Discovery and Creation:

Alternative Theories of Entrepreneurial Action

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Two theories of entrepreneurship are compared and contrasted: The Discovery Theory and the Creation Theory. The Discovery Theory assumes that opportunities are objective, that entrepreneurs differ from non-entrepreneurs in important ways, and that the decision making context within which entrepreneurs operate is risky. The Creation Theory assumes that opportunities are created by entrepreneurs through an emergent and iterative search process, that differences between entrepreneurs and non-entrepreneurs are created by this search process, and that the decision making context within which entrepreneurs operate is either ambiguous or uncertain. These two theories are applied in the analysis of three entrepreneurial phenomena: entrepreneurial decision making, the business planning process, and the decision to finance entrepreneurial ventures. These different theories generate very different insights with respect to these three phenomena, suggesting that these two theories of entrepreneurship are complementary rather than contradictory.
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Research in the field of entrepreneurship has focused on a wide variety of phenomena over the last 20 years—everything from the psychological underpinnings of choices made by entrepreneurs (Busenitz & Barney, 1997; McClelland, 1961) to the economic consequences of initial public offerings (McBain & Krause, 1989). Despite this varied and often rich work, more general theories of entrepreneurship that move beyond the seminal insights of Knight (1921), Schumpeter (1934), and Kirzner (1973) have been slow to emerge. Recently, however, there has been growing interest in developing such theories (e.g., Shane, 2003; Shane & Venkatraman, 2000). Indeed, in his book *The General Theory of Entrepreneurship*, Shane (2003) outlines one view of what such a general theory might be and labels it the “individual-opportunity nexus” approach. This approach is also known as the “Discovery Theory of Entrepreneurship” (Venkatraman, 2003: xi).

However, as important as Discovery Theory might be in the field of entrepreneurship, the central thesis of this paper is that it is not the only option available to entrepreneurship scholars. Indeed, an alternative general theory of entrepreneurship—labelled the “Creation Theory of Entrepreneurship” (Venkatraman, 2003: xi; Anderson, 2005) is emerging in the literature. However, to this point, the fundamental assumptions of this “Creation” theory and how they relate to the assumptions of “Discovery” theory have not been examined in the literature.

The purpose of this paper is to compare and contrast the fundamental assumptions of these two theoretical perspectives in entrepreneurship. After articulating and comparing these assumptions, these two theories are then applied to some widely studied entrepreneurial phenomena and the differences between the insights generated by these theories with respect
to these phenomena are discussed. The paper concludes by discussing some of the broader implications of these two theories for the evolution of the field of entrepreneurship.

Comparing Theories of Human Action

All teleological theories of human action make three critical assumptions about human behaviour: (1) assumptions about the nature of human objectives, (2) assumptions about the nature of individuals, and (3) assumptions about the nature of the decision making context within which individuals operate (Bergmann, 1962; Nagel, 1961; Parsons, 1951; Parson and Shils, 1962). For example, some teleological social science theories assume that human objectives are simple and easy to describe (Skinner, 1953), while others suggest that they are complex and changing (Alderfer, 1969; Maslow, 1943), and still others suggest that these objectives are “socially constructed” (Weick, 1979). Some of these theories assume that human beings exercise free will (Clarke, 2003), others assume that humans experience only the illusion of free will (Kane, 1996). Finally, some social science theories assume that the context within which human actors operate determines human behavior (Lewin, 1951), while others assume that human behaviour determines the context within which humans operate (Berger & Luckmann, 1967).

Theories of entrepreneurial action are no exception to this generalization about the assumptions of theological theories of human action (Gartner, 1990). That is, teleological theories of entrepreneurial action must adopt assumptions about the nature of entrepreneurial opportunities (Kirzner, 1989; Shane and Venkatraman, 2000; Gaglio and Katz, 2001), the nature of entrepreneurs as individuals (McClelland, 1961; Busenitz and Barney, 1997), and the nature of the decision making context within which entrepreneurs operate (Alvarez and Barney, 2005; Knight, 1921; Sarasvathy, 2001). Different teleological theories of
entrepreneurship adopt different assumptions with respect to these three attributes of the entrepreneurial setting. Thus assumptions become an effective basis for comparing and contrasting these different theories. In the next section, differences in these assumptions are used to identify and compare two theories in the field—the established “Discovery” theory and the emerging “Creation” theory.

Discovery Theory

One way that assumptions about the nature of opportunities, entrepreneurs, and decision making settings combine has been called the “Discovery Theory” (Shane, 2003; Venkatraman, 2003; Gaglio & Katz, 2001). This theoretical perspective finds its intellectual roots in Kirzner (1973) and has recently been reviewed and summarized in Shane (2003). The theory as summarized in table one, emphasizes the ability of unusually alert individuals to exploit objective opportunities under conditions of risk.

[Table One About Here]

Discovery Opportunities

A central assumption of Discovery Theory is that opportunities exist as objective phenomena, waiting to be discovered by unusually alert people who, once they decide to exploit an opportunity, are called entrepreneurs (Gaglio and Katz, 2001; Kirzner, 1973). The central task of entrepreneurs in this model is to discover and then exploit these opportunities.

Here, and in all the theories discussed in this paper, an opportunity exists when it is possible, for at least some people for some period of time, to engage in activities that create the possibility of generating economic wealth (Helfat and Barney, 2004). In Discovery
Theory, the existence of these kinds of opportunities depends on the structural properties of different industries or markets. Because the existence of opportunities, in this theory, depends on industry or market structure, Discovery theorists (Shane, 2003) argue that opportunities are objective phenomena that have an existence independent of those who may or may not be aware of them, and independent of those who may or may not be seeking to exploit them.

At the broadest level, the relationship between industry/market attributes and opportunities is not hard to describe, and has been the object of study in a great deal of industrial organization economics (Bain, 1956) and strategic management (Porter, 1980). For example, in fragmented markets, the primary opportunity is to exploit economies of scale through consolidation; in mature markets, product refinements and process improvements are the primary opportunities; in declining industries, various forms of exit, along with a few ways to remain within an industry, are the primary opportunities (Porter, 1980; Barney, 2002).

Of course, beyond these broad patterns of opportunities in different industries and markets, individuals can sometimes use detailed information about the specific structure of a particular industry or market to describe opportunities to gain real economic wealth in these industries or markets. These kinds of opportunities tend to be much more specific and detailed than the generic “consolidate fragmented industries” or “exit declining industries” kinds of opportunities discussed in the literature. However, despite these differences in detail, these kinds of opportunities also exist because of the structure of a particular industry or market. They continue to exist, like unclaimed packages at the post office, whether or not particular individuals decide to take advantage of them.

This assumption about opportunities has a variety of empirical implications for the study of entrepreneurship. For example, the Discovery Theory suggests that those who
exploit objective opportunities will be able to find these opportunities through the systematic study of industry and market structure. Also, this perspective suggests that entrepreneurs will tend not to change their strategies or tactics significantly over time, as they exploit an opportunity. Since the phenomenon of interest is objective, entrepreneurs can usually collect much of the information they need to develop a plan required to exploit an opportunity. Moreover, in this setting, entrepreneurs will often be concerned with implementing their strategies quickly, since they are concerned that this objective opportunity might be identified by another potential entrepreneur.

Discovery Entrepreneurs

The assumption made by the Discovery Theory concerning the nature of entrepreneurs follows directly from its assumption about the nature of opportunities. Since opportunities are objective, in principle, they should be observable by everyone in an economy. If everyone in an economy could observe an opportunity, then they all could try to exploit it. Such opportunities would, therefore, never be a source of real economic wealth to anyone (Barney, 1991). Thus, in order to explain why some people exploit objective opportunities while others do not, the Discovery Perspective must necessarily assume that people differ in their abilities to either see opportunities, or once they are seen, to exploit these opportunities. Entrepreneurs must be alert to opportunities available to all, but perceived by only a few (Kirzner, 1973; Shane and Venkataraman, 2000).

Alertness and the notion that entrepreneurs are different or perceive opportunities differently is grounded in the field of psychology. This concept of individual differences is about explaining variation in human behavior. In this regard the issue is one of accurate
perception. All people cannot perceive opportunities equally. Some will be predisposed to see them – perhaps because of pre-established interest – whereas others surely will be blind to them because they don’t care, or because they lack the training to enable them recognize opportunities (Murphy, 1996).

Differential entrepreneurial alertness is central to the Discovery Theory of entrepreneurship (Kirzner, 1973). In this theory, the concept of alertness has been defined in a variety of ways. For example, various scholars have suggested that more “alert” individuals are more able to deconstruct causal relationships, to see cross-linkages between pieces of information, to understand the workings of economic social and physical processes, to critically evaluate information, to challenge assumptions, to re-label categories, to use analogies to identify counterintuitive patterns or to engage in counterfactual thinking, and so forth (Shane and Eckhardt, 2003; Gaglio & Katz, 2001). Variation in these abilities may be a function of variation in people’s cognitive schema—some people view new information in terms of opportunities rather than risks (Sarasvathy, Simon, & Lave, 1998)—or it may be a function of variation in people’s creativity or imagination (Shackle, 1982).

These observations have led to a great deal of research about the differences between entrepreneurs and non-entrepreneurs. If these differences exist, they may be linked to differences in the level of alertness between entrepreneurs and non-entrepreneurs, and thus, linked to the differential ability of individuals to exploit objective opportunities.

A wide variety of possible differences between entrepreneurs and non-entrepreneurs have been examined—including locus of control and self efficacy (McClelland, 1961), risk aversion (Khilstrom & Laffont, 1979), types of social network connections (Aldrich and Zimmer, 1986), and demographic differences (e.g., age, gender, education) (Krueger, 2003; Gatewood, Carter, Brush, Green, Hart, 2003). While this research has continued for over two decades, most reported work finds few systematic differences between entrepreneurs and
non-entrepreneurs. Indeed, the only systematic differences between entrepreneurs and non-entrepreneurs identified so far concern the extent to which these two groups manifest particular cognitive biases and heuristics. Busenitz and Barney (1997) show that while both entrepreneurs and non-entrepreneurs manifest certain biases, that entrepreneurs are systematically more biased in their decision making.

Discovery Decision Making Context

As suggested in Table One, the context within which entrepreneurs decide whether or not to exploit an objective opportunity will often be risky in character. A decision-making situation is defined as risky when both the possible future outcomes of a decision and the probability of each of these outcomes are known at the time a decision is made (Gifford, 2003; Wald, 1950; Triola, 2003).

Making risky investment decisions is analogous to rolling a die known to have six sides and known to be fair and balanced. The outcome of rolling this die is not certain. However, the full range of possible outcomes from rolling this die is known, and the probability of each outcome occurring (1/6) is also known. This makes it possible to calculate a probability distribution which can be used to anticipate the possible outcomes from rolling this die.

Those seeking to exploit objective opportunities will often be able to collect information about the nature and scope of these opportunities, especially in comparison to other kinds of opportunities discussed later in this paper. This information can be used to understand the possible outcomes associated with exploiting an opportunity, and the probability of these different outcomes occurring. Armed with this information, decision
makers can apply the full range of risk-based analysis techniques in making a decision about whether or not pursue an opportunity (Cyert and DeGroot, 1987; Brealey and Meyers, 1988).

Of course, rarely will sufficient information exist to be able to predict, with certainty, the outcome of exploiting these kinds of entrepreneurial opportunities. Thus, Discovery Theory does suggest that entrepreneurs will often have to make decisions about exploiting opportunities with less than perfect information. But, given the objective attributes of these opportunities, it will often be the case that entrepreneurs will be able to collect enough information about an opportunity to approximate the conditions of risk as defined here.

The Creation Theory

While a great deal of work and development has focused on the Discovery Theory, this is not the only internally consistent approach to the study of entrepreneurship. An alternative perspective—previously labelled the Creation Theory (Gartner; 1985; Venkatraman, 2003)—can also be identified in the literature. The Creation Theory finds its intellectual roots in Schumpeter (1934) and has been extended by a variety of authors (e.g., Gartner, 1985; Loasby, 2002; Casson, 1982; Langlois and Cosgel, 1993). The central organizing assumptions of this perspective are also summarized in Table One.

Creation Opportunities

In the Creation Theory, opportunities do not exist objectively, but rather emerge as individuals explore ways to generate economic wealth (Gartner, 1985; Sarasvathy, 2001). Thus, in this theory, opportunities are created by individuals—individuals searching for ways to gain real economic wealth. Moreover, this search process is not governed by traditional
profit maximizing and cost minimizing logic (Kohn and Shavell, 1974). Such logic does not apply in these settings because—as will be shown shortly—they are often characterized by high levels of uncertainty. Rather, this search process is strictly emergent—the direction, duration, and outcomes of the search are not known when it begins, and are only revealed, step by step, as the search occurs over time.

The notion that opportunities are created by an emergent search process is not unique to the Creation Theory in the field of entrepreneurship. Indeed, such emergent processes have been identified in a variety of fields, including sociology (Granovetter, 1973, 1985) and strategic management (Mintzberg, 1978; 1985). Mintzberg and McHugh (1985), for example, describe the difference among a firm’s intended, deliberate, emergent, and realized strategies, where a firm’s realized strategy is some combination of its intended and deliberate strategy and its emergent strategy.

The concept of emergent opportunities closely links the study of entrepreneurship with the theory of learning (Dodgson, 1993; Huber, 1991). According to the Creation Theory, as entrepreneurs begin exploring a possible opportunity, they frequently learn that their original hypotheses about the nature and scope of this opportunity are not justified, and are then forced to develop new hypotheses about an opportunity that extends out of their first set of hypotheses (Sarasvathy, 2001). Often, entrepreneurs learn that this second hypothesis is also not justifiable, and are forced to develop additional hypotheses, and so forth (Hayek, 1948; Mises, 1949).

This learning process is very path dependent (Arthur, 1989; Barney, 1991). It can also stop at any time, as potential entrepreneurs get discouraged, are unable to get clear feedback about their current hypotheses, or when new hypotheses do not occur to them. Moreover, this process of searching for new emergent opportunities—even if it continues for some time—does not necessarily lead an entrepreneur to discover real opportunities for
creating real economic wealth. Learning paths can lead entrepreneurs into what have been called “competence traps”—intellectual dead ends that do not lead to real economic opportunity (Barnett and Sorenson, 2002).

Despite these difficulties, the Creation Theory suggests that some individuals, some of the time, may emerge from this search process with a clear understanding of an opportunity that has the potential for generating real economic wealth. This opportunity is usually not the opportunity they thought they were going to exploit when they began this process, but it is a real opportunity nevertheless.

Creation Entrepreneurs

Just as the assumptions made in the Discovery Theory concerning the nature of entrepreneurs follows directly from its assumption about the nature of opportunities so to do the assumptions about entrepreneurs follow directly from the assumptions about the nature of the opportunities in the Creation Theory. In the Creation Theory, individual differences between entrepreneurs and non-entrepreneurs—to the extent they exist—are more likely to reflect the different experiences of these two groups over time rather than any inherent differences between these groups. In this sense, the Creation Theory suggests that not only do entrepreneurs create opportunities through an emergent search process, but that this process also creates the entrepreneur. In this Theory the entrepreneur is not necessarily different before creating the opportunity but emerges with differences as the result of the process of creating the opportunity.

Consider, for example, the finding that entrepreneurs manifest some cognitive biases to a greater degree than non-entrepreneurs (Busentiz & Barney, 1997). According to Kahneman & Tversky (1979), virtually all decision makers manifest these biases to some
However, Busentiz & Barney (1997) suggest that these biases facilitate decision making in uncertain entrepreneurial settings, while they are often treated as irrational and problematic in more certain non-entrepreneurial settings. For these reasons, individuals who—for whatever reason—begin an emergent search process for an entrepreneurial opportunity are likely to find the use of these biases rewarded and reinforced. Not surprisingly, over time, these biases would manifest themselves more strongly among those who have tried to pursue entrepreneurial opportunities. On the other hand, those who never begin this search process, or end it soon after its beginning, will not have the use of these biases rewarded and reinforced, and thus will not manifest them more strongly over time. Ex post, after entrepreneurs complete their search process and create opportunities, they will appear to manifest these cognitive biases to a greater extent than those that do not begin, or at least do not continue, these processes. Thus, in Creation Theory, differences in the cognitive biases between entrepreneurs and non-entrepreneurs may exist, but these differences are likely to reflect the emergent search process that entrepreneurs experience more than initial differences between entrepreneurs and non-entrepreneurs (Hayward, Shepherd, & Griffin, 2005; Sarasvarthy, 2001).

Similar logic may be applied to other types of individual differences between entrepreneurs and non-entrepreneurs. However, thus far, the only systematic differences of this sort that have been discussed in the literature have to do with the extent to which these two groups manifest cognitive biases (Krueger, 2003; Gatewood, Carter, Brush, Green, & Hart, 2003).

Consistent with the logic of path dependence, the Creation Theory also suggests that small differences in initial conditions, such as small differences in the cognitive biases of entrepreneurs and non-entrepreneurs, can lead to very large differences in eventual outcomes. The positive feedback process that characterizes path dependence can generate very large
differences between entrepreneurs and non-entrepreneurs, even when these individuals may have been virtually identical initially (Stacy, 1995).

While entrepreneurs may indeed have some differences based on past experiences, path dependence would suggest that it is the process and the small changes that occur during the process that manifest later on as large differences in cognitive biases. Initially, entrepreneurs typically make several low cost decisions and as they received the feedback from these decisions they change and adapt. If the decisions were successful they are incorporated into the next decision making step, if the decision was unsuccessful it is discarded and a new path is taken. This feedback and adaptation process might suggest that learning is occurring and that the entrepreneur’s themselves are thinking differently about the nature of the opportunity than they were before they started.

Creation Decision Making Context

Finally, the Creation Theory assumes that decisions made by entrepreneurs are usually made under conditions of ambiguity or uncertainty. While some scholars treat risk, ambiguity, and uncertainty as interchangeable concepts (e.g., Shane 2003, p7; Admati & Pfleiderer, 1994), there is an emerging consensus that there are important differences among these concepts (Knight, 1921; Alvarez and Barney 2005; Loasby, 2002). While they all imply decision making with less than perfect information about the outcome of a decision, they vary in the extent to which the information available to decision makers is imperfect.

Specifically, as suggested earlier, a decision making setting is defined as risky when both the possible outcomes, and the probability of those outcomes, are known before a decision is made (Gifford, 2003; Wald, 1950; Triola, 2003). A decision making setting is defined as ambiguous when the possible outcomes of a decision are known before the
decision is made, but the probability of those different outcomes occurring are not known, when a decision is being made (Dequech, 1999). Finally, a decision making setting is defined as uncertain when neither the possible outcomes, nor the probability of those outcomes, are known when a decision is being made (Knight, 1921; Alvarez and Barney 2005).

Consider the simple decision making device of rolling a die. If a die is known to have six sides and to be fair and balanced, then each of the six faces has an equal chance of occurring. Each side of the die is a known possible outcome of rolling the die, each outcome has a known probability (1/6) that is less than or equal to one but greater than zero, and the probability of any of these outcomes occurring sums to one. Decision making by rolling a die is thus risky in the sense defined here.

Rolling a die to make a decision would be ambiguous if the number of sides on the die was known—say, six—but it was not known if the die was fair and balanced. The person rolling this die knows all the possible outcomes from this activity, but does not know the probability of these outcomes. This is ambiguity.

Finally, rolling a die to make a decision would be uncertain if the number of sides on the die—is it two, or four, or eight, or an infinite number, or a randomly changing number—is not known, and the balance of the die is not known when it is thrown. In these situations, decision makers are often ignorant of their ignorance of possible future outcomes (Shackle, 1972; 1979). Indeed, in conditions of uncertainty, decision makers may not even know for sure that they are playing with dice and not with a deck of cards.

The Creation Theory assumes that the decision making context facing entrepreneurs tends to be either ambiguous or uncertain in nature. This theory assumes that the end of an
emergent search process cannot be known from the beginning. Possible outcomes of a stream of decisions over time can generally not be anticipated, and even if they could be anticipated, the probability that these different outcomes would actually occur cannot be anticipated.

Implications of Discovery and Creation for the Study of Entrepreneurial Phenomena

Of course, the two theories identified in Table One are only interesting if they have different implications for studying entrepreneurial phenomena. To examine some of these different implications, three entrepreneurial phenomena—how do entrepreneurs make decisions (Sarasvathy, 2001), how do they do their business planning (Kuratko, 1991), and how do they decide to finance their activities (Berger and Udell, 1998; Baeyens and Manigart, 2003)—have been identified and will be analyzed, first through the lens of the Discovery Theory, and second through the lens of the Creation Theory. Some important differences between these two theories, with respect to these three phenomena, are summarized in Table Two.

[Insert Table Three About Here]

How do Entrepreneurs Make Decisions?

All entrepreneurs make decisions—about which opportunities to exploit, about the resources needed to exploit those opportunities, about how to organize those resources, and so forth. In both the Discovery and Creation Theories the nature of the opportunity and the
decision making context drive the choices that entrepreneurs make. The following suggests
the very different decision-making models that are taken depending upon the nature of the
opportunities and the context in which those opportunities exist.

  Discovery Theory Decision Making. The Discovery Theory suggests that
opportunities are objective and that entrepreneurial decision making often occurs under
conditions of risk. In these settings, unusually alert entrepreneurs can systematically collect
information about objective opportunities to gain information about the outcomes associated
with exploiting an opportunity, and the probability of these different outcomes. Armed with
this information, these special individuals can make rational profit maximizing decisions
about which opportunities to exploit. Cognitive biases and other less forms of rational
decision making play only a limited role in the Discovery Theory of entrepreneurship.

  Consistent with the Discovery Theory, entrepreneurs can use a variety of techniques
to collect information about opportunities, information that can be used to make rational
decisions about whether or not to pursue those opportunities. One way of collecting this
information is the use of focus groups (Zinn, 1991).

  A focus group is a group of individuals that would become customers if an
opportunity was exploited. Because, in the Discovery Theory, these opportunities are
objective, entrepreneurs will be able to anticipate who their likely customers will be, should
they exploit an opportunity. These customers, in turn, are likely to understand how
exploiting an opportunity is likely to affect them. In this context, asking focus groups about
whether or not they would become customers if an entrepreneur exploited an opportunity is
an effective way for that entrepreneur to obtain information both about the likely outcomes of
pursuing an opportunity, and the probability of those different outcomes will occur.
Another way this information can be obtained is by studying government and other reports about the structure of an industry. In developed economies, there is usually a great deal of objective information about publically traded firms, relationships among these firms, and the industry structure within which these firms operate. In principle, this information is often available, sometimes at a nominal fee, to everyone. However, the Discovery Theory suggests that only unusually alert entrepreneurs are able to sift through this vast amount of information to obtain just what is needed to discover an opportunity. Once discovered, this information makes it easier for an entrepreneur to make a rational decision about whether or not to exploit a particular opportunity.

To make these rational decisions, Discovery Theory entrepreneurs can apply traditional present value techniques developed in economics and finance. The calculation of the present value of a new business activity depends on the cash flows that activity is expected to generate over time, and the discount rate that is applied to those cash flows. Both the cash flows that an activity is expected to generate over time, and the discount rate that should be applied to these cash flows, are known, or knowable, under conditions of risk. The expected cash flows are simply the mean of the probability distribution of outcomes associated with a risky decision; the discount rate is the variance of this distribution (Brealey and Meyers, 1988).

 Creation Theory Decision Making. The Creation Theory suggests that opportunities are created and that entrepreneurial decision making often occurs under conditions of uncertainty. Not surprisingly, if the assumptions of the Creation Theory hold, the tools for collecting information under the Discovery Theory—including the use of focus groups and government reports—and making decisions—including present value techniques—are significantly limited. While they might be used by an entrepreneur to help evaluate a
particular hypothesis about a potential opportunity in an emergent search process, it is not possible to describe the expected cash flows associated with the opportunity that finally emerges from this search process when this process commences.

The decision-making context in the creation Theory is one of either uncertainty or ambiguity. Under conditions of uncertainty, there is typically no historical data or previously identifiable examples which can be drawn upon to make decisions. In both contexts decisions in this theory are decisions for which no obviously correct procedure exists – decisions in this context can not be made by plugging available numbers into a scientific formula (Casson, 2003). In the Creation Theory, factual information may not be available or only be partially available and the standard conceptual frameworks such as focus groups and present value analysis are not applicable at the time that a decision needs to be made.

Two approaches to decision making under the conditions assumed by the Creation Theory have been discussed: Decision making through the use of biases and heuristics (Busenitz and Barney, 1997; Hayward, Shepherd, Griffin, 2005) and effectuation as a decision making process (Sarasvathy, 2001).

Biases and heuristics can be used to make decisions when rational decision making models do not apply (Kahneman, Slovic, and Tversky, 1982). Indeed, cognitive psychologists have emphasized the utility of biases and heuristics in enabling people to make decisions under conditions where the amount of information available is less than what is required by more rational decision making approaches (Bazerman, 2002).

As suggested earlier, Busenitz and Barney (1997) identified two biases that are particularly functional for entrepreneurs making decisions under conditions of uncertainty: the over confidence bias and the representativeness bias—or the willingness of decision makers to generalize from small samples. Since, under the conditions discussed in the Creation Theory, entrepreneurs will never have enough information to make rational
decisions, instead, they use these two biases to enable them to make decisions that enable entrepreneurs to continue through the emergent search process (Fischhoff, Slovic, Lichtenstein, 1977; Hayward, Shepherd and Griffin, 2005).

A second Creation Theory approach to decision making is effectuation (Sarasvathy, 2001). Effectuation is the manner of making decisions by choosing among alternative effects that can be produced with a given set of means thereby eliminating the assumption of pre-existent goals. In effectuation, the decision maker is not independent of the context in which the decision is made, but is in a dynamic decision environment involving multiple interacting decisions and decision-makers. Indeed, effectuation is another way of describing the iterative emergent search process that is central to the Creation Theory. In this setting, entrepreneurs make decisions by gathering information through experimental and iterative learning. The Creation Theory suggests that this experimental learning not only shapes the opportunities an entrepreneur exploits, it also shapes the entrepreneur.

In effectuation the entrepreneurs focus on how much they can afford to lose and experiment with as many different strategies and resource combinations as possible given the resources that are within their control. The objective in this model is not necessarily to maximize potential returns as much as it is about reducing the uncertainty of particular strategies and resource combinations. In effectuation, the entrepreneur through action creates the outcomes of these resource combinations as they reduce the uncertainty. In this theory, “decisions about which actions to take exist in the face of unknown future values” (March, 1982: 75).

However, this process of creation does not leave the entrepreneur unchanged. As decisions are made about which actions to take or which resources to combine, new information is obtained. In this manner the entrepreneur is learning about their opportunity, their actions and how these two interplay with the larger environment. In effectuation, the
market does not just exist independent of the entrepreneur, instead the entrepreneur creates the market through a series of actions and interactions.

The Business Planning Process

Writing a business plan is something that most individuals seeking to exploit opportunities do (Kuratko, 1991). However, this planning process can vary significantly, depending upon whether an entrepreneur is operating under the conditions of the Discovery Theory or conditions of the Creation Theory.

**Discovery Theory Business Planning.** According to the Discovery Theory, it is important that the business plan be a living and evolving document (Kuratko, 1991). Critical assumptions in the plan must be constantly re-evaluated, the financial and other implications of these assumptions must be updated, and specific timelines for executing the plan must be modified. However, given that this planning effort takes place under conditions of risk, these modifications—while important—rarely involve redefining the fundamental purposes or objectives of a business.

If the conditions of the Discovery Theory hold, it will usually not be necessary for an entrepreneur to modify his/her fundamental theory about how to generate economic wealth. If modifications to this theory are forthcoming, they will usually be relatively minor. Only if an entrepreneur has failed to take advantage of all the information that could have been obtained about opportunities in this Discovery Theory context will fundamental shifts in a firm’s theory of how to generate economic wealth be forthcoming. Indeed, in this sense, an indicator of an entrepreneurs business planning skill is the number of major modifications
required to execute the business plan—more of these changes suggests poor business planning skills, fewer of these changes suggests high quality business planning skills.

**Creation Theory Business Planning.** The business plan is also a living and evolving document in the Creation Theory. However, changes in these plans will not be limited to minor modifications of timelines, financial projections, and customer definitions. Indeed, it would not be uncommon for successive business plans of entrepreneurs operation under the Creation Theory to have remarkably little in common. As the emergent search process unfolds, entrepreneurs might not only be forced to redefine their potential customers, they might have to redefine the industry or market within which they are operating, their core technologies, and the opportunities they are looking to exploit.

In the Discovery Theory, significant changes to the business plan suggest an entrepreneur has poor planning skills. In the Creation Theory, such changes suggest an entrepreneur has good planning skills, or more precisely, the kind of flexible, creative, learning skills that are essential to be successful in an emergent and iterative search for an opportunity.

**Entrepreneurial Financing**

Entrepreneurs must also obtain financing to realize their opportunities (Baeyens and Manigart, 2003). Financing options are likely to vary significantly depending upon whether or not an entrepreneur is operating under conditions of the Discovery Theory or under conditions of the Creation Theory.
Discovery Theory Financing. Entrepreneurs operating under conditions discussed in the Discovery Theory will often be able to obtain financing from external sources—including banks and venture capital firms. Under the conditions found in this theory, information asymmetries should be either low or easy to overcome making it possible for capital markets to operate efficiently (Fama, 1970). Entrepreneurs in this theory will be able to explain to outside sources of capital the nature of the opportunities they are planning to exploit, the financial implications of exploiting these opportunities, and the riskiness of exploiting these opportunities (Sapienza & Gupta, 2004). Moreover, these outside sources of capital will be able to understand the nature and scope of these opportunities, because entrepreneurs will typically be able to provide a great deal of information about these opportunities to them. Moreover, banks and venture capital firms can develop a very sophisticated understanding of different types of opportunities in different industries. This knowledge also helps enable entrepreneurs operating under Discovery Theory conditions to obtain funding from these external sources (Admati & Pfleiderer, 1994).

All this does not suggest that entrepreneurs operating under this setting will not self-finance their operations to some extent. After all, it may well be the case that when an entrepreneur begins contemplating an investment, that he/she initially operates under conditions more similar to those discussed in the Creation Theory and only over time collects enough information to transform this situation from Creation to Discovery. As will be discussed below, self-financing or “bootstrapping” is a much more common form of finance in Creation settings.

Moreover, even if an entrepreneur has always been operating in Discovery circumstances, he/she still may have incentives for some degree of self funding. After all, retaining significant equity in such a firm can lead to significant wealth creating opportunities once a firm receives external funding (Kuratko, 1991).
**Creation Theory Financing.** External sources of capital are unlikely to provide financing for entrepreneurs operating under Creation Theory conditions. In this Theory, it will be difficult if not impossible for entrepreneurs to overcome the information asymmetries requirements needed for outside parties to invest in these opportunities. Rarely will these entrepreneurs possess the elements required for funding by these external sources of capital. For example, most venture capital firms will only invest in a firm where they can see a return on their investment in 18 months (Bhide, 1992). Creation Theory entrepreneurs may not even know what their final business opportunity is going to be in 18 months, let alone generate a positive rate of return for investors in this time period.

Bootstrapping” is a much more common way to finance entrepreneurial activities taking place under conditions discussed by the Creation Theory. In “bootstrapping,” entrepreneurs finance their operations from their own wealth, or from the wealth of those closely associated with a firm—the triumvirate of friends, family, and fools (Bhide, 1992). These sources of capital invest in the entrepreneur—his or her character, ability to learn, flexibility, and creativity—not on a particular business opportunity an entrepreneur plans to exploit.

Indeed, Bhide (1992) argues that Creation Theory entrepreneurs may actually damage their ability to grow and prosper if they obtain external funding. This is because external funding tends to force these entrepreneurs to exploit the identified opportunity, even if it turns out that that opportunity is not as valuable as anticipated, and even if it should have been abandoned in favor of an alternative opportunity.
Discussion

This description of the Discovery and Creation Theory within the field of entrepreneurship has a variety of important implications for the evolution of this field. Some of these implications are discussed here.

Are These Two Theories Contradictory?

In an important sense, the Discovery and Creation Theory of entrepreneurial action contradict each other. That is, if the conditions of the Discovery Theory hold, then the conditions of the Creation Theory cannot hold, and vice versa. In a particular empirical setting, it would be unusual if the assumptions of both theories existed simultaneously for long periods of time.

This observation has important implications for theory development in the field of entrepreneurship. In their efforts to be inclusive, some entrepreneurship scholars have adopted assumptions from the Discovery Theory and have tried to integrate them with assumptions from the Creation Theory. The argument in this paper suggests that such efforts are unlikely to be successful in pushing theory development in the field.

On the other hand, that a situation is consistent with one of the theory at one point in time does not mean that it cannot be consistent with the other theory at another point in time. For example, it has already been suggested that an entrepreneur may begin their activities in conditions consistent with the Creation Theory but, over time, as more information is collected about possible opportunities, these conditions may evolve to be more consistent with the Discovery Theory. This evolution could go the other way as well: A Discovery Theory situation could easily evolve into a Creation Theory situation.
The analysis here suggests that entrepreneurs in these different settings will behave differently—for example, in Discovery settings, they will put together plans that actually guide their business decisions, while in Creation settings, they will constantly be adjusting the fundamental assumptions of those plans. However, thus far, this analysis has had little to say about the period of transition between these two conditions. During these periods of time, it may well be the case that both conditions will hold to some degree, even though they are fundamentally contradictory.

The theory developed here suggests that these periods of transition will typically only be temporary. But the empirical analysis of these periods may be particularly interesting in studying these two theoretical perspectives, and especially their implications for the behaviour of entrepreneurs.

Are These Two Theories Complementary?

One the other hand, while these two theories may be contradictory at the level of the analysis of a particular empirical situation, they are very complementary at the level of analyzing all the empirical phenomena. Both these approaches can be applied to the study of what might be called entrepreneurial behaviour—although the specific nature of that behaviour appears to be quite different.

Rather than debating as to which of these theories constitutes the “real theory of entrepreneurship,” a more reasonable approach seems to be to recognize the value, and the limitations, of each of these theories, and to specify the conditions under which each should be applied. More fundamentally, going forward, entrepreneurship scholars need to be clear about which of these—or other—theories of entrepreneurship they are testing. The assumptions these alternative theories make about the nature of opportunities, the nature of
entrepreneurs, and the nature of the decision making context within which entrepreneurs operate may be a helpful framework to describe these theories, and avoid ambiguous theoretical and empirical conclusions.

Is It Helpful to Have Two Theories of Entrepreneurship?

Recently, some management disciplines have been criticized for having too many theories, and not enough theoretical and empirical integration (Pfeffer, 2005; Hambrick, 2005). This paper suggests just the opposite for the field of entrepreneurship. It suggests that applying only a single theory to the study of entrepreneurial behaviour is likely to do a grave injustice to the analysis of this diverse phenomenon. This will be the case if that single theory is the Discovery Theory or the Creation Theory.

Indeed, not only do these two theories facilitate the explanation of the full range of entrepreneurial phenomena, they also make it easier to examine the empirical implications of each theory in its own right. That is, the Creation Theory creates an alternative hypothesis for the Discovery Theory, and vice versa. Understanding when one theory applies and the other does not only help in the explication of each of these theories. It also helps in the development of the field as a whole (Osigweh, 1989).

Moreover, while these two theories of entrepreneurship have been identified, additional theories may also exist. For example, both the Discovery Theory and the Creation Theory are teleological theories of entrepreneurship. That is, these theories explain entrepreneurial behaviour in terms of the objectives that entrepreneurs try to realize through their actions—in this case, the objective of creating economic wealth. However, it might be possible to develop non-teleological theories of entrepreneurship. Such theories are typically
evolutionary in character and do not require the assumption that entrepreneurs are seeking to accomplish specific goals when they make the decisions they do (Nelson & Winter, 1982).

None of this denies the possibility that, in other management disciplines, theory proliferation has gone too far. However, given the state of theory development in the field of entrepreneurship, it seems reasonable that some productive theory proliferation is still possible.
<table>
<thead>
<tr>
<th>Nature of Opportunities</th>
<th>Discovery Theory</th>
<th>Creation Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of Entrepreneurs</td>
<td>Entrepreneurs are different than non-entrepreneurs</td>
<td>Entrepreneurs may be the same or different than non-entrepreneurs</td>
</tr>
<tr>
<td>Nature of Decision Making</td>
<td>Risky</td>
<td>Ambiguous or Uncertain</td>
</tr>
</tbody>
</table>
Table Two. Definition of Risk, Ambiguity, and Uncertainty.

<table>
<thead>
<tr>
<th></th>
<th>Possible Outcomes</th>
<th>Probability of Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk</td>
<td>Known or Knowable</td>
<td>Known or Knowable</td>
</tr>
<tr>
<td>Ambiguity</td>
<td>Known or Knowable</td>
<td>Unknown</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Decision Making</td>
<td>Discovery Theory</td>
<td>Creation Theory</td>
</tr>
<tr>
<td>-----------------</td>
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</tr>
<tr>
<td>Entrepreneurs collect information about opportunities from focus groups, government reports, etc.</td>
<td>They use this information to calculate the present value of exploiting opportunities</td>
<td>Entrepreneurs use their biases and heuristics and/or iterative learning to make decisions about which opportunities to pursue</td>
</tr>
<tr>
<td>Cognitive biases and iterative learning play a limited role</td>
<td>Focus groups, reports, and present value tools can be used to evaluate a particular opportunity but cannot be used to describe the entire search process</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Planning</th>
<th>Discovery Theory</th>
<th>Creation Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumptions about the nature of opportunities may be modified, but rarely abandoned</td>
<td>Numerous large changes in a business plan suggests poor planning skills, e.g., the inability to collect and analyze available data</td>
<td>Assumptions about the nature of opportunities may be abandoned several times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Numerous large changes in a business plan suggests good planning skills, e.g., flexibility, the ability to learn, creativity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Finance</th>
<th>Discovery Theory</th>
<th>Creation Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside sources of capital including banks and venture capital firms is preferred</td>
<td>Outside sources of capital invest in opportunities they can understand</td>
<td>Self-funding, or funding from people closely associated with a firm (bootstrapping) is preferred</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Related sources of capital invest in entrepreneurs they trust</td>
</tr>
</tbody>
</table>
REFERENCES


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1 Non-teleological theories, including evolutionary theories of human action, do not make assumptions regarding these attributes of human behavior (Wright, 1994). This suggests that, in addition to the two theories discussed in this paper, it might be possible to develop additional non-teleological theories of entrepreneurial action, e.g., (Nelson and Winter, 1982).