THE IMPACT OF ENTREPRENEURIAL EXPERIENCE ON OPPORTUNITY IDENTIFICATION AND EXPLOITATION: HABITUAL AND NOVICE ENTREPRENEURS

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ABSTRACT

Evidence suggests habitual entrepreneurs (i.e. those with prior business ownership experience) are a widespread phenomenon. Appreciation of the existence of multiple entrepreneurial acts gives rise to the need to examine differences between habitual and novice entrepreneurs (i.e. those with no prior business experience as a founder, inheritor or purchaser of a business). This paper synthesizes human capital and cognitive perspectives to highlight behavioral differences between habitual and novice entrepreneurs. Issues relating to opportunity identification and information search, opportunity exploitation and learning are discussed. Avenues for future research are highlighted.

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INTRODUCTION

Empirical studies in entrepreneurship have generally ignored the heterogeneity of entrepreneurs in their samples. In this chapter, we argue that there is a need to distinguish between entrepreneurs who have had no prior experience in entrepreneurship (novice entrepreneurs) and those who have been involved in entrepreneurship prior to their current venture (habitual entrepreneurs). MacMillan (1986) clearly distinguishes novice entrepreneurs from habitual entrepreneurs. He argues that novice entrepreneurs do not develop an experience curve with respect to the problems and processes involved in starting a new business. In contrast, habitual entrepreneurs have established many businesses, analyzed these efforts, and after several attempts have recognized their mistakes and at least partially corrected them in subsequent ventures. Ignoring the heterogeneity of entrepreneurs in this respect has led to an unduly static view of the entrepreneurial process, since evidence suggests that a significant proportion of businesses are owned by habitual entrepreneurs (Westhead & Wright, 1998). Furthermore, entrepreneurship is not restricted to the creation of new businesses. The exploitation of wealth creating opportunities may take the form of the purchase or the inheritance of a business (Cooper & Dunkelberg, 1986; Davidsson, Low & Wright, 2001; Shane & Venkataraman, 2000; Wright et al., 2000)[1]. Habitual entrepreneurs may therefore be defined to include individuals who have started, purchased or inherited more than one venture and novice entrepreneurs as those who have started, purchased or inherited one venture. The magnitude of habitual entrepreneurship is evident in the U.S. with figures ranging from 51% (Schollhammer, 1991) to 63% (Ronstadt, 1986). Outside the U.S., Kolvereid and Bullvåg (1993) found that 34% of surveyed entrepreneurs in their Norwegian sample were habitual entrepreneurs. Westhead and Wright (1998) reviewing existing studies reported figures ranging from 11.5 to 45.5% for the United Kingdom.

Despite the prevalence and significance of the phenomenon and a plea over a decade ago that to really understand entrepreneurship there was a need to research entrepreneurs who had undertaken more than one venture (MacMillan, 1986), there has been limited theoretical development, and systematic empirical examination of the habitual entrepreneurship phenomenon. In particular, there is a need to understand the impact of entrepreneurial experience on the critical entrepreneurial step of opportunity recognition (Hills, 1995; Shane & Venkataraman, 2000; Venkataraman, 1997).

To help fill this gap, we synthesise two complementary bodies of research, human capital and (entrepreneurial) cognition, and build a model that provides greater insights into the value and contribution of entrepreneurial experience to the opportunity identification and exploitation process. Traditional perspectives

on human capital suggest that experienced entrepreneurs would have higher levels of human capital endowments, which in turn will affect behavior in a positive way. Entrepreneurial cognition theory, which attempts to explain how entrepreneurs think, provides a tool for analyzing how human capital may be used in the entrepreneurial process (Baron, 1998; Busenitz & Barney, 1997; Busenitz & Lau, 1996; Manimala, 1992; Palich & Bagby, 1995; Smith et al., 1988). Integrating this body of research, this paper attempts to explain how novice and habitual entrepreneurs may differ in the way they identify opportunities. Further, building on attribution theories, the paper goes to explain why certain entrepreneurs will remain novices and why some will continue to exploit entrepreneurial opportunities and become habitual entrepreneurs.

This paper is structured as follows. The following section outlines the human capital and cognitive approaches to entrepreneurs. This is followed by the development of a model of opportunity identification and exploitation. The final section discusses the implications of the analysis, draws some conclusions and identifies areas for further research.

HUMAN CAPITAL AND THE ENTREPRENEUR

Human capital resources consist of achieved attributes, which are linked to increased levels of productivity (Becker, 1975). More recently, the term human capital has been broadened to include the cognitive abilities of entrepreneurs (Alvarez & Busenitz, 2001) as well as accumulated work and habits that may have a positive or negative effect on productivity, both in market and non-market sectors (Becker, 1993). An entrepreneur's human capital can impact the extent to which other resources, such as social and financial, can be accessed and leveraged. We now address the links between human capital, experience and cognition. First, we examine the role of entrepreneurial experience in building human capital. Second, we examine cognition as a component of an entrepreneur's human capital.

The Role of Entrepreneurial Experience in Building Human Capital

Education and work experience are the characteristics most often thought of in reference to human capital (Greene & Brown, 1997). Following Becker (1975) and Brüderl, Preisendorfer and Zeigler (1992), Cooper, Gimeno-Gascon and Woo (1994) focused on four categories of an entrepreneur's human capital: general human capital, management know-how; industry specific know-how and the ability

to acquire financial capital. Prior research highlights that human capital comprises a broad range of aspects: the owner-founder's achieved attributes (Becker, 1975), family background characteristics (Greene & Brown, 1997), reputation (Dollinger, 1998), attitudes and motivations (Birley & Westhead, 1990), gender, ethnic origin, industry specific know-how (Cooper, Gimeno-Gascon & Woo, 1994), competencies (Chandler & Jansen, 1992), age (Cressy & Storey, 1995), education and management experience (Cooper, 1981, 1985; Greene & Brown, 1997; Westhead, 1995). Entrepreneurs can develop their human capital over time which can then be utilized to gain access to a predictable uninterrupted supply of critical resources (Cooper, Gimeno-Gascon & Woo, 1994; Dahlqvist, Davidsson & Wiklund, 2000; Greene & Brown, 1997; Hart, Greene & Brush, 1997). The experiences, skills and competencies associated with the human capital resources of entrepreneurs are widely regarded as influencing organizational survival and development (Bates, 1998; Chandler & Hanks, 1994; Gimeno, Folta, Cooper & Woo, 1997; Mosakowski, 1993; Storey, 1994; Westhead, 1995). In general, studies reveal that successful businesses are associated with owner-founders who possess greater amounts of human capital. Entrepreneurs with more diverse levels of human capital are purported to have the ability to develop relevant skills and contacts, and are able to tap into dense information and resource networks.

Once an initial opportunity has been exploited, an entrepreneur may choose to engage in a subsequent venture. Managerial work experience is seen as a key empirical indicator of managerial human capital (Castanias & Helfat, 2001). Following a similar logic, entrepreneurial experience may be viewed as a significant contributor to an entrepreneur's human capital (Chandler & Hanks, 1998; Gimeno, Folta, Cooper & Woo, 1997; Stuart & Abetti, 1990). Previous business ownership experience may provide entrepreneurs with a variety of resources or assets that can be utilized in identifying and exploiting subsequent ventures, such as real entrepreneurial experience; additional managerial experience; an enhanced reputation; better access to finance institutions; and broader social and business networks. Indeed, the view that individuals accumulate resources over time has a long standing tradition in vocational and career theory.[2] The development of subsequent businesses owned by habitual entrepreneurs can therefore be enhanced by overcoming the liabilities of newness (Aldrich & Auster, 1986; Stinchcombe, 1965) and attaining developmental milestones quicker (Starr & Bygrave, 1991). Prior entrepreneurial experience can be utilized to enhance entrepreneurial skills and reputations that help to influence the reallocation of resources in subsequent ventures established, purchased or inherited (Shane & Khurana, 2003). Wright, Robbie and Ennew (1997b) showed that venture capitalists perceived certain assets of serial entrepreneurs (i.e. those habitual entrepreneurs who choose to

exit from their previous venture(s) before embarking on another one) that gave them greater credibility and leverage in obtaining financial resources for their subsequent ventures. Entrepreneurs with successful track records are generally perceived as being more credible. Most notably, some habitual entrepreneurs may leverage this experience to obtain financial resources for their subsequent ventures from banks, venture capitalists and informal investors. Entrepreneurs with successful track records in business are more credible and have more experience in dealing with the technical requirements generally requested by investors. Habitual entrepreneurs can lever this experience and obtain financial resources for their subsequent ventures from banks, venture capitalists and informal investors.

Habitual entrepreneurs who learn from their experiences can enrich their entrepreneurial skills. Getting through the ambiguity of one or more entrepreneurial situation gives them the confidence to find their way through another entrepreneurial experience. Hart, Greene and Brush (1997) found that both the depth (i.e. measured in years) and breadth (i.e. measured in number of ventures founded) of entrepreneurial experience were important contributors to success in garnering and maintaining access to resources. Conversely, Chandler and Jansen (1992) found that the number of ventures previously initiated, and the years spent as an owner-manager were not significantly related to the performance of the surveyed venture. Similarly, neither Kolvereid and Bullvag (1993), Birley and Westhead (1993) nor Westhead and Wright (1998, 1999) were able to identify performance differences between businesses founded by novice entrepreneurs and those founded by habitual entrepreneurs. This evidence supports the view that prior entrepreneurial experience is associated with assets (e.g. attaining developmental milestones quicker) and liabilities (e.g. hubris and denial). Nonetheless, prior entrepreneurial experience is likely to have a significant impact on subsequent ventures owned by the entrepreneur.

The assets and liabilities approach to experience, while useful, provides a somewhat static view of the contribution of entrepreneurial experience to an entrepreneur's human capital and subsequent behavior. This literature highlights the role of entrepreneurial experience ex post, that is as a product rather than a process. Further, it provides limited insight into why certain entrepreneurs will choose to engage in subsequent entrepreneurial activity while others will choose to stick with a single venture or exit the business. The next section extends this traditional view of human capital to incorporate entrepreneurial cognition. The cognitive perspective on human capital suggests that entrepreneurial behavior (i.e. the opportunity identification process) is significantly influenced by the way entrepreneurs think, perceive, and evaluate their environment and experiences.

Cognition as a Component of an Entrepreneur's Human Capital

An individual's human capital will impact their subsequent activities. Similarly, individual cognition will influence decision making and actions (Schwenk, 1986). Cognition and human capital are linked to the extent that an individual's mindset (i.e. cognition) is an important contributor to the development and deployment of human capital (Castanias & Helfat, 2001). There is a case therefore for taking a broader view of human capital to encompass both traditional components (e.g. skills and education) and cognitive components which in turn will determine how such skills and education are utilized.

Many researchers in the 1960s and 1970s attempted to better understand the entrepreneurial difference by examining a host of traits such as risk-taking and need for achievement, but unfortunately, those findings were largely disappointing (see Low & MacMillan, 1988 for a review). Though the adoption of a cognitive approach to explore the entrepreneurial difference is well-established[3] (cf. Jaques, 1976), recently an increasing amount of attention has be channelled into understanding how entrepreneurs think and make strategic decisions from a cognitive perspective (Baron, 1998; Busenitz & Barney, 1997; Forbes, 1999). If entrepreneurs do indeed have a unique mindset or orientation (Lumpkin & Dess, 1996), then given the strengths and weaknesses of this mindset in various competitive environments, it may be a potential source of competitive advantage (Barney, 1991).

Cognitive theory is concerned with how incoming sensory stimulation is "transformed, reduced, elaborated, recovered, and used" (Neisser, 1966, p. 4). Cognitive theorists view stimuli largely as information. Processed information is integrated into a "belief" that gives "meaning" to the external environment (Weiner, 1980). The essence of a cognitive model of behavior can be illustrated as follows:

Stimuli (i.e. information or event) → Mediating Cognitive Event → Behavior

The "mediating cognitive event" (Weiner, 1980) involves a set of cognitive processes such as information scanning and selection, information combination and, perception of causality. If cognitive processes are not carefully considered, an incorrect understanding of entrepreneurial behavior will be presented (Hitt & Tyler, 1991). In this study, we focus on two types of such processes. First, we examine heuristics which are central to the processing of information. Second, we examine attribution theory which explains individual perceptions of causality. A discussion of these two cognitive processes and associated biases is presented before moving on to examine how they can impact entrepreneurial behavior (i.e. opportunity identification and exploitation).

Cognitive Processes I: Heuristics

The cognition literature suggests there are two broad types of cognitive orientation. These are a systematic cognitive orientation (also referred to as conscious cognitive processing or rational information processing) and heuristic-based cognitive orientation (also referred to as automatic cognitive processing or limited capacity processing). Systematic processing (rational) models assume that people thoroughly process all relevant information in order to maximize a relevant outcome (Lord & Maher, 1990). Unfortunately, while this type of processing is optimal (i.e. accurate), it is slow (requiring time) and requires effort (requiring cognitive resources) (Kullik & Perry, 1994). Heuristic-based processing models focus on how individuals simplify information processing while still generating adequate but not optimal behaviors (Lord & Maher, 1990). The latter type of processing is easier (requiring less cognitive effort) and is more efficient (requiring less time) than systematic models.

Individual heuristics (and associated biases) can influence the strategic decisions made by individuals. An understanding of strategic decision making is incomplete without attention to these heuristics (Schwenk, 1986). Limited mental processing capacity requires people to indulge in strain-reducing activities (i.e. heuristics) when making strategic decisions, especially in complex situations where less complete or uncertain information is available. This has particular implications for entrepreneurs because they regularly find themselves in situations that tend to maximize the potential impact of various heuristics (Baron, 1998). Such heuristics and biases may include "anchoring and adjustment," "availability," and "overconfidence" which may result from "representativeness" (Bazerman, 1990; Hogarth, 1980; Powell, 1987; Tversky & Kahneman, 1974). Indeed, Katz (1992) demonstrates how the heuristics of availability, anchoring and adjustment and, representativeness can be used to model an individual's choice to become self-employed (as opposed to being a salaried employee).

The relevance of these heuristics (and biases) may be particularly strong in the context of entrepreneurship, as these cognitive processes can be an effective and efficient guide to strategic decision-making especially in complex situations where less complete or uncertain information is available. Entrepreneurial cognition is associated with the more extensive use of heuristics and individual beliefs that impact decision-making (Wright, Hoskisson, Busenitz & Dial, 2000). A more systematic decision-making style is typically associated with accountability, compensation schemes, the structural coordination of business activities across various units, and future developments are justified with quantifiable budgets. New insights are usually not obtained from existing data. Rather, they are identified from experience and interpreting new combinations of information via unique heuristic-based logic (Wright, Hoskisson, Busenitz & Dial, 2000).

In probing these cognitive processes, it is important to first understand the utility of such decision-making. Individuals engaging in entrepreneurship typically operate under the conditions of decision uncertainty and decision complexity (Hambrick & Crozier, 1985). Given the level of uncertainty they face, entrepreneurs frequently use heuristics to piece together limited information to make convincing decisions in the face of much turbulence (Busenitz & Barney, 1997). Without heuristic-based logic, the pursuit of new opportunities becomes too overwhelming and costly for those decision-makers who seek a more factual base. Without the elaborate policies, procedural routines and structural mechanisms common to established organizations, heuristics may have a great deal of utility in enabling entrepreneurs to make decisions that exploit brief windows of opportunity (Tversky & Kahneman, 1974).

Cognition is not homogeneous across individuals and a variety of cognitive styles, strategies and processes exist. The following bipolar continuum indexes, for example, have been presented to categorize individuals in terms of their cognitive style (where cognitive styles are enduring differences in cognitive structure and processes across individuals (Schneider & Angelmar, 1993): Kirton's (1976) adaptation-innovation inventory (KAI); Riding's (1991) wholist-analytical dimension; Allinson and Hayes's (1996) analytical-intuitive cognitive style index; Gavetti and Levinthal's (2000) looking forward-looking backward approach and; Gaglio and Katz (2001) non-alert and alert continuum. Groups of individuals at extremes of these continuums tend to be distinguished on the basis of the extent to which they thoroughly process all relevant information.

Recent research on entrepreneurial cognition indicates that entrepreneurs are more significantly influenced by heuristics in their decision-making than managers (Baron, 1998; Busenitz & Lau, 1996; Forbes, 1999). Entrepreneurial cognition studies (see Forbes, 1999, for a review) have tended to focus on entrepreneurs as a single group. However, a number of studies suggest that entrepreneurs are heterogeneous (Westhead & Wright, 1998; Woo, Cooper & Dunkelberg, 1991). It is possible, therefore, that entrepreneurs will differ with regard to their cognitive processes. As intimated above, cognition can be viewed as lying along a continuum. In this study, we distinguish between entrepreneurs who exhibit a strong reliance on entrepreneurial cognitive processes (i.e. heuristics and beliefs), and those that exhibit a weak to more moderate reliance on entrepreneurial cognitive processes. We refer to these two extremes as strong entrepreneurial cognition and weak entrepreneurial cognition respectively. The two polar extremes relating to the entrepreneurial processes continuum describe "different" rather than "better" thinking processes, though particular cognitive processes may be more appropriate in certain situations.

Cognitive processes can be utilized to differentiate novice entrepreneurs from habitual entrepreneurs. Both novice and habitual entrepreneurs will identify a business opportunity that is facilitated by their entrepreneurial cognitive processes. From the outset, habitual entrepreneurs are characterized as relying heavily on heuristics. Novice entrepreneurs exhibit an entrepreneurial orientation (i.e. tendency to use heuristics), but it is generally not as pronounced as the orientation exhibited by habitual entrepreneurs. Novice entrepreneurs embarking on a venture, possibly based on some innovation may be comfortable with seeing the business mature over time, as is consistent with their weaker entrepreneurial cognition[4]. On the other hand, a habitual entrepreneur will generally become very restless with an individual business, as it grows into the more mature phases, and the ambiguity diminishes. Indeed, arousal (activation) theory (Hebb, 1955) posits that individuals prefer and seek out "optimal levels" of stimulation, with the "optimal level" varying from individual to individual. A habitual entrepreneur's strong entrepreneurial cognition draws them towards more ambiguous and complex environments and information, in turn facilitating the identification of additional ventures.

The extent to which these two groups of entrepreneurs rely on heuristic-based cognitive processes may be crucial to the identification of opportunities and the nature of these opportunities. While an entrepreneurial cognitive orientation may be important in distinguishing habitual entrepreneurs from novice entrepreneurs, these two groups may also differ with regard to the way they attribute causality to events and outcomes. Attribution theory is a useful tool for understanding why certain entrepreneurs will move on to becoming habitual entrepreneurs while others will remain novice entrepreneurs.

Cognitive Processes II: Causal Attribution

The way previous entrepreneurial experiences are evaluated and interpreted may impact whether an individual becomes a habitual entrepreneur. If entrepreneurial experiences are seen as experiments, entrepreneurs should evaluate carefully and objectively the feedback from these experiences (Nystrom & Starbuck, 1984). Attribution theories, first developed by Heider (1958), suggest there may be a number of cognitive processes that influence how individuals evaluate and learn from their experiences. These theories assume that people are motivated to seek meaning in their own behavior and surrounding environment. Heider's (1958) model suggested that people attempt to enhance or protect their self-esteem by taking credit for success (internal attribution) and denying responsibility for failure by attributing this to external factors (external attribution). Weiner (1985) extended Heider's single internal-external dimension of causal attribution. He presented three dimensions of attribution: causal locus (internal or external cause); stability

(whether the cause is transient or not); and controllability (whether the cause can be controlled or influenced by the individual or not).

Individuals who reflexively make stable (the cause is going to last for a long time), global (it is going to undermine many areas of my life), and internal (it is my fault) explanations for unfavorable outcomes are more likely to give up and suffer learned helplessness (Seligman, 1975). The "learned helplessness" paradigm, which derives its origins from attribution theories states that individuals often possess the requisite skills and abilities to perform a particular task. However, some individuals may exhibit sub-optimal performance because they attribute prior failures to causes which they cannot change, even though success is possible (Abrahamson, Seligman & Teasdale, 1978; Martinko & Gardner, 1982). In contrast, those who seek external attribution view the cause of the problem as being transitory and narrow in its effects. As a result, such individuals will be more likely to see adversity as a challenge, transform problems into opportunities, endeavour to adapt/develop skills, maintain confidence, rebound quickly from setbacks and persist (Schulman, 1999). The term "learned optimism" has been used to describe this cognitive orientation. The concept of learned optimism is similar to the principle of reactance theory, which states that if one loses control, attempts are made by the individual to restore control (Brehm, 1966).

Applying the principles of attribution theory, Gatewood et al. (1995) have explored how the cognitive orientation of potential entrepreneurs will have a significant influence on their willingness to persist in entrepreneurial activity in the face of difficulties. They found that the attributional measures used in their study were effective in predicting both persistence in activities and persistence for success in business creation.

Both types of cognitive processes discussed above (i.e. heuristics and causal attribution) may be useful in understanding how entrepreneurs behave (the relationship between these cognitive processes and entrepreneurial behavior will be discussed later). There may, however, be appropriate and inappropriate uses of these cognitive processes (Nisbett & Ross, 1980). The extent to which these processes induce effective behavior, however, will be determined by learning.

Cognitive Processes, Bias and Learning

Experience provides a framework for processing information and allows informed and experienced entrepreneurs with diverse skills and competencies (i.e. networks, knowledge, etc.) to foresee and to take advantage of disequilibrium profit opportunities that they proactively or reactively identify (Kaish & Gilad, 1991). Based on an earlier learning experience, entrepreneurs can use their acquired

skills and knowledge to identify a business opportunity or to leverage resources. For example, they can utilize experience gained from structuring deals to secure finance from a venture capitalist (Wright et al., 1997a, b). The value of resources and skills acquired through prior business ownership experience is, in part, dependent on the ability of experienced entrepreneurs to learn from their previous experience.

Cognitive processes may influence the extent and nature of learning. Central to most models of learning is achieving new understanding and interpretations (Daft & Weick, 1984). Higher-level learning involves the formation and use of heuristics to generate new insights into solving ambiguous problems (Lei, Hitt & Betis, 1996). Conversely, lower-level learning tends to be associated with repetitious observations and routinized learning. Consistent with the notion of single-loop learning, lower-level learning is associated with few changes in underlying policies or values (Argyris & Schön, 1978). Gavetti and Levinthal (2000) characterize cognitive processes ("off-line" thinking) as being forward-looking and based on individual beliefs and mental models of how the world works. These mental models often provide linkages between choices and the potential impact of those choices. Entrepreneurs who rely extensively on heuristics may therefore be more likely to generate new insights as a result of making such linkages. This in turn can induce and reinforce the use of higher-level learning.

Cognitive processes are difficult to change, especially if an entrepreneur has been previously successful (Busenitz & Barney, 1997). Whether or not the initial venture can be interpreted as a success or a failure may impact on the learning and subsequent behavior of entrepreneurs. Success is frequently sought, while failure is avoided (McGrath, 1999). Individuals may be forced to evaluate their thinking and behavior when faced with failure (Sitkin, 1992). In contrast, there may be minimal incentive to evaluate or reconsider thinking patterns or behaviors if success is the outcome (irrespective of the causes of that success). Indeed, attribution theories (Heider, 1958) suggest that individuals have a tendency to attribute their successes to themselves (internal attribution) and failure to external factors (external attribution). The ability of entrepreneurs to objectively reflect on and evaluate their experiences (whether they are successes or failures) may be critical in determining their future performance.

Hence, while cognitive processes may be a source of sustained competitive advantage they may limit the ability of some entrepreneurs to adapt in response to changing/different market and technological conditions. In some cases, however, habitual entrepreneurs may effectively reflect and evaluate their experiences and develop expertise. Habitual entrepreneurs may develop expertise in various stages of the entrepreneurial process, such as opportunity recognition or resource acquisition. On the other hand, heuristics and biases

may influence ones perception of uncertainty and complexity. As intimated earlier, there is an obvious danger that habitual entrepreneurs operating in the same sector as their previous venture may attempt to replicate actions that were previously successful (i.e. hubris). If experienced entrepreneurs are not aware of (or fail to respond to) changing external environmental conditions, there is a risk that habitual entrepreneurs may make serious mistakes when operating their subsequent ventures.

Individuals generally adjust their judgment by learning from feedback about past decisions (Bazerman, 1990). Due to delays or bias in this feedback, individuals may be prone to errors in their learning. Even experienced decision-makers do not always know why and how they do what they do. Due to this problem, some entrepreneurs may exhibit basic judgmental biases that are unlikely to be corrected in the real world (Tversky & Kahneman, 1986). Nisbett and Ross (1980) argue that an indiscriminate use of heuristics can lead people into serious judgmental errors. However, they insist that in many contexts, heuristics can be helpful and efficient tools of inference. They argue that the normative status of using heuristics, and the pragmatic utility of using them, will depend on the judgmental domain and context. Louis and Sutton (1991) argue that individual effectiveness is not determined by how well an individual functions in a particular cognitive mode. Rather, individuals who are able to "switch cognitive gears" are likely to be more effective in a given domain.

Northcraft and Neale (1987) found that even experienced decision-makers tended to be very biased. Further, while most "effective decision-makers" are effective in a specific domain, experience without expertise can be quite dangerous when it is transferred to a different context or when the environment changes (Dawes, 1988). Neale and Northcraft (1989) have argued that the development of expertise could eliminate or mitigate biased decision making. They view experience simply as repeated feedback, while expertise requires that the decision-makers have a conceptual understanding of what constitutes a rational decision-making process. Developing expertise requires constant monitoring and awareness of the decision-making processes. Consequently, individuals who know what they are doing and why, and those who have learnt from previous events (i.e. failures and successes) generally avoid decision-making biases (e.g. over-confidence and insufficient adjustments resulting in the repetition of past errors).

In order to understand the impact cognitive processes have on entrepreneurial behavior, the following section uses the above dynamic human capital perspective to developed a model of how opportunities are identified by novice and habitual entrepreneurs and why certain novice entrepreneurs go on to become habitual entrepreneurs.

THE USE OF HUMAN CAPITAL IN THE ENTREPRENEURIAL PROCESS: OPPORTUNITY IDENTIFICATION AND EXPLOITATION

One of the fundamental reasons for the fascination with entrepreneurs and the inventions that they develop seems to center around why and how they see new opportunities. An entrepreneurial opportunity invariably involves the development of some new idea that most others overlook. In the context of environmental change, those with an entrepreneurial cognitive orientation (i.e. extensive use of heuristics) often see new opportunities where most others are concerned with protecting themselves from emerging threats and changes. Very few studies have focused upon opportunity recognition and information search processes exhibited by different types of entrepreneurs (Alsos & Kolvereid, 1999). While stocks of information create mental schemas providing a framework for recognizing new information, opportunity recognition and information search by entrepreneurs may be a function of an individual's capacity to handle complex information (Venkataraman, 1997). Venkataraman (1997) draws attention to three main areas of difference between individuals that may help understanding of why certain individuals recognize opportunities while others do not: knowledge (and information) differences; cognitive differences; and behavioral differences. "Why," "when" and "how" certain individuals exploit opportunities appears to be a function of the joint characteristics of the opportunity and the nature of the individual (Shane & Venkataraman, 2000). This section explains differences between novice and habitual entrepreneurs with respect to two stages of the entrepreneurial process: opportunity identification and the exploitation of opportunities.

Opportunity Identification

The possession of idiosyncratic information allows people to see particular opportunities that others cannot, even if they are not actively searching for such opportunities (Shane, 2000). However, simply being in possession of valuable information is insufficient for entrepreneurship. The ability to make the connection between specific knowledge and a commercial opportunity requires a set of skills, aptitudes, insights, and circumstances that are neither uniformly nor widely distributed (Venkataraman, 1997). It follows, therefore, that the extent to which individuals recognize opportunities and search for relevant information to evaluate the opportunity will depend on the make-up of the various dimensions/aspects of an individual's human capital.

Two broad perspectives relating to opportunity and search behavior have been identified (Kaish & Gilad, 1991; Woo, Folta & Cooper, 1992). The first perspective, based on neo-classical economic theory, takes a "conscious search perspective" in which information search is a means of optimizing performance (Caplan, 1999; Stigler, 1961). Entrepreneurs are assumed to know a priori where the invention/innovation needs to be made and can accurately weight the cost and benefits of acquiring new information. Entrepreneurs may invest in specific information surrounding a targeted invention enabling them to be in a better position to discover the new opportunities (Fiet, 1996).

The second perspective, based on Kirzner's (1973) work relating to "entrepreneurial alertness," suggests that the opportunities cannot be accurately modelled as a rational search process, since opportunities are unknown until discovered (Kaish & Gilad, 1991). The focus therefore should be on the process side of discovery. Entrepreneurial alertness refers to "flashes of superior insight" that enable one to recognize an opportunity when it presents itself (Kirzner, 1997). Entrepreneurial alertness involves a distinctive set of perceptual and cognitive processing skills that direct the opportunity identification process (Gaglio & Katz, 2001).

In assuming that both the search for information and the process involved are important, we argue here that an entrepreneurial cognition perspective enables us to extend models of opportunity identification. Entrepreneurial cognition enables one to build on specific information to make new leaps in the development of new discoveries and inventions. It is apparent that, although all information cannot be codified and explicitly stated, entrepreneurs have a deep sense of the relevant inter-relationships between what appears to be superficial and unnecessary information. Building on these deeper understandings, entrepreneurs often quickly develop new hunches about how a new variable such as another technological breakthrough or an environmental change will impact a specific project long before it can be methodically and rationally explained. These hunches can be viewed in terms of mental schemas (the cumulative experience, learning and meanings an individual has encountered and constructed about a specific domain) that provide a framework for recognizing and evaluating information relevant to an opportunity (Gaglio, 1997).

The introduction of several new signals and bits of information may indicate that a change is starting to occur. Combining these bits of information with a heuristic-based logic may prompt an entrepreneur to conclude that an important opportunity resides here. To invest in more complete information will require cost and further delay the development of the discovery process for two reasons. First, given the very limited resources that entrepreneurs typically possess, investing in substantial amounts of information is rarely possible. Second, obtaining the

critical information will probably require considerable amounts of time, further delaying the discovery process. If new opportunities are not pursued until relatively complete information is obtained, the window of opportunity for the new invention is likely to be closed.

Heuristic-based logic also has relevance for entrepreneurial discovery that goes beyond the practical economics of investments in substantial amounts of information. The decision-making literature has typically approached heuristic issues as a phenomenon that needs to be corrected (e.g. Schwenk, 1986; Zajac & Bazerman, 1991). However, as already indicated, there is an emerging thought that there may be some positive implications to their use (Krabuanrat & Phelps, 1998; Wright et al., 2000). As intimated in the previous section, habitual entrepreneurs can be distinguished from novice entrepreneurs with respect to their more extensive reliance on cognitive processes (i.e. heuristics). This cognitive approach allows individuals to make inferences and envisage cause-effect relationships even though they may not be individually experienced (Gavetti & Levinthal, 2000). Applied to the entrepreneurial context, we may expect the strength of entrepreneurial cognition (i.e. reliance on heuristics) to influence the opportunity identification process. We examine several aspects of opportunity identification: the search for information, the quantity of opportunities identified in a given period and the nature and value of the opportunities identified.

The Search for Information

The amount and nature of information sought (Kaish & Gilad, 1991) can be influenced by the extent to which an entrepreneur relies on entrepreneurial cognitive processes (i.e. heuristics). A strong reliance on heuristics can enable an individual to build on specific information to make new leaps in the identification and development of opportunities. A strong entrepreneurial cognitive orientation may result in the individual feeling less need to collect relevant information. This is because cognitive approaches (Gavetti & Levinthal, 2000) allow the individual to envisage the outcome of a particular opportunity without actually having to exploit it and hence bear the associated risks and costs. Habitual entrepreneurs, who we have argued display a strong reliance on entrepreneurial cognitive processes, might therefore require less information to identify an opportunity than their novice counterparts. Indeed, both empirical and conceptual work suggests that this may be the case. Cooper et al. (1995) found that on average, habitual entrepreneurs sought less information than novice entrepreneurs. McGrath and MacMillan (2000) suggest that habitual entrepreneurs avoid "analyzing ideas to death" and may therefore avoid deliberate, time-consuming and analytically correct models. Fiet et al. (2000) suggest that habitual entrepreneurs may search for less information because they may be more likely to concentrate on searching within a more

specific domain of venture ideas based on routines that worked well in the past. Ronstadt's (1988) "corridor principle" suggests that the best new venture opportunities may only be revealed when the entrepreneur is involved in a venture since greater information becomes available about relevant networks, resources, markets and products. Finally, evidence from other fields suggests that when faced with an ill-structured problem, individuals with high levels of knowledge will attempt to add structure by making inferences and drawing on existing knowledge (Simon, 1973). On the basis on this discussion, the following proposition can be derived:

P1. Habitual entrepreneurs will search for less information in the opportunity identification process than their novice counterparts.

The Quantity of Opportunities Identified

While habitual entrepreneurs may search for less information relative to their novice counterparts, this does not necessarily mean that they identify fewer opportunities. Indeed, due to their extensive use of heuristics, habitual entrepreneurs may be able to make more efficient use of information. Gaglio and Katz (2001) propose the possibility of entrepreneurial alertness falling along a continuum. Due to their cognitive orientation and experientially acquired human capital, habitual entrepreneurs may be at the alert end of the spectrum.

Gaglio (1997) has argued that some people habitually activate a schema[5] regardless of its appropriateness to the moment. Such "chronic activators" have an added sensitivity to the features stored in their schema such that they can notice it in unambiguous situations and notice it in the midst of an otherwise overwhelming amount of stimuli. Hence, entrepreneurs (or certain groups of entrepreneurs) may be characterized by their "habitual" schema activation, which would explain how alertness might be uncontrollable as Kirzner (1973) claims. We would expect habitual entrepreneurs to display a tendency towards habitual schema activation. Further supporting this tendency is the possibility of some individuals having a higher "optimal level" of stimulation as posited by activation theory (Hebb, 1955). In addition, some habitual entrepreneurs may have accumulated financial resources which they may want to channel into a subsequent venture. The availability of these funds may make them more "alert" to opportunities and increase their tendency to unify and connect what otherwise appear to be superficially disparate information. This discussion suggests the following proposition:

P2. In a given period, habitual entrepreneurs will identify a greater number of opportunities than their novice counterparts.

Quality of Opportunities Identified

When an individual broadens the domain of their search, s/he may increase the likelihood of identifying a valuable business opportunity. Habitual entrepreneurs who have a stronger reliance on entrepreneurial cognitive processes, may be able to use their heuristics to identify opportunities in domain they have no prior experience. Wright et al. (1997a, b) noted, however, that some habitual entrepreneurs move into domains in which they have limited knowledge while trying to replicate successful practices used in a familiar domain. It may be beneficial, therefore, if the entrepreneur's previous investments and repertoire of routines (i.e. history) constrain his/her future behavior. Indeed, Shane (2000) argues that knowledge in a particular market is crucial in identifying opportunities in that area. Gavetti and Levinthal (2000) posit that intelligent action is driven both by cognitive and experiential influences. Cognitive search is broad in that it considers numerous alternatives simultaneously whereas experiential search is narrow since it is limited by the number of experiences one can have in a given period. On the other hand, cognitive search can be misspecified while experiential search tests the alternatives on the basis of the actual environment rather than a mere representation of the environment (Gavetti & Levinthal, 2000). Previous entrepreneurial experience may reduce the likelihood of an entrepreneur moving into unfamiliar territory where they may be at a relative disadvantage to incumbents. Habitual entrepreneurs may have a unique advantage in that they can combine experiential search with cognitive search. For habitual entrepreneurs, their human capital comprising of experientially acquired knowledge and their cognitive orientation may be critical in identifying and taking advantage of valuable dis-equilibrium profit opportunities (Kaish & Gilad, 1991). Novice entrepreneurs who have a relatively weak reliance on entrepreneurial cognitive processes and who have had no prior experience in entrepreneurship, may therefore be at a disadvantage when it comes to evaluating the quality of an opportunity. We therefore propose the following:

P3. Habitual entrepreneurs will be more effective in identifying valuable opportunities than their novice counterparts.

Opportunity Exploitation

While existing research on entrepreneurial cognition may explain how entrepreneurs identify opportunities and how there may be differences between habitual and novice entrepreneurs in this respect, minimal attention has been paid to why opportunities are exploited once they are identified. The use of

heuristic-based thinking may also have implications for the exploitation of opportunities. Heuristic-based thinking may allow individuals to overcome barriers more effectively. For example, the representativeness heuristic can enable decisions to be made without having complete information. Since the execution of an entrepreneurial idea often takes place in an uncertain environment, the representativeness heuristic may be critical to enable the entrepreneur to move forward. Similarly, the over-confidence heuristic may also encourage the entrepreneur to make the transition from opportunity identification to opportunity exploitation. The heuristic dimension of entrepreneurial cognition does not, however, explicitly explain why certain entrepreneurs may choose to become habitual entrepreneurs.

Building on these theories of attribution and learned helplessness, we develop a simplified model that theoretically predicts whether or not an entrepreneur will remain as a novice entrepreneur (or indeed exit from the entrepreneurial career) or continue entrepreneurial activity to become a habitual entrepreneur. Once the entrepreneur has exploited his/her initial entrepreneurial opportunity, he/she will at some point evaluate the venture with respect to its performance. Based on the entrepreneur's mode of causal attribution we may anticipate the effects on the individual's entrepreneurial career. Figure 1 provides an overview

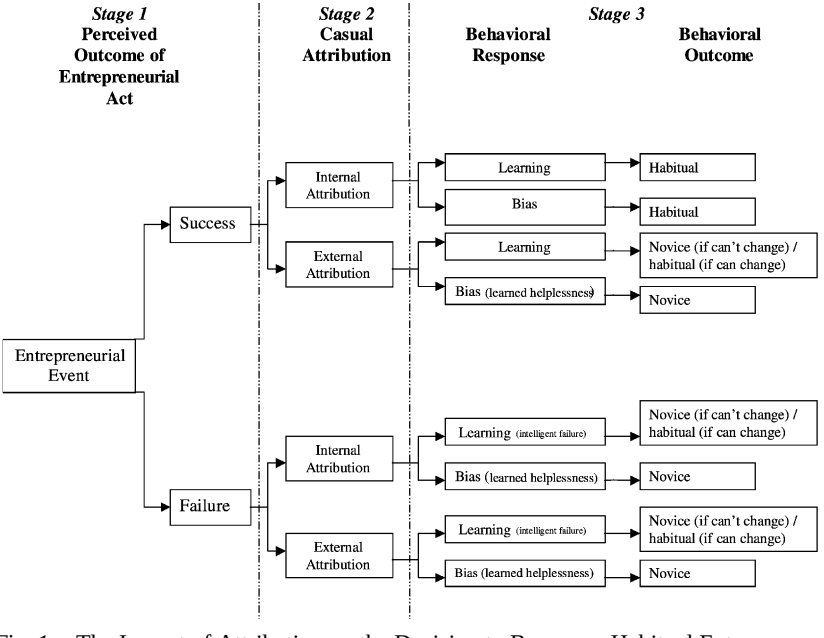

Fig. 1. The Impact of Attribution on the Decision to Become a Habitual Entrepreneur.

of the model. The model highlights several stages involved in the decision whether or not to become a habitual entrepreneur. The first stage involves identifying the perceived outcome of the entrepreneurial venture and determining whether it is a success or a failure. The second stage involves interpretation of the outcome and identification of the causes of the success or failure (causal attribution). The third stage relates to the behavioural response and outcome. Individuals will persist in an activity if they attribute the reasons for their success to internal, stable, and intentional factors while attributing their failures to external, variable, or accidental factors (Gatewood et al., 1995). Having attributed the outcome to a particular set of causes, however, the entrepreneur may respond proactively (through further evaluation and learning) or reactively (subject to bias). Finally, the entrepreneur will make a decision as to whether he/she will continue entrepreneurial activity to become a habitual entrepreneur or remain a one-time (novice) entrepreneur. These various stages are discussed below.

Stage 1: Perceived Outcome of Entrepreneurial Act

Following exploitation of an initial entrepreneurial opportunity, the entrepreneurs will at some point evaluate the venture with respect to its performance. This performance may be evaluated in numerous ways. For those who initiated the venture primarily motivated by financial reward for example, the venture's success may be valued in terms of financial performance indicators. Some entrepreneurs may be motivated by other criteria and hence may, for example, evaluate the venture in terms of personal satisfaction. McGrath (1999) defines failure as the termination of an initiative that has fallen short of its goals. Gimeno, Folta, Cooper and Woo (1997) presented a model in which the decision to terminate a venture depends on an entrepreneur's own threshold of performance which is determined by human capital characteristics such as alternative employment opportunities, psychic income from entrepreneurship and the switching costs involved in moving to alternative occupations. Irrespective of how it is measured, however, the entrepreneur will decide whether the venture is to be deemed a success or a failure. The entrepreneur will then attribute this success or failure to various internal or external factors.

Stage 2: Causal Attribution

As intimated above, individuals may attribute different causes to a particular outcome, which may in turn influence their subsequent behavior. The success or failure of the venture may be attributed to internal causes (e.g. skills and intelligence) or external causes (e.g. market conditions, regulatory changes) (Zacharakis et al., 1999). Internal attributions may be associated with individual

ability or effort, while external attributions are associated with task difficulty or luck (Heider, 1958). Once a causal attribution has been sought and identified, the entrepreneur may consciously or subconsciously respond in a number of ways. Indeed, the term explanatory style has been used to explain how individuals will explain success and in particular failure (Abrahamson, Seligman & Teasdale, 1978). These explanatory styles and their impact on subsequent behavior are discussed below.

Stages 3: Behavioral Responses and Outcomes

Attribution of Success: If the entrepreneur attributes their success to internal causes, we propose that there may be two behavioral responses. Firstly, the entrepreneur may not truly evaluate the causes of the success and may do so due to self-serving bias or overconfidence. In turn, the entrepreneur may not objectively evaluate the experience and identify lessons to be learned from that experience. The perception of success may have positive and negative elements. Sitkin (1992) argues that success may be helpful in a number of ways – the rewards of success may stimulate confidence and persistence, increase the coordinated pursuit of common goals and enhance efficiency. Success is thought to stimulate persistence not simply because individuals are rewarded for success, but also because it provides a secure and stable basis for launching future activity (Weick, 1984). Sitkin (1992) also argues, however, that a number of liabilities may be associated with success, which may take the form of complacency, restricted search and attention, risk-aversion and homogeneity. If an entrepreneur does not objectively evaluate their success therefore, he/she may be prone to these liabilities. While they may wish to replicate their success, they may find themselves sticking with their winning "formula" even though the circumstances may have changed (what Sitkin, 1992, refers to as "homogeneity"). These liabilities may be particularly apparent when the entrepreneur relies on and is unable to switch out of heuristic-based thinking.

On the other hand, if the entrepreneur is objective about the experience and attempts to learn from it, he/she may further evaluate the cause of success. As discussed earlier, attribution theorists suggest that decisions subsequent to the causal attribution may be influenced by additional characteristics of the cause – such as stability and controllability. If the entrepreneur identified the cause of success as being unstable, he/she may be reluctant to repeat entrepreneurial activity. Alternatively, if the entrepreneur feels he/she has significant control over the cause, they may choose to continue entrepreneurship. In contrast to the concept of learned helplessness, individuals susceptible to learned optimism (Schulman, 1999) may be more likely to view causes as controllable and unstable (this is in contrast to learned helplessness when causes, particularly negative ones, are seen as stable and uncontrollable).

Where causes of success are attributed to external factors, we may expect differing behavioral responses depending on the extent to which the entrepreneur objectively evaluates the experience. If the success is considered to be due to an external factor and the entrepreneur displays patterns of behavior resembling learned helplessness, as highlighted above, they may feel they have no control over the cause. Faced with the belief of lack of control, the entrepreneur may be reluctant to repeat entrepreneurial activity in fear that the external causes may not be present a second time round. In cases where the entrepreneur displays learned optimism and conscious learning, however, the response may be different. If the entrepreneur views the cause as being unstable but controllable, the entrepreneur may choose to continue entrepreneurial activity. On the other hand, if the entrepreneur identifies the cause of success as being due to unstable and uncontrollable factors, then he/she may choose not to pursue a second venture.

The differing causal attributions of success lead to an array of behavioral outcomes. Therefore, the following propositions are derived:

P4. Those novice entrepreneurs who attribute their success to internal factors will become habitual entrepreneurs.

P5a. Those novice entrepreneurs who attribute their success to external factors and who are susceptible to learned helplessness will remain novice entrepreneurs.

P5b. Those novice entrepreneurs who attribute their success to external factors and who are able to clearly evaluate and learn from their experience will either;

(i) remain a novice entrepreneur if they perceive to have no control over the cause or;
(ii) become a habitual entrepreneur if they perceive to have control of the external cause.

Attribution of Failure: Attribution theories have been most commonly applied to negative outcome situations. Faced with a particular negative outcome, once again we may expect entrepreneurs to vary in terms of their explanatory styles. If the entrepreneur attributes the cause of failure to internal factors and is susceptible to learned helplessness they are unlikely to engage in a subsequent venture and in most cases will choose to exit from the initial venture. We may anticipate a similar response even if the locus of the cause is external. If, however, the entrepreneur is not subject to learned helplessness and is able to objectively evaluate the venture, he/she may choose one of two options. In the event that the entrepreneur identifies the cause as being unstable and controllable (such as lack of skills), he/she may choose to do something about this cause (e.g. attend training courses, bring in a

partner). Indeed, Sitkin (1992) argues that failure represents a "clear signal" that facilitates the recognition and interpretation of otherwise ambiguous outcomes. Further, with failure, old ways of thinking and acting may be shaken and new ways may be developed (Louis & Sutton, 1991). In contrast, however, the cause of failure may be viewed as being stable and uncontrollable, in which case the objective entrepreneur is unlikely to engage in subsequent entrepreneurial activity. We may expect a similar response if the cause is attributed to external factors. Entrepreneurs susceptible to learned optimism (Schulman, 1999) and hence persistence that attribute the cause of failure to external factors may hold the view that a change in the external environment could allow them to succeed the second time round.

The above discussion suggests that:

P6a. Those novice entrepreneurs who attribute their failure to internal causes and who are susceptible to learned helplessness will remain novice entrepreneurs.

P6b. Those novice entrepreneurs who attribute their failure to internal factors and who are able to clearly evaluate and learn from their experience will either;

(i) remain a novice entrepreneur if they perceive to have no control over the internal cause or;
(ii) become a habitual entrepreneur if they perceive to have control over the internal cause.

P7a. Those novice entrepreneurs who attribute their failure to external causes and who are susceptible to learned helplessness will remain novice entrepreneurs.

P7b. Those novice entrepreneurs who attribute their failure to external factors and who are able to clearly evaluate and learn from their experience will either;

(i) remain a novice entrepreneur if they perceive to have no control over the external cause or;
(ii) become a habitual entrepreneur is they perceive to have control of the external cause.

The above discussion suggests that entrepreneurs, faced with a particular outcome will behave differently in their decision to pursue an entrepreneurial career. These differences can be explained by the attribution and learning styles adopted by the entrepreneur. Those entrepreneurs who decide to subsequently become habitual entrepreneurs will do so by identifying further entrepreneurial opportunities. To do so, the entrepreneur may rely on heuristics and their mental schemas discussed in the previous section. Experience may have a significant contributory influence

on the identification of subsequent venture ideas. This may take various forms such as broadening the entrepreneur's mental schema (since this is influenced by experience and accumulated knowledge). Further, there is evidence to suggest that due to their track record, habitual entrepreneurs may also find themselves in a situation where an opportunity is brought to them (Wright et al., 1997a, b).

DISCUSSION AND CONCLUSIONS

In this study, we have synthesized a human capital and cognition perspective to explain the emergence of different types of entrepreneurs. The study defines human capital in a broad sense to incorporate the cognitive styles utilized by entrepreneurs. Entrepreneurial experience is often considered an important component of an entrepreneur's human capital and hence subsequent activities. The extent to which entrepreneurs can translate previous ownership experience into higher subsequent entrepreneurial (and organizational) performance is likely to depend on a number of intangible considerations such as cognition and learning. It is suggested that entrepreneurs may adopt different cognitive approaches when interpreting events and making decisions.

Two broad categories of cognition have been highlighted: heuristic-based (i.e. automatic) thinking and systematic (i.e. rational) thinking. Entrepreneurial cognition is often associated with heuristic-based thinking. While heuristic based thinking has its merits, particularly under conditions of uncertainty it may lead to a number of errors and biases in decision-making, such as over-confidence and representativeness. Systematic thinking can overcome some of these biases. It can, however, often be timely and costly. Further, heuristic-based thinking can facilitate the identification and exploitation of entrepreneurial opportunities. Habitual entrepreneurs, as a result of their strong entrepreneurial cognition may be particularly effective in the identification of entrepreneurial opportunities. Based on their entrepreneurial cognition, we proposed that habitual entrepreneurs would search for less information but would identify a greater number of opportunities in a given period. Further, it was argued that habitual entrepreneurs would be more likely to identify opportunities of superior quality.

While entrepreneurial cognition may explain an entrepreneur's tendency to identify opportunities, it does not explicitly explain why certain entrepreneurs embark on subsequent ventures while others do not. The cognitive and learning strategies utilized to evaluate and learn from experiences may influence the decision of an entrepreneur to become a habitual entrepreneur. Drawing on attribution theory, we explain why certain entrepreneurs will select continued entrepreneurship (i.e. habitual entrepreneurship) while others will choose to remain one-time

entrepreneurs. Attribution theory was used to explain the tendency to exploit opportunities. Our analysis highlights that causal attribution itself is subject to potential bias. For example, an entrepreneurs who was successful the first time round may attribute this success to his/her own ability, when in fact external factors may have had a crucial role in the success. Failure to acknowledge this may have a negative effect on subsequent ventures, if the entrepreneur is susceptible to overconfidence.

The impact of experience per se on overcoming the problems associated with biases and heuristics is debatable. Bazerman (1990) suggested that experienced decision-makers may not explicitly know why and how they do what they do. If experience is not truly evaluated, it becomes simple feedback that is interpreted with limited awareness. Some entrepreneurs may reflect and consciously evaluate their previous business ownership experiences whilst others do not. If experience is translated into expertise, decision-makers have a conceptual understanding of what constitutes a rational decision-making process. Most notably, it can be used to avoid biases. Further, expertise may facilitate the switching of cognitive gears (Louis & Sutton, 1991) from heuristic-based thinking to systematic thinking where appropriate.

Our analysis suggests several areas for future research. Since entrepreneurs may be seen as "idiosyncratic" and "path-dependent" units under the human capital perspective, there is scope for understanding this heterogeneity. Exploring entrepreneurs as a complex set of resources and capabilities is likely to aid our understanding of entrepreneurship. Most notably, the approach is likely to be of great use in understanding which path entrepreneurs take (i.e. strategies) and how this will affect their performance. This chapter has attempted to highlight that while human capital is crucial in determining the viability and nature of the entrepreneurial act, it may serve as a barrier if the individual experience biases his/her thinking and learning. Furthermore, depending on the environmental conditions faced by entrepreneurs, human capital may erode over time or with changing circumstances. The entrepreneur must, therefore, develop the necessary skills, resources and capabilities to renew their human capital base in order to maintain/obtain a sustained competitive advantage. While this may be relevant for entrepreneurs generally, in terms of venture survival, it may also be important in the context of habitual entrepreneurship where the entrepreneur may be carrying out a subsequent entrepreneurial act. Additional entrepreneur-level as well as firm-level studies are required to explore the relationship between entrepreneurial human capital (and its development and deployment) and the competitive strategies pursued by different types of entrepreneurs and organizations.

Additional research is also warranted focusing on how entrepreneurs learn and how they use their experience-based knowledge. In order to take advantage of

the efficiency benefits that heuristic-based thinking can offer, it may be important to understand how entrepreneurs can (and should) switch from one mode of thinking to the other. An appreciation of these issues is likely to require in-depth exploratory qualitative research. Also, there is a need to explore the extent to which entrepreneurs adopt heuristic based information processing or systematic information processing with regard to the entrepreneurial process. There is, therefore, a need to examine the link between the extent to which entrepreneurs adapt (or learn) from their previous entrepreneurial experience. Studies suggest that even in the learning process, entrepreneurs may be prone to biases (e.g. attribution bias).

There is evidence to suggest that individuals can be taught to overcome various decision-making biases with the potential for improving subsequent performance (Koriat & Goldsmith, 1996; Strack & Hannover, 1996). High levels of deliberate practice, associated with informative feedback, opportunities for repetition and opportunities for correction of errors, may increase an individual's awareness, and may induce non-biased learning (Ericsson, Krampe & Tesch-Romer, 1993). Further, there may be broader benefits to society as a result of developing expertise. Knowledge may be easier to transfer, whereas "mindless" learning from experience is difficult to communicate (Bazerman, 1990). Where heuristic-based thinking is used, such "mindless" learning may be commonplace.

An understanding of habitual entrepreneurs compared with novice entrepreneurs has implications for the investment behavior of financial institutions and for policy-makers and practitioners providing support for entrepreneurship and economic development. From a policy perspective therefore, there may be scope for assisting entrepreneurs in overcoming detrimental biases and barriers to subsequent success. To encourage best practice, the resources (such as skills, competencies, networks, etc.) accumulated and leveraged by successful habitual entrepreneurs need to be identified and disseminated. As intimated earlier, unless it is understood how and why entrepreneurs behave the way they do, the transfer of knowledge is prohibited. In order to address this research gap, studies conducted in a variety of industrial, locational, national and cultural settings need to carefully examine the human capital and cognitive processes of habitual entrepreneurs compared with novice entrepreneurs and their implications for opportunity recognition, information search, opportunity exploitation and ultimately entrepreneurial performance.

In order to examine, in particular the cognitive dimension of human capital, researchers can draw upon existing studies from psychology, management and entrepreneurship. Measures are already available that operationalize various aspects of entrepreneurial cognition, in particular in the area of biases and heuristics (Forbes, 1999). Further, a number of learning inventories have been developed to distinguish individuals on the basis of their learning preferences and styles (e.g. Kolb, 1984). Entrepreneurial experience should be captured not

just in terms of whether the entrepreneur has prior entrepreneurial experience but in terms of the magnitude and nature of the experience. Stuart and Abetti (1990) detected that their composite measure of entrepreneurial experience (measured in terms of the number of previous ventures and the role played in them) was the only factor that significantly explained variations in the selected performance indicators. In distinguishing experience from expertise, expert information processing theory can provide insight into how experts think and behave. In addition, an examination of the literature on meta-cognitive knowledge (i.e. knowledge about an individual's cognitive processing, including awareness of thinking resources and capabilities, culminating in the ability to direct the learning process (Metcalfe & Shimamura, 1994; Nelson, 1992)) may prove useful in distinguishing expertise from simple feedback experience provides.

A variety of techniques can be used to measure the dimensions of opportunity identification and exploitation discussed in this study. Numerous measures have been used to examine the sources and intensity of information search (Cooper, Folta & Woo, 1995; Kaish & Gilad, 1991). In evaluating the quality of an opportunity, a selection of measures may need to be used. Fiet and Migliore (2001) use a panel to rank ideas using four criteria from the resource and competence literatures that reflect the capacity necessary to generate a sustainable competitive advantage and above average earnings. Using a panel of experts ranging from academics, expert entrepreneurs and financiers, it may be possible to identify a list of attributes associated with a valuable opportunity. Chandler and Hanks (1994) use a six-item scale to measure the quality of an opportunity. The nature and amount of resources utilized to initiate the venture may also be an indicator of its potential value, particularly in terms of financial and human capital. The amount of initial finance invested in the business may at least give some indication of the initial scale of the venture (Cooper, Folta & Woo, 1995). The willingness of external financiers may also be an indicator of potential value.

In this paper we have focused on the simple dichotomy between novice and habitual entrepreneurs. Research has suggested that there may be important within-group differences regarding novice and habitual entrepreneurs. Some habitual entrepreneurs may exhibit serial behavior, exiting one venture before entering subsequent ones, while others may develop a portfolio of contemporaneous ventures (Westhead & Wright, 1998). Similarly, while some novice entrepreneurs may only ever exploit one venture, others may go on to become habitual entrepreneurs. Further research might also usefully examine the extent to which these within group differences are associated with different types of cognitive processes and learning.

Further, while we have assumed that entrepreneurship may involve the start-up of new ventures, or the purchase or inheritance of an existing business, empirical

evidence suggests that both novice and habitual entrepreneurs may cite different motivations for business ownership (Westhead & Wright, 1998). These motivations have been found to range from wealth creation to autonomy and ensuring family security. Not all business owners will be wealth creators. Additional research is required to examine the extent to which motivations for business ownership are influenced by the entrepreneur's cognition and how these motivations affect entrepreneurial behavior.

As becoming a habitual entrepreneur takes place over time, there is a need for research in this area to be conducted on the basis of longitudinal analyses. Longitudinal samples are subject, in particular, to major problems regarding sample attrition. However, this may be less of a problem for theory building purposes. Longitudinal analysis may be especially important for analyzing those novice entrepreneurs who may or may not go on to become habitual entrepreneurs.

NOTES

1. We acknowledge that not all business ownership will involve wealth creation. This is evident from the motivational diversity highlighted in a number of empirical studies (Birley & Westhead, 1990; Westhead & Wright, 1998). In this study, however, we assume that business ownership involves wealth creation (whether this be in the form of start-up, purchase or inheritance of a business). This is consistent with Hawley's (1927) work where he argued that ownership rights are crucial for undertaking entrepreneurship, since they allow the entrepreneur to make decisions about the coordination of resources to gain entrepreneurial rents, in return for absorbing the uncertainty of owning those resources. We return to this issue in the conclusion.

2. Osipow (1973) introduced an open systems model of careers in the 1960s, while Ronstadt (1988) independently developed his work on the corridor principle in the 1970s. Katz (1992), integrating the two, developed a psychosocial model of employment status choice.

3. Eliot Jacques developed a model of bureaucracy which incorporated small firm creation. This model was based on the cognitive differentiation approach of psychoanalyst Melanie Klein. His work has been argued to have influenced other scholars exploring entrepreneurship through a cognitive lens such as H. Levinson and A. Zalenznik and more recently Kets de Vries and Danny Miller.

4. Some novice entrepreneurs become habitual entrepreneurs. We can reasonably speculate that these "transient" novice entrepreneurs will exhibit a reliance on entrepreneurial cognitive processes exhibited by habitual rather than one-time novice entrepreneurs (i.e. individuals who will only ever own one independent business). Over time, "transient" novice entrepreneurs who benefit from learning will develop a knowledge base similar to a habitual. Their cognitive processes will, therefore, enable them to have ownership stakes in more than one venture.

5. Where schema are defined as "dynamic mental models that represent an individual's knowledge and beliefs about how physical and social worlds work" (Gaglio & Katz, 2001, p. 97).

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