

PERSONALITY, UNCERTAINTY AND LOGIC: IMPACT ON ENTREPRENEURIAL OUTCOMES

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ABSTRACT

In this paper I draw on prior empirical findings and theoretical relationships to develop a conceptual model to describe the relationship between *personality factors* and *entrepreneurial outcomes*. The model incorporates *uncertainty* as a moderator and *decision logic* as mediator in the relationship between personality and entrepreneurial outcomes.

INTRODUCTION

A substantial amount of research over the last four decades has examined the role of personality in determining entrepreneurial outcomes. Early studies included a confusing variety of personality variables, sometimes with unknown reliability and validity and often with little theoretical justification (Chandler and Lyon, 2001; Gartner, 1989). Recently, Zhao and Seibert (2006) used the five-factor model of personality (Costa and McCrae, 1992) to effectively organize personality variables so as to show, through meta-analytic techniques, that there is a significant relationship between personality and entrepreneurial status. Personality variables have also been shown to have a significant effect in other areas of entrepreneurship research such as entrepreneurial career intentions (Zhao, Seibert, and Hills, 2005) and new venture survival (Ciavarella, Buchholtz, Riordan, Gatewood, and Stokes, 2004). It thus seems appropriate to develop a more fine-grained theory to describe the relationship between personality and entrepreneurial outcomes.

In developing a fine-grained theory to describe the relationship between personality and entrepreneurial outcomes, situational factors would appear to be important (Mischel and Shoda, 1995). Zhao and Seibert (2006: 267) support this sentiment in stating that “situational contingencies may be important, and future research should continue to search for situational moderators of the personality–entrepreneurial status relationship.” A situational variable that is perceived to be important for entrepreneurs is uncertainty. Richard Cantillon’s (1755) original definition of an entrepreneur is “someone who engages in exchanges for profit; specifically, he or she is someone who *exercises business judgment in the face of uncertainty*” (quoted in Hebert and Link, 1988: 21). Entrepreneurial activity is inherently uncertain (Mises, 1949). This uncertainty is further enhanced by the novelty intrinsic to entrepreneurial actions (Amabile, 1997; Smith and DiGregorio, 2002), such as the creation of new products, new services, new ventures, and so forth (Gartner, 1990; Schumpeter, 1934). Uncertainty therefore constitutes a conceptual cornerstone for most theories of the entrepreneur. However, the effect of uncertainty on the relationship between personality variables and entrepreneurial actions is not clearly understood.

Decision logic – i.e. how decisions are made – has also been proposed as an important variable affecting entrepreneurial and strategic outcomes (Huff, 1990; Schwenk, 1984). As such,

researchers have begun to actively explore how individuals operating in different contexts make strategic decisions (e.g. Mintzberg, Raisinghani and Théorêt, 1976; Eisenhardt, 1989). Individuals operating in a business context have traditionally been modeled as rational agents leading to normative theories of predictive rationality to explain individual decision-making (Andrews, 1971; Ansoff, 1965). A number of researchers have shown that under certain conditions, individuals tend to break the laws of predictive rationality (Simon, 1957; Kahneman and Tversky, 1972). This has led to several new theories to describe individual decision making in different contexts. Some of these theories are seen as close derivatives to the rational choice model such as the theory of bounded rationality (Simon, 1991; Kahneman, 2003), which revises the assumption that humans are perfectly rational by accounting for the fact that perfectly rational decisions are often not feasible in practice, due to the finite computational resources available for making them. Others theories, such as the theory of effectuation (Sarasvathy, 2001), are further removed from the principles of rational choice. The theory of effectuation suggests that under conditions of extreme uncertainty several principles central to normative theories of predictive rationality are inverted (Read, Dew, Sarasvathy, Song and Wiltbank, Forthcoming). Because the entrepreneurial context is characterized as an uncertain situation (McMullen and Shepherd, 2006) over which a single or a few individuals have a great deal of influence (Markman, 2007), the decision logic applied by entrepreneurs is purported to significantly affect the outcome of the situation (Markman, 2007), and thus I argue that it is critical to consider decision logic as a variable in a theoretical model linking personality variables to entrepreneurial outcomes.

FOUNDATIONAL CONSTRUCTS

Personality

The five-factor model provides a parsimonious yet comprehensive taxonomy of personality. Within the five-factor model Zhao and Siebert (2006) find evidence suggesting that entrepreneurs are significantly higher on *conscientiousness* and *openness to experience* compared to managers.

Conscientiousness indicates an individual's degree of organization, persistence, hard work, and motivation in the pursuit of goal accomplishment. Some researchers have viewed this construct as an indicator of volition or the ability to work hard (Barrick and Mount, 1991). It has been the most consistent personality predictor of job performance across all types of work and occupations (Barrick, Mount, and Judge, 2001). Conscientiousness is also related to the long-term survival of entrepreneurial ventures (Ciavarella, Buchholtz, Riordan, Gatewood, and Stokes, 2004).

Openness to Experience is a personality dimension that characterizes someone who is intellectually curious and tends to seek new experiences and explore novel ideas. Someone high on openness to experience can be described as creative, innovative, imaginative, reflective, and untraditional. Someone low on openness to experience can be characterized as conventional, narrow in interests, and unanalytical (Zhao and Siebert, 2006). Openness is positively correlated with aspects of intelligence related to creativity, such as divergent thinking (McCrae, 1987).

Decision Logic

The early literature on decision-making in a business context advanced a rational, normative model of strategic choice (Andrews, 1971; Ansoff, 1965; Hofer and Schendel, 1978).

Under this model, managers are purported to be rational in evaluating a set of objective criteria to make a business decisions (Hitt and Tyler, 1991). The concept of effectuation, on the other hand, is an *inversion* of predictive rationality. Effectuation turns predictive rationality upside down to answer the question:” Where do we find rationality when the environment does not independently influence outcomes or even rules of the game (Weick 1979), the future is truly unpredictable (Knight 1921), and the decision-maker is unsure of his/her own preferences (March 1982)?” [As quoted in Read et. al. Forthcoming]. Effectuation therefore provides an alternative to the rational predictive approach to decision making. Effectuation is purported to be more prevalent under conditions of high uncertainty.

Uncertainty

Uncertainty has been a key variable in a number of recent theories about entrepreneurial decision-making (McMullen and Shepherd, 2006; Sarasvathy 2001). Theories incorporating uncertainty as a key variable often build of the early work of Knight (1921) in which he identified three types of uncertainty. The first type (now generally accepted as the notion of *risk*) consists of a future with a known distribution and therefore the uncertainty can be accurately quantified. The second type of uncertainty identified by Knight (generally known by the term *uncertainty*) involves a future whose distribution is unknown, but can be estimated by studying outcomes over time. The third level of uncertainty that Knight called *true uncertainty* (and subsequently known as *Knightian uncertainty*) consists of a future whose distribution is not only unknown, but also unknowable (non-existent distributions). Knight’s work provides a means for understanding and recognizing different levels of uncertainty.

KEY RELATIONSHIPS

Insert Figure 1 about here

The Relationship between Personality, Uncertainty and Decision Logic

Prior research shows that the personality dimensions of *conscientiousness* and *openness to experience* are significantly associated with *entrepreneurial status* (Zhao and Siebert, 2006). The extent to which individual entrepreneurs draw on their strength in these two dimensions under different circumstances will relate to how they behave under different levels of uncertainty and will thus impact their entrepreneurial outcomes. In a situation in which uncertainty is relatively low i.e. the probability of particular outcome can be calculated the entrepreneur is likely to use predictive rational logic in making decisions. A predictive rational approach to decision-making is considered to be the default for how people make decisions (Andrews, 1971; Ansoff, 1965; Hofer and Schendel, 1978). Alternative modes of decision making such as effectuation (Sarasvathy, 2001) are only purported to become prevalent under conditions increased uncertainty.

Proposition 1: Where entrepreneurs are operating in conditions of low uncertainty they are likely to adopt a predictive rational approach to decision making no matter whether they are high on conscientiousness, openness or both.

High uncertainty is a situational variable that is likely to cause an individual’s cognitive-affective personality system (Mischel and Shoda, 1995) to generate distinctive cognition, affect and behavior. In a highly uncertain situation, the obvious or logical choice will not be clear and

therefore an individual entrepreneur needs to exercise judgment to make a decision (McMullen and Shepherd, 2006). In exercising judgment the personality differences of the individual entrepreneur are likely to come to the fore (Markman, 2007). Thus highly uncertain entrepreneurial situations are a likely to cause entrepreneurs, with different personality profiles to think and behave in different ways. Sarasvathy (2001) argues that effectuation is a mode of thinking that emerges in some individuals under conditions of high uncertainty. Read et al (Forthcoming) show that some, but not all, entrepreneurs use effectual logic to make decisions under conditions of high uncertainty. No one has yet provided a meaningful explanation for what causes some people to use an effectual approach while others use a predictive approach to making decisions in uncertain situations. It however seems reasonable to assume that personality factors would influence the decision logic of individuals. Personality factors are purported to interact with cognitive factors in influencing behavior (Mischel and Shoda, 1995) and personality has been shown to influence risky decision-making in a controlled experimental task (Lauriola and Levin, 2001). There therefore appears to be an established relationship between personality and decision-making.

Openness to experience is a personality dimension that is likely to be related to effectuation. Effectuation is characterized as a decision logic associated with being creative rather than predictive, focusing on means rather than goals, operating according to what you can afford to lose rather than what you expect to earn in return, pursuing partnerships rather than doing competitive analysis and leveraging contingencies rather than avoiding unexpected outcomes (Sarasvathy and Dew, 2005). Openness to experience is associated with being creative, innovative, imaginative, reflective, and untraditional (Zhao and Siebert, 2006). Openness to experience and effectuation appear to be conceptually related because both are associated with creativity, imagination and taking action. It would seem likely that an individual who is high on the openness to experience personality dimension would be more inclined to use effectuation as a decision-making logic as compared to someone who is low on the openness to experience dimension. Openness to experience is also associated with the inclination for an individual to take more risk (Lauriola and Levin, 2001) and because effectuation represents an unconventional approach to making decisions within an uncertain context it would seem that those who are willing to take on risk would be the ones that are likely to effectuate.

Proposition 2a: Under conditions of high uncertainty, entrepreneurs who are high in openness to experience are likely to adopt an effectual approach to making decisions.

Proposition 2b: Under conditions of high uncertainty, entrepreneurs who are low on openness to experience are likely to adopt a predictive rational approach to making decisions.

The Relationship between Decision Logic, Uncertainty and Entrepreneurial Outcomes

Sarasvathy's (2001) propositions pertaining to the theory of effectuation suggest that there is a link between effectual reasoning and favorable outcomes under conditions of uncertainty. Her first proposition suggests that if firms' fail they will *fail early and inexpensively* if effectual logic is used (pp 260) thus resulting in a quick, inexpensive death (favorable outcome). Her second proposition suggests that *successful* early entrants in an industry, entering when industry uncertainty is high, are more likely to have used effectual processes rather than predictive rational processes in the process of developing the firm (pp 260). She thus draws a link between effectual logic in an uncertain environment and favorable outcomes. In support of these general propositions Read et. al. (Forthcoming) showed how expert entrepreneurs –

defined as “persons who, either as individuals or as part of a team, have founded one or more companies, remained with at least one company they founded for more than ten years and taken it public” – used effectual logic to make important decisions under high levels of uncertainty. They contrast the decision making logic of expert entrepreneurs with novice entrepreneurs and show that novice entrepreneurs tend to revert to a more rational, predictive approach in making decisions under conditions of uncertainty as compared with the effectual logic more likely to be applied by expert entrepreneurs. They therefore suggest that there appears to be a relationship between the use of effectual logic and favorable entrepreneurial outcomes under conditions of uncertainty. But effectual logic alone is not enough for entrepreneurial success; entrepreneurship is also associated with hard work (Harris, Saltstone and Fraboni, 1999), persistence (Burke, FitzRoy and Nolan, 2008) and discipline (Drucker, 1985). Thus success is perceived to come through sustained effort over an extended period of time. The personality factor that is most strongly associated hard work is conscientiousness (Barrick and Mount, 1991). Conscientiousness has also been associated with new venture survival over time (Ciavarella et al, 2004). Effectual logic, applied in an uncertain environment, without hard work and persistence will in all likelihood result in un-sustained effort that will lead to an unfavorable entrepreneurial outcome. Therefore both personality dimensions of openness to experience (to enable effectual reasoning) and conscientiousness (to enable hard work and persistence) are will be required to drive entrepreneurial success in an uncertain environment.

Proposition 3: Under conditions of high uncertainty, entrepreneurs who adopt an effectual approach (enabled by openness to experience) in making decisions in the early stages of venture development, and who are persistent and hardworking (enabled by conscientiousness), are more likely to experience favorable entrepreneurial outcomes.

Under conditions of lower uncertainty, where effectual decision logic is not associated with success, persistence, hard work and careful planning (Delmar and Shane, 2003) are likely to be associated with success. In such circumstances where most entrepreneurs are purported to use a rational predictive approach to decision making (P1) conscientiousness is likely to be the personality dimension most strongly associated with success.

Proposition 4: Under conditions of low uncertainty an entrepreneur who is high on conscientiousness is most likely to experience favorable entrepreneurial outcomes. The relationship between conscientiousness and entrepreneurial success will be mediated by a rational predictive approach to entrepreneurial decision-making.

CONCLUSION

Entrepreneurship is an important driver for economic development and growth. As a global society we face increasing levels of uncertainty and ambiguity. Therefore, I contend that the model presented here lays an important foundation for better understanding and decoding the entrepreneurial process. This model, which incorporates individual variables, situational variables and decision logic to predict entrepreneurial outcomes serves as a basis for resolving conflicting empirical findings from the past, and serves as a basis for deeper and richer research into how people interact with their environment to create new ventures.

REFERENCES AVAILABLE FROM THE AUTHOR

TABLE 1

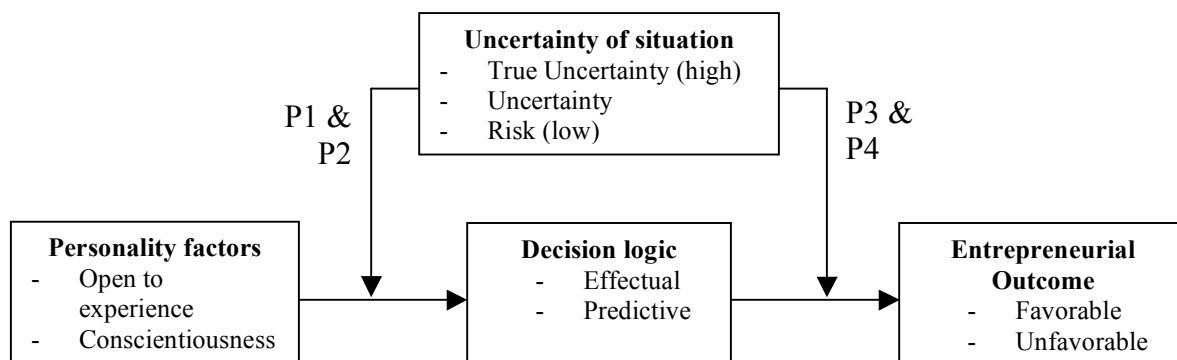
Table 1 Differences between Predictive and Effectual Decision Logic

Issue	Predictive Rational Approach	Effectual Approach
View of the Future	Predictive. Predictive logic casts the future as a continuation of the past. Accurate prediction is both necessary and useful.	Creative. The future is co-created (at least in part) by willful agents that may include investors, partners, and customers who “pre-commit” to the venture.
Basis for Taking Action	Goal-oriented. Goals, even when constrained by limited means, determine sub-goals and actions.	Means-oriented. Goals emerge by imagining courses of action, which start from available means.
View of Risk and Resources	Expected Return. Pursue new opportunities based on the (risk adjusted) expected value. The focus is on the upside potential.	Affordable Loss. Pursue satisfactory opportunities without investing more resources than stakeholders can afford to lose. Limit downside potential.
Attitude Toward Outsiders	Competitive Analysis. Protect what you have and maximize your share of the opportunity.	Partnerships. Share what you have with committed partners, as relationships (particularly with shared rewards) shape the trajectory of the opportunity.
Attitude Toward Unexpected Events	Avoid. Surprise is bad. Prediction, planning and focus enable the firm to minimize the impact of unexpected events.	Leverage. Surprise is good. Imaginative re-thinking of possibilities transforms the unexpected into new opportunity.

Adapted from Sarasvathy and Dew (2005)

FIGURE 1

Figure 1. The PUL Model: The Relationship Between Personality, Uncertainty, Logic and Entrepreneurial Outcomes



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