, in trying to justify why entrepreneurs are a special class of market actors, he offers the most detailed description of behavioral differences. These behaviors direct attention to the underlying cognitive dynamics of the opportunity identification process: alertness, veridical perception, veridical assessment, and breaking the means-ends framework. In addition to directing attention about what to look at, the theory indicates what to expect, at least on a primitive level: entrepreneurs will do "x," other market actors will not. As such, the entrepreneurial alertness framework provides the most articulated model about the origins of entrepreneurial insights.

Critics will quickly point out that Kirzner's theory about the market process is not accepted by mainstream economists. True, but it is also true of Schumpeter's theory and it will probably always be true of any theory of entrepreneurship until more economists begin to study the process as well as the outcomes of economic decision making. Since entrepreneurship as a field stands outside economic orthodoxy, this is not a particularly troubling criticism. This theory does not have all the pieces for a complete theory of entrepreneurship; it represents a place to start.

In terms of theory, Kirzner's framework narrows the focus on entrepreneurship to the insight of commercial potential; the opportunity identification process then, concerns the generation of insight. In practical terms, this is a bit difficult to accept, as it is self-evident that entrepreneurs cannot have an impact on the market process unless they *do* something with the insight besides have it.

While it may be understandable that the insight is the point of analytical distinction, a theory that does not address the decision to pursue insights seems incomplete. Herron and Sapienza's (1992) attempt to carve out a middle ground regarding the definition of opportunity identification begins to make a good deal of sense in light of Kirzner's rather cavalier treatment of the issue. Or perhaps it is time to question the assumption that the exploitation of opportunity follows the precepts of rational choice.

Of most concern is the apparent difficulty of translating this theory into researchable constructs as indicated by the attention to surface features (e.g., search style) and the equivocal empirical results. Entrepreneurship investigators are not helped by Kirzner's abstruse writing style. More importantly, none of the behaviors postulated in this theory can be captured through in-depth interviews or survey questions; as noted earlier, retrospection about cognitive behavior is the least reliable form of data. This may be another reason, in addition to sampling differences, why the empirical record is disappointing.

Scholars interested in developing this framework must contend with two issues: (a) adequate operationalization of the theory of entrepreneurial alertness, which some may judge more difficult than its worth; and (b) the selection of appropriate research methodologies, which add another dimension of difficulty to the study of the opportunity identification process. The task could be intimidating except that most cognitive psychologists readily see the principles of schema theory reflected in Kirzner's assertions and descriptions, especially in his descriptions of entrepreneurial alertness as the ability to notice without search.

AN ALTERNATIVE FRAMEWORK: A COGNITIVE APPROACH TO THE OPPORTUNITY IDENTIFICATION PROCESS

Why a Cognitive Approach?

Kirzner's description of the behaviors associated with entrepreneurial alertness clearly point towards a cognitive approach to the study of opportunity identification but interest in the heuristic potential of his theory is not the only reason to adopt a cognitive perspective. Further development of Long and McMullan's or Herron and Sapienza's frameworks ultimately requires an analysis of the underlying cognitive processes. Creativity represents a presumably distinctive set of cognitive strategies and tactics. Similarly, determination of a discrepancy between one's level of aspiration and one's current employment is a cognitive judgment. Even decisions about the allocation of resources are cognitive judgments. Rather than study cognitive behaviors via intermediate routes, why not use the common and necessary underlying mechanisms as the focal point of investigation?

Adopting a cognitive approach offers several advantages. First, as noted above, it is a more fundamental level of analysis regarding opportunity identification. Secondly, the apparent differences between the published frameworks fade. Third, as will be shown shortly, the application of social cognition theory and research enhances the discipline's understanding of entrepreneurial behavior.

Of equal importance, the use of a cognitive perspective allows entrepreneurship investigators to make use of the extensive literature regarding the decision making behaviors supporting rational choice because a common frame of reference for discourse now exists. This literature represents an important point of comparison delineating non-entrepreneurial reasoning and decision making; a sustainable theory of entrepreneurship would have to account for the behaviors revealed by this research stream.

Assumptions of a Cognitive Approach

The adoption of a cognitive approach to the opportunity identification process must begin by stating the assumptions made. These assumptions incorporate those made by both entrepreneurship scholars and cognitive psychologists.

Subjectivism

It is assumed that human action does not arise purely in response to objective conditions, objects, events, and so forth, in the market environment, but also reflects the meanings and beliefs people associate with those elements (Kirzner, 1979). Actors play an active role in constructing the meaning of the stimuli, which then guides the type of response an actor exhibits (Fiske & Taylor, 1991; Markus & Zajonc, 1985; Shaver & Scott, 1991).

Action Orientation

It is assumed that actors behave purposefully, if not always consciously, seeking to achieve definite goals (Choi, 1993; Hogarth & Reder, 1986; Kirzner, 1979; Robbins, 1962). Most economists acknowledge that the market is a process in which actors learn to adjust their action and better anticipate the actions of others as they gain knowledge and experience. Anything less produces error and ineffective action. Actors are seen as “motivated tacticians” (Fiske & Taylor, 1991, p. 13) who have a variety of cognitive strategies and tactics available for sense-making and select among these based on goals, needs, and motives for a specific episode (Fiske & Taylor, 1991; Payne, Bettman, & Johnson, 1990; Shower & Cantor, 1985). An important situation-specific goal is whether it is seemed more important to be accurate or decisive. This decision profoundly influences data gathering and interpretation.

Internal Structures

In order to use or transcend the existing means-ends framework, actors must be able to operate on it cognitively; hence, they must have an internal mental representation of it. Schemas are one such form of representational structures (Fiske & Taylor, 1991; Holy oak & Gordon, 1984; Markus & Zajonc, 1985).

Information processing begins with the actor’s classification of stimuli based on matching the attributes of the stimuli with those of preexisting schema categories. This perspective emphasizes a theory- driven or top-down mode of information

processing rather than a data-driven or bottom-up approach. Given the complex and ongoing nature of the market process, it is almost inconceivable that actors participate without the benefit of some learned structures to help organize and direct their experiences. Creativity experts refer to this as learning the language of the domain, which is usually accomplished during the preparation phase. Learning the language of the industry-specific domain is one function of work experience and information scanning.

These internal structures are seen as mutable, depending again on the motives and needs actors have for changing. Like economists, psychologists assume inaccurate structures are ineffective and costly and therefore undesirable (Fiske & Taylor, 1991).

Process

Two kinds of assumptions are made about process. First, it is assumed that schemas are formed, used, and changed over time as the need to adapt to changes in the market environment arise. Secondly, unlike economists, it is necessary but not sufficient to be able to predict the outcomes of opportunity identification. A necessary and sufficient explanation includes an analysis of the process itself.

System

Obviously, entrepreneurs depend on other market actors to accept new innovation; otherwise, the innovation is just an unsuccessful idea and the entrepreneur exerts very little influence on the market process. But the influence process goes both ways:

Economists must consider that economic processes, especially market processes, have a profound impact upon the way individuals perceive options available to them while the accuracy and sensitivity of opportunity identification itself crucially affects the nature of these economic and market processes they set in motion (Kirzner, 1985, p. 82).

The presence of others can be represented in entrepreneurial minds in at least two ways. First, entrepreneurs can hold beliefs and feelings about specific others whether individual (e.g., “Joe is a nice guy”) or group (e.g., “Venture capitalists will want more equity for that amount of money”). Secondly, as Kirzner notes, the very way in which entrepreneurs will perceive and interpret the market process, that is, how they will define the situation, is itself a product of a social process because much of the content and rules of an individual’s schema arise from learning and social interaction.

Cognitive Schema – The Means-ends Framework

If entrepreneurs discover knowledge about the commercial implications of market changes, then entrepreneurs must have a knowledge of the marketplace, knowledge of the changes and knowledge of the commercial implications of change. This knowledge is represented in the entrepreneur’s schema about the market process.

Schemas are mental models reflecting an individual’s knowledge and belief about how the physical and social worlds work. All economic actors have a schema

about “the market.” In fact, because the market is such a rich, complex social domain, most actors have a large cluster of schema about the marketplace, incorporating knowledge of various market roles (e.g., customer, investor, employee, owner, landlord); market environments (e.g., the national and local economies, the stock market, the “X” industry); market behaviors (e.g., investment, labor, speculation, rent, production); market rules (e.g., risk and return are correlated; debt has value); evaluative criteria (e.g., fair market value, honest wage, credit risk, adequate rate of return); and market outcomes (e.g., wages, profit, loss, and market share).⁶

Schemas reflect an actor’s current understanding and feelings about what kinds of real or imagined events, people, and objects are relevant to the current situation versus not; what types of relationships among events, people, and objects are possible as well as typical rules for forming such relationships; what types of causal sequences are possible and what types of actions are permissible, sanctioned, and previously successful or misguided (Fiske & Taylor, 1991; Markus & Zajonc, 1985). Schemas about social environments like the economic market also include the actor’s beliefs about the content of other actors’ schemas, in other words, beliefs about where there is shared consensus and social disagreement. Of particular relevance to the function of entrepreneurship, actors have beliefs about change as a part of their market schema, including beliefs about the sources of change, the cause of change, the process and pace of change, likely consequences and social attitudes towards change and change agents.

Psychologists who study decision making under conditions of risk or uncertainty will often refer to the decision frame (Lopes, 1981; Payne, Bettman, & Johnson, 1992; Schneider, 1992; Tversky & Kahneman, 1981) or the appropriate problem space (Keren, 1984; Newell & Simon, 1972) for the decision. The frame or problem space is another name for the means-ends framework recalled or created for the specific decision episode. Dunegan’s (1993) review of the literature identified some of the key cognitive elements included in a rational choice decision frame or problem space: (1) projected costs and potential losses; (2) sunk costs; (3) the importance of the decision; (4) the perception of risk; (5) affect; (6) the perception of control over outcomes; (7) the perceived responsibility of initiating a course of action and (8) intent. Fiske (1993) would add (9) the perception of the relative need to be decisive or accurate, an issue that will be explored in detail shortly. Kirzner might add (10) the perception of existing market responses; (11) projected access to resources and (12) projected gains. Furthermore, the ability to project losses and gains implies the presence of some reference point which may be an objective state of final wealth, as most economists assume, or the reference point could be the status quo, that is, current assets and wealth (Schweitzer, 1995); or expectations based on past achievements (Pounds, 1969); or comparison to other market actors; or comparisons to industry norms (Kahneman & Tversky, 1982, 1984; Puto, 1987). The elements included in the means-ends framework and the selection of a reference point from which to evaluate possible outcomes depends on which schema or schemas are activated to guide information processing. Determining the governing schema activation and the creation of the problem space is an important area in decision making requiring further research (Bazerman, 1984; Dunegan, 1993; Johnson, Jamal, & Berryman, 1991; Thaler & Johnson, 1990).

Creation of Schemas

Schemas are created by individuals and represent the cumulative experience, learning, feelings and meanings an individual has encountered, constructed, or imagined about the specific domain. Both raw data and abstracted summaries are stored (Fiske & Taylor, 1991; Sherman, Judd, & Park, 1989). The creation of schema reflects the interaction of *individual factors*, such as mood, motivation, expertise or level of involvement; *social factors*, such as norms, role prescriptions and the presence of others; and *environmental factors*, such as the situation-specific details or the opportunity to act (Fiske & Taylor, 1991; Levine & Resnick, 1993; Markus & Zajonc, 1985; Sherman, Judd, & Park, 1989; Showers & Cantor, 1985). Because the interaction of these factors are idiosyncratic for each person, the schema content and structure for a domain will show individual differences which will be evident in schema features such as content (Levine & Resnick, 1992; Showers & Cantor, 1985); the amount of information; the degree of complexity (Markus & Zajonc, 1985); and the number of cross referenced links to other schemas (Fiske & Taylor, 1991). Daft and Weick (1984) argue that managers use identical cognitive schemas when making interpretations about something affecting their organization because managers invoke the organization's schema.

One of the individual differences that has considerable influence on the content and complexity of a schema is the intensity and quality of an actor's efforts to learn about the domain. Extensive scanning can help entrepreneurs create schemas about the marketplace, about a specific industry, and about entrepreneurship within that industry. This may be why new entrepreneurs scan aggressively while experienced entrepreneurs and managers, who already have developed schema, do not engage in as many scanning activities. Research about managerial scanning behavior indicates that managers are likely to scan competitive activity rather than other parts of the environment (Synder, 1981) but, as noted earlier, there are some exceptions (Sutcliffe, 1994).

One function of schemas is to help actors focus attention on what is salient (Johnson & Dark, 1986; Markus & Zajonc, 1985; Stryker & Statham, 1985) and thereby effectively anticipate and choose action (Fiske & Taylor, 1991). This influence on initial perceptions and interpretations of market events ultimately influences the range of behaviors an actor may consider. Therefore, when considering complex phenomena like the market, which have a cluster of schemas, it is important to understand which of the many possible schema are activated. How attention is directed and how perceptions are interpreted can vary across individuals because of the differences in the schemas activated in response to the same event.

Schema Activation

Numerous factors influence which schema will be activated to help make sense of a market episode; of the many factors studied, four seem most relevant to the study of opportunity identification. First, primacy matters. It appears that information available early in the episode is more influential than information presented later (Johnson & Dark, 1986), especially if the cues are highly representative of attributes already encoded (Sherman, Judd, & Park, 1989). Secondly, a schema's

accessibility, which indicates either the ease with which it can be called to mind or its frequency of use, plays a very important role, especially the ease of imagining simulations (Kahneman & Tversky, 1982) or counterfactual plausible alternatives to the present or anticipated future episodes (Fiske, 1993). More accessible schema are more likely to be activated. The third factor which can influence the activation of schema is the salience of the information present. Cues that signal differences or distinctiveness from the overall context are perceived as highly salient and causal and therefore have considerable influence on schema selection (Fiske & Taylor, 1991; Holyoak & Gordon, 1984). Finally, Fiske and Taylor (1991) note that an actor's primary concern in any episode is gathering information relevant to adequate performance. Goals provide important information about performance and therefore also influence schema activation but the role adopted also exerts considerable influence on the activation of appropriate schema (Holyoak & Gordon, 1984). When a person adopts a role, his or her behavior can be constrained by the expectations associated with that role and the individual's cognitions can be affected by these expectations (Levine & Resnick, 1993). In fact, when attempting to make sense of or to anticipate the actions of others, role information is used before considering other information because of the predictive utility of role information (Andersen & Klatzsky, 1987).

Motivation of the Motivated Tactician

It is assumed market actors will behave in accordance with their motives. Kirzner claims that entrepreneurs will engage in opportunity identification behaviors when they believe such behavior will produce monetary, social, or psychological gain; Herron and Sapienza believe individuals engage in search behaviors in order to resolve the intolerable tension arising from a substantive discrepancy between one's level of aspiration and current employment. In addition to these and other entrepreneurial motives such as those mentioned earlier, cognitive psychologists would suggest that the activation of alertness also involves a decision regarding the relative importance of taking immediate action versus being accurate regarding information processing for the given episode. If actors are motivated to be more accurate, they tend to gather more information and carefully examine information that is apparently inconsistent with the activated schema. If actors are motivated to act quickly, they tend to seek information that confirms their expectations and provides guidance towards action; they also tend to be more optimistic about the desirability and feasibility of their goals and do not want contrary information (Fiske, 1993). It is believed that when actors are accountable to others, especially in conditions of asymmetrical power relations, actors choose to be accurate as a way of controlling outcomes. This suggests that agents of the firm, like corporate managers, who are accountable to others, will choose to be more careful and thorough in their information processing. Indeed, entrepreneurial anecdotes favor the image of quick, decisive actors. But Kirzner holds that those with entrepreneurial alertness are in fact the most accurate in their perceptions. Accuracy motives could present some problems given Kirzner's insistence on the rapid, uncontrollable characterization of alert behavior. Normally,

accurate information processing requires more time and a higher degree of conscious effort (Dunegan, 1993; Ericsson & Simon, 1984; Fiske, 1993) although accuracy does not suffer from speed if the stimuli activate an actor's chronic schema (Bargh, 1989).

Chronic Schema Activation – Entrepreneurial Alertness

While schema activation is normally influenced by the factors outlined earlier, psychologists have observed that some people habitually activate a schema regardless of its appropriateness to the moment (Fiske & Taylor, 1991; Higgins & King, 1981). This habit naturally reinforces the schema's accessibility. Chronic activators have an added sensitivity to the features stored in their schema such that they can notice it in ambiguous situations (Gooding, 1989) and notice it in the midst of an otherwise overwhelming amount of stimuli (Fiske & Taylor, 1991). In addition, it appears that chronic activators are very accurate in assessing chronic dimensions regardless of information load (Bargh, 1989), possibly because of the continual practice.

Bargh and Pratto (1986) review research demonstrating that the frequent and consistent use of a schema in a sense automates it to the extent that the activation occurs without any attentional control, regardless of the individual's goals or motives. They cite studies showing the chronic activation of schema even when subjects consciously tried to activate other schema in order to perform a task which suggests that, for some actors, the phrase "I can't help noticing ..." is literally true. Bargh and Pratto conclude that the evidence regarding chronic schema accessibility could indeed be seen as unintentional and uncontrollable as well as efficient; these characteristics would indicate that chronic schemas should be considered part of the automatic rather than conscious or effort processing paths.

Entrepreneurial alertness, then, might be conceptualized as an example of chronic schema activation. The fact that chronic schema triggers automatic processing explains how alertness can be cognitively "costless" and uncontrollable as Kirzner claims. The question is what dimensions or schema do those with entrepreneurial alertness chronically activate? Kaish and Gilad (1991) suggested familiarity (the originality of the idea and its relatedness to current business); economic characteristics (market size and profit potential); and risk (investment to asset ratio, size of investment required) are important cues of market opportunity. Kirzner would add cues regarding market disequilibrium and discontinuity as well as cues about the commercial potential that are less restrictive than those proposed by Kaish and Gilad (e.g., Kirzner's entrepreneur would be asking "how can I make money from this?" not "how much money is there to be gained?").

Schema Influence on Perception, Encoding, and Inference – Entrepreneurial Assessment

As noted earlier, one function of schemas is to help focus attention on what is important and to guide interpretation of events so that actors can develop effective behavioral strategies for adequate performance (Fiske, 1993; Johnson & Dark, 1986).

Veridical Perception

Kirzner maintains that an important component of a shrewd and wise assessment of the situation is perceiving the situation correctly, without distortion, delusion, or illusion. Entrepreneurial folklore holds that entrepreneurs are capable of “veridical perception” (Schrage, 1965, p. 57), the ability to perceive situations with minimal, if any, expectations or assumptions. Ronen (1983) reports that entrepreneurs believe they have more accurate perceptions compared to other people and believe that this ability enables them to adjust to the environment more quickly. While these self-reports seem self-serving, psychologists studying creativity have observed that creative people do remember large amounts of detailed information more accurately (Amabile, 1983). Tversky and Kahneman (1981), however, argue that true veridical perception would frequently require ignoring sensory input; for example, the relative height of two neighboring mountains would not reverse when changing perspective. While it may be impossible to escape the impact of perspective activated by schema or framing, intelligent and adaptive actors can be aware of this influence and adjust for it. Tversky and Kahneman argue that most people cannot or do not make these adjustments, which is one reason for the persistence of framing effects in decision making. It is an interesting empirical question whether those with entrepreneurial alertness would see through the framing effects and report intransitive preferences in response to Tversky and Kahneman’s decision paradigms, which would be evidence of veridical perception in economic decision making. Gunderson (1990) maintains that folklore claims about veridical perception have been interpreted too literally and that veridicality simply means a willingness to challenge the assumptions and perceptions, much like good scientists. Regardless, no solid empirical research has investigated the claim of veridical perception among entrepreneurs.

Conversely, the influence of activated schema as perceptual filters and frames among corporate managers has been fairly well documented as has its subsequent impact on decision making. Weick (1979) asserts that managers deal with environmental information by imposing categorical inferences (schemas) rather than probabilistic judgments as economists posit. He notes that these categorical impositions do not need to be objectively accurate, just good enough to focus managers on action (Weick, 1983). In other words, Weick is inclined to believe that managers feel the pressure to act rather than be accurate, a belief supported by Isenberg’s (1986) detailed analysis of managerial decision-making. This finding would seem contrary to the expectation of a motive for accuracy, given the asymmetrical power relations in organizations.

As agents of the firm, it is expected that managers will activate their organization’s schema as one of the frames of reference for any business decision, but it is unclear which parts of organizational schema are relevant to action and decision making. The data suggest that the reference point used for evaluation is the most evident influence of organizational schema. Managers tend to compare current situations with expectations based on the organization’s history (Kiesler & Sproull, 1982); the organization’s past performance; a forecast or plan; the expectations of important stakeholders (Pounds, 1969); the desired strategic direction (Peters, 1979); the expectations derives from one’s position within the

organizational structure (Dearborn & Simon, 1958; Spencer, 1990). It appears possible to alter allocative decisions by manipulating the reference point, which is accomplished by influencing schema activation through control of the type and affective tone of information available during a specific event (i.e., the “framing effect,” Kahneman & Tversky, 1984; Tversky & Kahneman, 1986).

Another possible dimension to veridical perception is the response to encountering information that is inconsistent with or directly challenges information already represented in the activated schema. Schema theory assumes that actors engage in a kind of pattern matching between stimuli present in the environment and the information stored in the activated schema (Fiske & Taylor, 1991; Mitchell & Beach, 1990). If the pattern match is good enough, attention turns to action-oriented issues. If the pattern match is not good enough, additional cognitive processing is required. In their review of the literature, Markus and Zajonc (1985) remark that early studies regarding information inconsistencies indicated that individuals ignored or discounted discrepant information but that more recent studies appear to refute this finding. In the most current review, Fiske (1993) reports that the prevailing view is that cognitive processing of inconsistent data is a question of which (attend v. discount) when. After all, inconsistent data may alert actors to environmental threats and opportunities in time to respond, so in fact, actors should prefer the diagnostic value of inconsistent information (Devine, 1990; Fiske, 1993).

When actors encounter inconsistent stimuli that is clear, unambiguous, strong and persistent, they do not discount it but rather respond to it by either activating other schema that might better accommodate the information or by altering their schema by using one of the methods described in the section about schema changes. The only time actors ignore or discount unambiguous information is when the activated schema does seem plausible and they cannot retrieve or create equally plausible alternatives (Fiske, 1993).

However, it is rarely the case that stimuli in social worlds, especially worlds as complex as the marketplace, will be clear and unambiguous. A basic tenet of schema theory is that ambiguous stimuli are usually interpreted as instances of the activated schema (Sedikides & Skrowronski, 1991; Sherman, Judd, & Park, 1989). Therefore, it is not surprising to learn some actors consider incongruities to be the exception that proves the rule or engage in other mental gymnastics in order to construe the inconsistent information as proof of the schema’s validity (Fiske & Taylor, 1991).

How actors behave when confronted with inconsistent information depends on several factors: the actor’s motives regarding accuracy; the actor’s tolerance of ambiguity; the perceived social pressures and the nature of the inconsistency. As noted earlier, when actors are motivated to be accurate in a given episode, they will attend to incongruent or disconfirming stimuli and engage in additional cognitive processing and increase their analytical discriminations. However, if the actor is motivated to protect his or her ego-involvement or if the actor feels it is socially desirable to adhere to a schema, then actors will either discount the information or engage in elaborate reinterpretations to bring the information in line with the activated schema (Fiske, 1993; Kiesler & Sproull, 1982).

Information can be inconsistent with activated schema in many ways, some have more impact than others. Investigators have found that stimuli that is descriptively inconsistent is discounted or ignored while stimuli that is evaluatively (i.e., positively or negatively) inconsistent will be noticed, especially if the information has some relevance to the task (Hastie, 1981; Wyer & Gordon, 1982). Information can also be mildly or extremely incongruent. Schema theory suggests that extremely discrepant information will be ignored or forgotten (Kiesler & Sproull, 1982) unless the actor develops schemas for extreme change.

Kiesler and Sproull (1982) speculate that the historical schemas managers use tend to bias managers against noticing signals of market change. Cowan (1986) found that managers do, in fact, notice signals of change but their chosen schema permits them to discount the meanings of the signals. There is no empirical evidence demonstrating the entrepreneurial response to ambiguous and potentially inconsistent information but there is some evidence that, compared to managers, entrepreneurs have a higher tolerance for ambiguity (Schere, 1982; Sexton & Bowman, 1985) and a more positive disposition towards business innovations (Buttner & Gyskiewicz, 1993; Robinson, Stimpson, Huefner, & Hunt, 1991; Rosenfield, Winger-Bearskin, Marcic, & Braun, 1993). In fact, some experts encourage potential entrepreneurs to seek inconsistent environmental stimuli (e.g., Drucker, 1985), so it is not inconceivable that entrepreneurs differ from other market actors in their handling of inconsistent information.

Veridical Interpretation

Perhaps, the most important aspect of handling ambiguous information is the meaning the actor attaches to it. Kirzner claims that entrepreneurs are not susceptible to illusion or delusion and are neither overly optimistic or pessimistic in their interpretations and inferences. However, the empirical evidence indicates that neither entrepreneurs nor managers seem capable of veridical interpretations. Each group seems disposed to interpret ambiguous information in consistently different ways.

It appears that corporate managers are more apt to interpret ambiguous information and disequilibrium cues in the environment as threats (Jackson & Dutton, 1988; Ronen, 1983). Attention to threat would be consistent with a manager's responsibilities as an agent of the firm to defend and protect the organization's value. In addition, managers report that their daily responsibilities require attention to problems rather than to opportunities (Nutt, 1984) and that they perceive rewards are given more for preventing loss in a threatening environment than for successfully managing an opportunity (Jackson & Dutton, 1988).

The evidence regarding entrepreneurial interpretations of ambiguous information is less clear. It is generally believed that entrepreneurs tend to interpret ambiguous information as opportunities (Palich & Bagby, 1995; Ronen, 1983). However, it is unclear whether entrepreneurs attend to gain (Buckeye, 1984; Palich & Bagby, 1995; Stevenson et al., 1994) or loss (Kaish & Gilad, 1991; Ronen, 1983). There is evidence indicating that entrepreneurs may be overly optimistic in estimating the probability of success for their own ventures (Cooper, Woo, & Dunkelberg, 1998; Ray, 1986).

The systematic biases of each group suggest that environmental information would need to be rather exceptional and extraordinary in order to alter the actor's activated schema or perception of the existing means-ends framework.

Schema Change – Breaking the Means-end Framework

Schemas change in response to new information or in response to events that challenge what is known. Research indicates that challenging information is usually accommodated within the existing schema by the creation of new subcategories that increase the differentiation and complexity of the actor's schema (Fiske & Taylor, 1991; Sherman, Judd, & Park, 1989). There is little empirical evidence to support a revolutionary model of change where the existing schema is supplanted altogether but Kuhn's (1970) analysis of paradigm shifts in the scientific community demonstrate the legitimacy of such a model or at least for societal acceptance of new schema. While the implications of transcending the existing means-ends framework may be dramatic, it is unlikely that the cognitive structure of the individual actor undergoes such radical transformation. Rather, there should be signs of increasingly fine discriminations and connections.

Breaking the presented frame and its implicit means-ends framework is considered an important state in the creative process (Amabile, 1983; Csikszentmihalyi, 1996). Wertheimer (1959) emphasized the need to deal with anomalies or discontinuities in a structural way. Experts in creativity offer several cognitive heuristics for breaking the existing or presented framework: changing category labels (thereby activating different schema); using analogies (thereby making connections between schemas); looking for the counterintuitive; making the familiar strange; accounting for exceptions; and changing problem constraints (Amabile, 1983; Busse & Mansfield, 1980; deBono, 1978; Spencer, 1990).

Schemas can also change when actors engage in counterfactual thinking (Fiske, 1993; Kahneman & Miller, 1986; Sherman, Judd, & Park, 1989) or in simulations (Kahneman & Tversky, 1982) in which actors imagine different outcomes, causes, causal links, in short, different means-ends frameworks. Counterfactual thinking involves the reconstruction of present or past events in order to prepare for or adapt to the future which can be better (upward counterfactual) or worse (downward counterfactual). Almost all empirical research has focused on the use of counterfactual thinking as a means of avoiding atypical events although there are a few studies about creating unusual events, which would be analogous to entrepreneurial activity (Roese & Olson, 1995). Kahneman and Miller (1986) claim that the generation of counterfactuals is not random but follows some rules. First, the imagination of alternatives is restricted to objects or events that share the immutable features of the originating stimulus situation. Secondly, dominant features such as loss, risk, or gain and features that are the focus of attention are perceived to be changeable as are events that occur early in a situation and features are perceived to be controllable. (Fiske, 1993; Kahneman & Miller, 1986; Roese & Olson, 1995). Furthermore, an outcome is more likely to be changed by altering the features deemed unusual rather than by altering the features considered typical in a causal sequence, except when trying to construct unusual events

in which case both exceptional and typical features will be altered in the direction of making them more unusual (Kahneman & Miller, 1986; Kahneman & Tversky, 1982; Roese & Olson, 1995). Actors do not introduce rare or unlikely events into their simulations or counterfactual scenarios. Kahneman and Tversky claim that this tendency preserves the realism, a claim buttressed by the fact that actors apparently do not eliminate necessary conditions for an event when imagining alternatives. Finally, it appears that actors have an easier time, and therefore more frequently use, imagining improvements, especially details that may increase the likelihood of an event, than imagining the degradation of features. It is also easier to imagine adding more features to a counterfactual or simulation than to subtract any (Fiske, 1993; Kahneman & Miller, 1986; Roese & Olson, 1995).

Imagining or constructing mental simulations can alter schema by creating new expectations for normal events. The act of imagining a possible event makes it seem more likely (Fiske, 1993; Koehler, 1991; Taylor & Schneider, 1989) although the causal chain should not be completely obvious. The need to explain intermediate stages leading toward an outcome apparently increases an actor's belief in the probability of the outcome (Kahneman & Tversky, 1982).

Counterfactual thinking may be one of the cognitive processes entrepreneurs use in order to break the existing means-ends framework. The availability of counterfactual examples suggests the possibility of alternative realities and as noted above, the very act of imagining alternatives would probably increase the entrepreneur's confidence in the viability of that reality. However, there are no empirical data supporting or refuting the assertion regarding entrepreneurial acceptance or transcendence of the existing means-ends framework, nor is there any evidence that transcending the means-ends framework is an important step towards opportunity identification.

Research into allocative decision-making processes indicate that most market actors do uncritically accept information as it is explicitly offered and subsequently use it only in the form originally displayed, a tendency Slovic (1972, p. 14) calls "the concreteness principle." Furthermore, the initial frame of reference persists even when the actors are presented with alternatives (Levin, Johnson, & Davis, 1987; Loke, 1989; Reyna & Brainerd, 1991). Tversky and Kahneman (1990) suggest that these "framing effects" represent an effort at mental economy. However, more consistent with the view that actors are motivated tacticians, Mitchell and Beach (1990) argue that, as agents of the firm, managers do have an obligation to protect existing organizational values, so the need to transcend the existing means-ends framework rarely falls within a manager's purview. Indeed, some scholars within the discipline (e.g., Ronen, 1983; Stevenson et al., 1994) define the managerial role as operating within a carefully prescribed domain of existing products and processes. Regardless of the reason, the data from behavioral decision making tends to support Kirzner's contention that most market actors accept the existing means-ends framework and spend their time making allocative decisions.

But there is some evidence of actors breaking a frame. Johnson, Jamal, and Berryman (1991) learned that subjects who broke presented frames definitely were attuned to the anomalies and discrepancies, as business experts advise, but the mere notice of these cues did not lead to frame breaking. Subjects who broke

the presented frame tended to integrate the various cues into a pattern that led them to construct several alternative hypotheses. Subjects who did not break the frame also noticed the anomalies but tried to explain or discount each inconsistency as encountered rather than attempt to combine them in any meaningful way. These data support Wertheimer's contention that anomalies must be dealt with in a structural way.

Mintzberg, Raisinghai, and Theoret (1976) hypothesize that, when confronted with inconsistent stimuli, managers will break the existing frame only if the cumulative amplitude of the stimuli crosses some kind of threshold that then requires action. They posit that the amplitude depends on (1) the influence of its source; (2) the interest of the decision maker; (3) the perceived payoff for taking action; (4) the uncertainty of the situation; (5) the perceived probability of success, and (6) the frequency and clarity of the stimuli. Dutton and Duncan (1987) propose that corporate managers will engage in frame-breaking reorientation when they (a) perceive a need to change, usually based on an organization's assessment of the urgency for action and (b) perceive it is feasible to change based on their beliefs concerning the organization's understanding of the issues involved and the organization's ability to respond.

Research on the use of counterfactual reasoning in the business world indicates that unexpected events, usually negative events, prompted corporate managers to engage in counterfactual thinking (Andreassen & Krauss, 1989; Bettman & Weitz, 1983). Markman, Gavanski, Sherman, and McMullan (1993) found that actors tend towards upward counterfactuals unless they believe they will never engage in the type of situation again. The authors also confirmed that actors typically undo events early in the sequential chain of events and found that actors centered their counterfactuals around taking action rather than choosing inaction. Roese and Olson (1995) argue, however, that this last result may be a function of action as a dominant feature in the experimental paradigm rather than a real choice by actors.

The Application of Schema Principles to the Opportunity Identification Process

Schumpeter, Long and McMullan, and Kirzner believe that opportunity identification depends heavily on spontaneous, intuitive cognitive processes that are allegedly unknowable to the same degree that the cognitive processes supporting exploitation are conscious and methodical. The theory and evidence from social cognition suggests that neither characterization is quite right.

Psychologists have built a strong empirical case over the past 40 years demonstrating that the average market actor does not always engage in the extensive and intensive cognitive calculations once presumed to be associated with allocative reasoning (Abelson & Levi, 1985; Lopes, 1981; Payne, Bettman, & Johnson, 1991; Slovic, Fischhoff, & Lichtenstein, 1977). Limitations in cognitive capacity and information processing leads actors to frequently ignore information or restrict information searches to immediately available, if unreliable, sources or to employ a variety of heuristics in order to simplify the allocative task. Furthermore, actors apparently do not always use final wealth states as the criterion for allocation but evaluate options relative to other reference points made salient by the schema

actors choose to apply to the decision episode. Yet the evidence amassed does not challenge the nature of the task nor the assumption that the goals, resources, and choice alternatives are clearly defined *a priori* and are known to the actors. The data also indicate that, for the most part, actors accept the implicit and explicit givens in any particular episode and can be susceptible to the affective and evaluative tone in which information is presented. It would seem that Kirzner's assertion that most market actors engage in allocative reasoning within an existing means-ends framework is supported by the evidence.

Similarly, psychological explanations of the sudden insight demystifies entrepreneurial thinking. The spontaneous, intuitive, unconscious quality of entrepreneurial cognition can be explained in terms of automatic processing precipitated by a habitual or chronic schema. Unlike most market actors who accept information as given, individuals possessing entrepreneurial alertness may simply have a habit of looking for change or imagining how the given information can change or look at any situation in terms of its money-making possibilities. Periodically, the results of this habitual way of thinking may challenge the entrepreneur's current understanding and the entrepreneur is confronted with the option of ignoring or discounting the new possibilities or with assessing its impact on the current schema. Counterfactual reasoning and simulation heuristics may help the entrepreneur assess the impact of new possibilities. If the entrepreneur chooses to attempt to reconcile the new information, he or she may find it necessary to alter the pattern of elements and relational rules in his or her schema. This alteration may explain how entrepreneurs transcend the existing means-ends framework. Occasionally, the alteration process also affords an insight about the commercial value the alteration may have for the market in which case the entrepreneur has identified or discovered a potential business opportunity. Fig. 4 diagrams the hypothesized process.

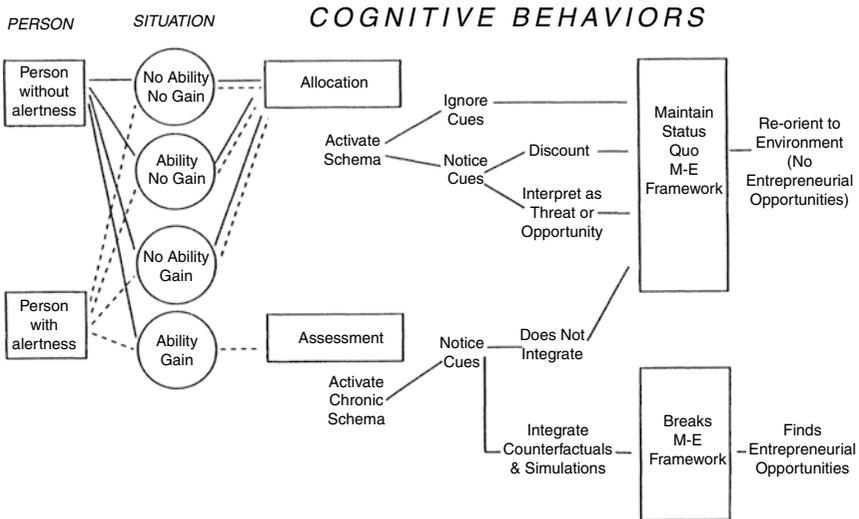


Fig. 4. A Cognitive Approach to Opportunity Identification.

Areas for Immediate Research

The question begging immediate empirical attention is whether there is a quality such as entrepreneurial alertness, which can be operationally defined as chronic schema. It is highly unlikely that chronic schema activation is limited to those with entrepreneurial dispositions, so a critical step in demonstrating the existence of alertness is to identify the salient dimensions of chronic schemas that lead to entrepreneurial opportunity identification and the salient dimensions of chronic schemas that lead to allocative reasoning. If entrepreneurial chronic schemas do exist, do they facilitate alertness to discontinuity cues, as hypothesized? Of course, it is possible that in fact, the managers activate a chronic schema, possibly the organization's history, which then interferes with accurate assessment of the situation while entrepreneurs activate schemas appropriate to the situation. Also, it would be interesting to learn whether entrepreneurs demonstrate veridical perception by being insensitive to framing effects or whether they are just as susceptible as other market actors.

From a theoretical standpoint, perhaps the most important question is whether breaking the existing means-ends framework (a hypothesized necessary step in the creative process and in the assessment process) is a necessary step for the development of entrepreneurial opportunities. Preliminary research (Gaglio, 1997) indicates a strong association between breaking the framework and finding industry innovative opportunities; however, additional research is required to confirm these early findings and to establish the causal connection.

Methodological Advancements

As noted earlier, in the critique of research generated by the creative insight framework, data collection techniques calling for retrospection of cognitive processes does not yield consistently reliable data. However, concurrent verbalizations of thinking, while engaged in a task demanding specific cognitive processes, do produce reliable data (Ericsson & Simon, 1984). At first glance, this type of data collection technique may seem too intrusive and too time consuming to use with business people. It is possible to get business people to engage in think aloud procedures (Gaglio & Taub, 1992; Isenberg, 1986; Sandberg, Schweiger, & Hofer, 1987) with no higher a refusal rate than currently experienced as non-returns in mail surveys. Often, some respondents will label the various schema they activate as they engage in tasks, which makes an interesting point of comparison for an investigator. There is an additional advantage to this type of data collection in that logistics and operations necessary to permit valid inferences from the data actually increase the level of control over some kinds of extraneous variables that must be tolerated in survey research.

Another methodological contribution a schema perspective may offer is a way to operationally defined Schumpeter's types of innovation without waiting for historical judgment as Gunderson (1990) and Drucker (1985) insist. According to Drucker, innovations based on new knowledge take approximately twenty years to exploit commercially, not because of a failure to apprehend the profit potential but because of the learning and inventions needed before a truly profitable

direction emerges. It is only through historical analysis that one can detect the discontinuous innovation that alters directions and supplants an industry.

This argument confuses the success of an innovation with the opportunity to innovate. It is possible that many apparently discontinuous innovations flounder because of market response. The uncertainty of market response is a necessary part of the market process, a fact Knight (1942) pointed out long ago. Kirzner (1979, p. 163) noted that "... it should be clear that in many cases the transition from an old accepted means-ends framework to reasonable confidence in the relevance of a new framework may be far from instantaneous." Nevertheless, it is possible to recognize discontinuity when it happens. For example, it is nearly universally acknowledged that the information superhighway will soon radically alter the way information is disseminated and the way in which business is done. The fact that, at the moment, no one has figured out exactly how to use the highway to its fullest commercial potential does not minimize the fact that most people understand that a discontinuous event has occurred.

Collective judgment about discontinuity can also be extended to those less dramatic instances that do not depend on the introduction of new technologies or discoveries. The use of expert knowledge and expectations about an industry (e.g., expert schemas) can be used as a benchmark by which to judge discontinuity prospectively. Admittedly, expert schemas contain idiosyncratic elements but most of the information represented in expert schemas is part of the social domain and can be confirmed through published industry reviews and analyses as well as with interviews of industry experts. The social consensus regarding the next logical step in innovation or industry development can represent a conceptual boundary regarding types of opportunities. For example, if the perceived logical next step and its method of implementation are known and available, these instances represent good business practices or business opportunities typically pursued by non-entrepreneurial actors. If the method of implementation is not known or readily available, or if an idea exceeds the next logical step in development, then it represents the domain of entrepreneurial opportunities. Explicitly outlining expert schemas in this way simply raises awareness of the schema, which usually is part of the criteria many market actors such as venture capitalists, loan officers, angel investors and small business advisers already use in their evaluation of business concepts.

Gaps in the Cognitive Approach

While schema theory sheds considerable light on the psychological underpinnings of entrepreneurial alertness and the opportunity identification process, there are areas that need further explication. For example, the psychodynamics regarding the handling of inconsistent information needs more attention. Schema theory generally assumes a drive for cognitive consistency (Markus & Zajonc, 1985) but traditional consistency theories do not adequately account for the demonstrated entrepreneurial tolerance of ambiguity (Schere, 1982; Sexton & Bowman, 1985). In addition, a psychological explanation of entrepreneurial alertness would need a more detailed accounting of the individual differences and origins of chronic schema; why do some individuals habitually focus on change or discontinuity?

Furthermore, any theory would need to improve its explanations regarding source of change; currently, environmental change is an exogenous variable that simply occurs and provokes reaction from market actors. Yet actors, through their interpretations and other tactics, can actually be a source of change and this needs to be included in a theory of the marketplace and entrepreneurship. Finally, while it is assumed that schema creation, maintenance and change are an ongoing process, the research questions and methodology to date do not reflect a process orientation but rather a one-time cross-sectional approach. Ricketts (1992) criticizes this segmentation and wonders whether the decision processes of entrepreneurs and non-entrepreneurial actors would be different when placed in the real-world context of ongoing relations with other market actors. So while Kirzner has brought entrepreneurship within the boundaries of microeconomic theory, the full integration of the social system and the entrepreneur has yet to be achieved.

FUTURE RESEARCH DIRECTIONS

Despite the imperfections, this approach of opportunity identification and schema theory provide a conceptual orientation for answering Shaver and Scott's (1991) core questions regarding the psychology of opportunity identification: how is the environment represented in the minds of entrepreneurs and non-entrepreneurs; and to what internal standards are market stimuli compared such that entrepreneurs identify or create market opportunities? In particular, schema theory highlights several key issues which must be addressed in answering these questions. First, it is important to consider the actor's motivation, which is more complex a matter than the simple presence or absence of external incentives. The actor is also influenced by personal motives such as the need for achievement, accountability to others, and so forth; these motives influence the actor's assessment of the relative importance of action versus accuracy for information processing. Secondly, it is important to understand which schema actors choose to activate for the episode. Certainly, schemas about the industry and business practices in general will be relevant. In addition, one would expect corporate managers to call upon schema pertaining to their organization's beliefs, values, and ways of interacting in the environment. What other schema do entrepreneurs activate? Do entrepreneurs activate a chronic schema? If so, what kind of chronic schema? Depending on which schemas are activated in the actor's memory, the actor may perceive and interpret stimuli differently from someone else engaged in the same situation. Decision theory suggests that the reference point encoded in the schema influences the interpretations an actor will attach to perceived stimuli. Finally, the actor's decision regarding the processing of ambiguous or inconsistent stimuli must be understood. It seems that a number of decisions must be made; that is whether to (a) ignore, discount or attend to it; (b) consider it an isolated element or part of a pattern; (c) judge the element positively or negatively; and (d) adjust one's schema by creating a subtype or doing something more radical.

Finally, as noted in the critique of Kirzner's framework of entrepreneurial alertness, a theory of the opportunity identification process needs to include the decision about the exploitation of the opportunity, which may or may not extend

as far as the creation of a new venture, which reflects the decision to become an entrepreneur. The analytical precision brought to the idea generation process needs to be applied to this area. In addition, research should at least question how entrepreneurs use the maximizing principles of rational choice during this phase. Certainly, psychological research regarding rational choice processes does not lend confidence to the economists' explanation of the process, although the research does not refute the maximizing principle itself.

This is an exciting and important time for those interested in examining the opportunity identification process. Cross-fertilization from knowledge gained from the study of social cognition points to several research streams that have the potential to elucidate the behavioral differences between entrepreneurs and other market actors.

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NOTES

1. Note that these kinds of perceptual and cognitive regroupings are consistent with Schumpeter's (1934) definition of entrepreneurship as regroupings of production factors.
2. For a quick review of the key issues, see Gartner (1988) and Shaver and Scott (1991).
3. This explanation is consistent with scholars advocating an evolutionary perspective in economics (e.g., Nelson & Winter, 1982) and especially with Elredge and Gould's (1972) hypothesis of "punctuated equilibriums" in the evolutionary process. It is also consistent with a population ecology approach in entrepreneurship (e.g., Aldrich, 1990; Greenfield & Strickon, 1986).
4. Ricketts (1992) notes that this blind spot raises an important theoretical problem regarding ownership and therefore reward. Who should receive the reward, the person who perceives the opportunity or the person who makes it happen? Kirzner (1992) argues that, in most cases, this is the same person. Anyone familiar with the history of American entrepreneurship knows that this is not a good assumption.
5. The belief that the essential entrepreneurial behavior is the offering of new cognitive structures has other supporters: Gardner's (1996) stories; Hill and Levenhagen's (1995) metaphors; Lavoie's (1991) interpretive frameworks; Choi's (1993) paradigms and Harper's (1996) hypotheses.
6. Tyszka (1994) asked respondents to rate 30 economic activities on several dimensions in order to identify the structure of people's schema about economic activities. He found four main dimensions: social comfort and prestige; newness of activity; efficiency; and immediacy of profit.

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