

# Building Bridges Between Entrepreneurship and Strategic Thinking

Lara Jelenc and John Pisapia

**Abstract** In this chapter, we present two bridges linking entrepreneurial and strategic thinking. The first bridge links the research of individual entrepreneurial behavior and strategic thinking skills. We found that *systems thinking* was the strongest predictor of all three elements of individual entrepreneurial behavior (risk-taking, innovativeness, and proactiveness). The more often the entrepreneurs in our sample used systems thinking, the higher was their predisposition for risk-taking, innovativeness, and proactiveness. Furthermore, all subscales of strategic thinking (systems thinking, reframing, and reflecting) significantly influenced *proactiveness*. These links enable entrepreneurs to decide how to respond, act, and/or exploit possibilities. The links we found between strategic thinking skills and entrepreneurial behavior were strong enough to recommend that strategic thinking skills should be learned, trained, and practiced by entrepreneurs, leaders, and managers at all levels of the organization. The second bridge positions strategic thinking as a link between the effectual and causal reasoning continuum. The strategic thinking research suggests that strategic thinkers employ cognitive ambidexterity. It suggests that strategic thinkers use strategic reasoning skills in analytical, critical, synthetic, integrative, adaptive, and creative, and innovative thinking to switch back and forth between causal and effectual reasoning and thus are able to gather as much information about situations as possible before acting. We concluded that by linking entrepreneurship and strategic thinking, we gain a clearer understanding of the gap between entrepreneurial thinking and action, as well as strengthening the ability to see and recognize opportunities. The chapter concludes with five propositions to further develop the links between entrepreneurship and strategic thinking.

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L. Jelenc (✉)

Faculty of Economics, University of Rijeka, Ivana Filipovića 4, 51000 Rijeka, Croatia  
e-mail: [ljelenc@efri.hr](mailto:ljelenc@efri.hr)

J. Pisapia

Department of Educational Leadership and Research Methodology,  
Florida Atlantic University, Florida, USA

## 1 Introduction

Entrepreneurship has been an intriguing domain of research for many decades. What makes it intriguing is that the entrepreneurship literature is dispersed in a number of directions and approaches (Shane & Venkataraman, 2000). At the center of early definitions of entrepreneurship were two phenomena: the presence of lucrative opportunities and the enterprising individual (Venkataraman, 1997a, 1997b). Shane and Venkataraman's (2000, p. 218) later definition involved the nexus of three phenomena: the presence of an opportunity, the presence of enterprising individuals who can "see it," and the presence of enterprising individuals who are capable enough to respond to it irrespective of the existing resources. This definition has gained traction among scholars (Busenitz & Barney, 1996; Kaish & Gilad, 1991; Rosenberg, 1994; Sarasvathy, Simon, & Lave, 1998; Shaver & Scott, 1991; Stevenson, Roberts, & Grousbeck, 1989).

Following Shane and Venkataraman, we suggest that entrepreneurs recognize and exploit opportunities that others fail to see and in doing so find and/or create the future. This definition suggests that entrepreneurs have different characteristics, think differently, behave differently, and work differently than non-entrepreneurs. One barrier to making this definition actionable is the perceived gap between entrepreneurial thinking and behaving. Some scholars have bypassed this chasm by moving directly to the firm level and using the construct of entrepreneurial orientation (EO) to describe the extent to which a firm is entrepreneurial and its relationship with firm performance. Thus, they leapt over the chasm at the root of understanding individual entrepreneurial behavior and its relationship with EO and performance. A second barrier to making the definition actionable is the inability of some to "see" and "recognize" opportunities when they are presented. Some scholars attribute this abyss to the continued emphasis on traditional strategic planning regimes that have failed to perform in the digital era as well as in times of certainty. Many scholars (Bonn, 2001; Graetz, 2002; Heracleous, 2003; Liedtka, 1998; Mintzberg, 1994) and practitioners alike believe the bridge to the future is built on the tenets of strategic thinking which places a premium on the ability to synthesize and see patterns and double loop learning.

In this chapter, we attempt to build bridges that pave the way to overcome the obstacles we identified by returning to the core of entrepreneurship, the individual, how they think, how they behave, how they work. Then we explore ways to bridge, integrate, and combine the knowledge of entrepreneurship, individual entrepreneurial behavior, and causal and effectual reasoning with strategic thinking. The chapter begins with describing three core constructs, individual entrepreneurial behavior, effectuation, and strategic thinking. These descriptive paragraphs are followed by using these three constructs to describe two bridges that connect entrepreneurship literature to strategic thinking research. One bridge links individual entrepreneurial behavior with strategic thinking. The second bridge links effectual thinking with strategic thinking. Hence, we argue that entrepreneurial behavior and effectuation are mindsets and tendencies of entrepreneurs which can

benefit from using strategic thinking skills to develop the capabilities and competences needed for opportunity recognition, growth, prosperity, and development of entrepreneurial venture.

## 2 Individual Entrepreneurial Behavior

Entrepreneurial orientation (EO) theorists hijacked individual entrepreneurial behavior (IEB). It happened something like this. Schumpeter (1942) viewed entrepreneurship as an individual characteristic which was later transformed by Drucker (1970) and Mintzberg (1973) as the capacity and possible strategy mode of the firm. Thus, entrepreneurial orientation (EO) became nested as a firm-level construct that was first introduced by Miller (1983), later developed by Covin and Slevin (1988, 1989), popularized by Lumpkin and Dess (1996), and statistically improved by Covin and Wales (2012). The measurement of entrepreneurial orientation consisting of risk-taking, innovativeness, and proactiveness is well positioned in the entrepreneurship literature as an acknowledged and accepted construct for measuring a firm's entrepreneurial orientation (e.g., Covin & Slevin, 1989; Miller, 1983; Poon, Ainuddin, & Junit, 2006; Richard, Barnett, Dwyer, & Chadwick, 2004). Later attempts by Lumpkin and Dess (1996) to add autonomy and competitive aggressiveness to the original scale proved not to provide consistent results but are still used by some researchers to try to expand the descriptors of EO.

- *Innovativeness* is the predisposition to engage in and support new ideas, novelty, creative processes, and experimentation which may result in opportunity recognition, resource allocation, new products, technological leadership, and services (Lumpkin & Dess, 1996). Innovativeness has been measured as a function of the willingness of managers to suspend former beliefs in order to explore new alternatives and reward experimentation (Karagozoglu & Brown, 1988 cited in Stewart, 2014, p. 37). Innovation is a term implying all sorts of new activities and willingness to depart from the existing and venture beyond the current state of the art (Kimberly, 1981).
- *Proactiveness* is the predisposition to anticipate future environmental changes and demand, find and exploit opportunities, and act upon them by launching new products, services, and technologies ahead of competitors (Covin & Slevin, 1988, 1989; Miller, 1983). It is crucial to have the initiative, to be the first mover vis-à-vis competitors in the market place, to excel in identifying opportunities (Hughes & Morgan, 2007), and to have the predisposition to be a leader (Covin & Slevin, 1989; Miller, 1983).
- *Risk-taking* is the predisposition to take bold actions by committing resources to new projects in the pursuit of an opportunity even when the project has an uncertain outcome or some degree of uncertainty (Covin & Slevin, 1988; Khandwalla, 1977; Miller & Friesen, 1982). Entrepreneurs in comparison to managers have a significantly greater risk-taking propensity (Stewart & Roth,

2001). Moreover, entrepreneurs have cognitive biases that reduce the perception of risk (Simon, Houghton, & Aquino, 2000) and a higher tolerance for risk (Townsend, Busenitz, & Arthurs, 2010 cited by Stewart, 2014).

- *Competitive aggressiveness* is a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position and compete for the existing demand, that is, to outperform industry rivals that already exist in the marketplace (Lumpkin & Dess, 1996).
- *Autonomy* is the predisposition to gain independence from authority in order that independently minded individuals have freedom to create and have their ideas realized (Lumpkin & Dess, 1996). From a firm perspective, it is the authority given its individuals, teams, or departments to conceive and carry out a business concept to completion (Hughes & Morgan, 2007; Lumpkin & Dess, 1996).

Miller (2011), in his revised paper, calls for new and neglected paths of measuring EO. One of these neglected paths was followed by Joardar and Wu (2011, p. 337); Lau, Shaffer, and Au (2007); Lumpkin and Erdogan (2004); and Poon et al. (2006) to go back to the Schumpeterian origins and to measure entrepreneurial orientation at individual level. Even Miller (2011) points out his belief that in small "simple" firms entrepreneurship would be driven by the personality of the leader and that leaders with the internal locus of control would be more entrepreneurial and thus would their firms.

There are two streams of research concerning entrepreneurial orientation measured as an individual behavior of entrepreneurs and senior managers. One stream of research follows the path of Kolman, Christofor, and Kuckertz (2007), Bolton and Lane (2012), and Bolton (2012) which simply transforms and applies the EO constructs directly at individual level. The barrier EO creates is that scholars say EO when they describe IEB. Consider the research of Joardar and Wu (2011) who found that entrepreneurs with higher individual entrepreneurial orientation perform better than those with lower IEO. Jelenc and Pisapia (in press) argue that, based on Baum and Locke (2004); Baum, Locke, and Smith (2001); Markman and Baron (2003); Poon et al. (2006); and Rauch and Frese (2007), the behavior of a small entrepreneurial firm and that of the entrepreneur are likely to be the same. In line with the emerging literature, they defined individual entrepreneurial behavior (IEB) as the behavior entrepreneur's exhibit when discovering and exploiting entrepreneurial opportunities. They retained the original notion that entrepreneurs could be identified by numerous scholars by their innovativeness, proactiveness, and risk-taking behaviors (e.g., Covin & Slevin, 1989; Miller, 1983; Poon et al., 2006; Richard et al., 2004).

The second stream of research has focused on finding more appropriate individually based characteristics (Krueger, 2003), i.e., those that would relate with the elements of the entrepreneurial orientation construct. This approach follows new construct development procedures. For example, the extant literature makes numerous references to the premise that founders and entrepreneurs "think" differently than other individuals or business executives (e.g., Busenitz & Barney, 1997). But it is far less clear where this "cognitive difference" originates from (Baron, 1998,

2007; Foo, Uy, & Baron, 2009). Some scholars attribute it to traits (Baum et al., 2001; Ciavarella, Buchholtz, Riordan, Gatewood, & Stokes, 2004; McClelland, 1961; McClelland, Atkinson, Clark, & Lowell, 1953; Zhao & Seibert, 2006; Zhao, Seibert, & Lumpkin, 2009). Other scholars attribute it to attitudes, alertness, and intentions (Boshoff & Scholtz, 1995; Harris & Gibson, 2008; Robinson, Stimpson, Huefner, & Hunt, 1991; Shariff & Saud, 2009; Stimpson, Huefner, Narayanan, & Shanthakumar, 1993; van Wyk & Boshoff, 2004), and still others to mindsets (Ireland, Hitt, & Simon, 2003).

### 3 The Effectuation Approach

Effectuation is a theoretical approach championed by Saras Sarasvathy (2001) to describe how expert entrepreneurs think and act. The key assumptions of the theory are that effectuation works well in times of dynamism. In such times, entrepreneurs create unpredictable strategies (Wiltbank, Dew, Read, & Sarasvathy, 2006) based on heuristics and control. Control in this sense is not about controlling the future but the means that are available and can be applied to an opportunity. Traditional strategic management theory begins with the premise that to control your destiny, you must first predict the future. In the effectuation approach, the future is cocreated from human action and not from strong forces dictating the business environment. According to Sarasvathy (2001), the better you can control the future, the less you need to predict it. Entrepreneurs control the future by using the resources at their disposal and think of new ways of how to combine them. Since they use only those resources under their control, they do not need to predict the future because the main starting point is not the future but rather the present in which the entrepreneurial identity, resources, and possibilities that arise from contacting the shareholders are the main features. Therefore, the entrepreneur relies on him/herself, his/her available resources, the potential shareholders, and their involvement in his/her venture process.

In the effectuation approach, entrepreneurial reasoning diverges from classical causal reasoning. The research of Read and Sarasvathy (2005) resulted in five observations that explain the differences in effectual and causal reasoning. First, expert effectual thinkers use forward thinking instead of backward thinking. People that use causal reasoning work toward a goal and then prove their action was on-target with information. However, effectual thinkers do the opposite. They “use information cues to *take* action” (p. 17). Second, expert effectual thinkers rely on information to make decisions, but they don’t always rely on predictive information. They realize that information is based on the current context, which is constantly changing, and does not account for effect of the action itself. Third, elite effectual thinkers think beyond what *should* be done and imagine what *can* be done. They are creative thinkers. Fourth, effectual thinkers rely on contingencies in their strategy. Instead of thinking causally, setting a goal, and working toward the goal,

effectual thinkers realize parts of the plan might fail. Therefore, they plan parts and then make decisions on what actually happens or visualize many different paths.

In effectuation theory, entrepreneurs not only think differently but also behave differently than less skilled individuals. In this theoretical framework, expert entrepreneurs utilize a set heuristics to fabricate new artifacts such as ventures, products, opportunities, and markets (Read, Song, & Smit, 2009; Sarasvathy, 2001; Sarasvathy & Dew, 2005; Wiltbank, Dew, Read, & Sarasvathy, 2009). Sarasvathy (2008) coined five principles of effectual thinking: bird-in-hand, affordable loss, crazy quilt, lemonade, and pilot-in-the-plane, to describe these behaviors.

**Bird-in-Hand** The *bird-in-hand* principle means assess the means you control. Entrepreneurs start with the resources they possess to take immediate action (Sarasvathy, 2008). They start with who they are and what means they possess. They are not goal dependent. To the entrepreneur, goals are flexible and can be changed, moved, or compromised if the environment demands. They implement this task by performing an inventory of their own identity and the resources at their disposal. They do this by asking a set of iterative questions. *Who am I?* What are my personal characteristics, personality, and preferences and individual choices? Then they ask. *What do I know?* What are my knowledge, expertise, and capabilities? *Who do I know?* Who can connect me people that I can ask for help, assistance, partnership, and funding in the process of cocreation.

**Affordable Loss** The *affordable loss* principle means limit your risk by investing what you can afford to lose at each step. Causal reasoning advocates would calculate risk by predicting potential yield and then if acceptable invest necessary resources. Some would say, if the risk reward ratio was very strong, they would “bet the farm.” Effectual thinkers see the risk reward calculation differently. They would not “put all their eggs in one basket.” They determine how much they can afford to lose and step back from an investment if costs escalate above this mark. Dew, Read, Sarasvathy, and Wiltbank (2009) suggest four questions to determine the affordable loss that can be taken on by the entrepreneur. First, can the undertaking be executed and implemented? Will it be attractive and well accepted on the market? Am I able to accomplish it? Do I really want to devote energy and time to accomplish it? Based on the answers to these questions, the entrepreneur sets the limit of investment they can afford to lose. Until they reach that level, all the mistakes and failures are acceptable as an investment and source of learning. By adhering to this disciplined approach, they reduce the chances of falling into the trap of escalating their commitment (Staw, 1981) and invest money, time, or energy into a failing project or product hoping that the trend will change.

**Make Lemonade** The *make lemonade* principle refers to embracing and leveraging surprises. During the course of trying to exploit an opportunity, things happen that were not expected. The uncertainty these unexpected events create cannot be avoided, but they cannot be totally predicted. Rather than trying to avoid them, Sarasvathy (2008) suggests that the best strategy to employ is to know how to use

the current situation to your own benefit; “make lemonade out of lemons.” They interpret the “bad” news and seek clues to make the project work.

**Crazy Quilt** The *crazy quilt* principle means share the risk with a network of likeminded individuals. Entrepreneurs share their ideas with other people, engaging them to join, collaborate, and cocreate the new venture. People join in with their own values, goals, and motivation and change the original founder’s idea. Negotiate only with stakeholders who are willing to make actual commitments. New partners share their ideas, reduce the risk, bring their own resources, create new possibilities, and alternate the original goal. Effectual thinkers create the quilt not to actually sell their product but rather to acquire new ideas, new markets, new customers, and new future success. As the quilt forms, the opportunity is embraced and new opportunities emerge.

**Pilot-in-the-Plane** The pilot-in-the-plane principle refers to focusing on things the pilot controls, means, processes, and, hopefully, outcomes. This principle is supported by the sense of freedom and autonomy that being one’s own boss brings. The pilot believes the future is made, not predicted nor found. Entrepreneurs do not see a predetermined society and do not perceive constraints. Hence, they perceive themselves and their partners and shareholders as the force that can reshape, redirect, and recreate the future. Their role is active and directed toward those elements that they have control over. They leave out elements that they cannot control from their business model if possible. Their action and proactiveness is perceived as positive and powerful, cocreating a better future.

## 4 Strategic Thinking

Given, the fact that the lack of the strategic thinking capability is recognized as the major detractor of economic performance (Bonn, 2001; Zabriskie & Huellmantel, 1991), the definitions of strategic thinking found in the existing literature are perplexing. Whatever unexpected and/or underresearched happens in practice; people blame it either on the supremacy of strategic thinking or its lack (Jelenc, 2009). The many mystifications and interpretations of its meaning may be due to its cognitive character and that it is under-theorized (Stubbart, 1989, p. 326; Torset, 2001, p. 3–12). These conditions make it elusive to define, measure, train, or learn, as well as how to think strategically. The lack of research is understandable because strategic thinking skills are elusive due, in part, to the difficulty in determining and measuring the cognitive components of strategic thinking (Rosche, 2003, p. 1). Consider, for example, Mintzberg’s (1994) description of strategic thinking. He said it can be thought of as “seeing ahead and behind, seeing above and below, seeing beside and beyond, and seeing it through” (1994, p. 247).

The first attempts at defining the term and the main elements of strategic *thinking skills* came from Bonn (2001), Liedtka (1998), Jacobs (1994), and Mintzberg (1991). Jelenc (2009) and Jelenc and Swiercz (2011) proposed systems thinking,

hypothesis generation and testing, focused intent, time, professional capability, conceptual flexibility, future vision, political sensitivity, intuition, and uncertainty/paradox/disequilibrium as the essence of strategic thinking.

Strategic thinking skills are not teachable but are learnable and trainable skills (Horwath, 2014; Pisapia, 2013; Sloan, 2013). Horwath (2014) based his work on three disciplines of advanced strategic thinking: coalesce (combining insights in order to create an innovative business model), compete (creating a system of strategy to achieve competitive advantage), and champion (bringing strategic thinking to everybody). Sloan (2013) is more precise with skills. She focuses on critical dialogue, critical thinking and critical inquiry and identifies five critical attributes of strategic thinking: imagination, broad perspective, juggle, no control over and desire to win.

Pisapia (2009) presented the complete leadership framework, *the leader's wheel*, by naming six habits of a successful leader: assuring, anticipating, aligning, articulating, artistry, and agility. The agility habit focuses on skills in strategic thinking. Pisapia, Reyes-Guerra, and Coukos-Semmel (2005) and Pisapia (2009) formulated strategic thinking skills as systems thinking, reframing, and reflecting skills. Systems thinking refers to the leader's ability to see systems holistically, by understanding the properties, forces, patterns, and interrelationships that shape the behavior of the system, which hence provides options for action. Reflecting refers to the leader's ability to weave logical and rational thinking, through the use of perceptions, experience, and information, to make judgments on what has happened, and the creation of intuitive principles that guide future actions. Reframing refers to the leader's ability to switch attention across multiple perspectives, frames, mental models, and paradigms to generate new insights and options for actions.

Pisapia (2009) also developed the strategic thinking questionnaire (STQ) to test his strategic thinking constructs. The STQ was psychometrically validated by Pisapia, Morris, Cavanaugh, and Ellington (2011) and the resulting reliabilities (alphas) of the STQ subscales ranged from *reframing* (0.73), *reflection* (0.76), to *systems thinking* (0.77). The STQ has been translated into Chinese, Malay, Hindi, Turkish, Farsi, Polish, Arabic, and Croatian. It has been used in research and for training purposes.

## 5 Bridging Individual Entrepreneurial Behavior with Strategic Thinking

Both individual entrepreneurial behavior and strategic thinking are constructs based on the individual even though they are perceived at firm level as the organizational source of competitive advantage. Yet, without individual level capacity, it is not possible to develop an organizational culture conducive to "first to market, with the right product, at the right price" mentality. Thinking strategically and acting entrepreneurially at the individual level are the foundation of the firm being able



to think strategically and act entrepreneurially. Building this bridge solidifies the link to corporate profitability.

From our research, (Jelenc & Pisapia, [in press](#)) we argue that there is a relation between individual entrepreneurial behavior and strategic thinking skills (STS) which enables entrepreneurs to create and later on to sustain the business. The research was performed using the STQ on entrepreneurs in 136 IT firms in the Republic of Croatia. The correlation of constructs was weak, but positive ( $r = 0.220$ ,  $p < .001$ ). The regression analysis showed that STS significantly predicted IEB,  $b = 0.220$ ,  $t(125) = 2.605$ ,  $p < .10$ . *Strategic thinking skills* explained a significant proportion of variance in individual entrepreneurial behavior,  $R^2 = .041$ ,  $F_{(1,125)} = 6.788$ ,  $p < .10$ .

In this study, *systems thinking* seemed to be a crucial strategic thinking skill; this means that if you had to have one skill, it would be systems thinking, but in previous research using the STQ, it was demonstrated that the three skills work in tandem, so all are important. Similarly, we found that systems thinking influenced all three elements of individual entrepreneurial behavior. Reframing and reflecting joined systems thinking as important predictors of proactiveness.

In relationship to risk-taking, the regression analysis showed that *systems thinking* significantly predicted *risk-taking*,  $b = 0.292$ ,  $t(125) = 3.538$ ,  $p < .001$ . *System thinking* explained a significant proportion of variance in *risk-taking*,  $R^2 = .079$ ,  $F_{(1,125)} = 12.515$ ,  $p < .001$ . *Risk-taking* is associated with both the reduction of the perception of risk (Simon et al., 2000) and a higher tolerance for risk (Townsend et al., 2010). In this case, raising the knowledge on systems raises the ability of *risk-taking*. Risk-taking is considered as a self-understood characteristic specific for entrepreneurs. At least at first glance. Actually, the *risk-taking* is based on a relative criterion. In comparison to non-entrepreneurs, entrepreneurs take higher risk. However, it should be noted that the level of taking higher risk is defined subjectively. Moreover, it is possible that an entrepreneur has a higher tolerance to risk because he/she does not necessarily perceive uncertainty as a source of anxiety or discomfort. Consequently, an entrepreneur does/may not see risk as a situation that should be escaped from or stabilized. He/she may see it as a context for innovations and an opportunity to act proactively on the market. If there was no risk, he/she would not have anything to benefit from.

In relationship to innovativeness, the regression analysis showed that *systems thinking* significantly predicted *innovativeness*,  $b = 0.174$ ,  $t(125) = 2.040$ ,  $p < .05$ . *Systems thinking* explained a significant proportion of variance in *innovativeness*,  $R^2 = .023$ ,  $F_{(1,125)} = 4.162$ ,  $p < .05$ . The essence of *innovativeness* emerges from two points: being open-minded for new options and being ready to engage in creation of changes. Being open for new options implies recognizing that current state of reality is relative, flexible, and prone to changes. It is better that these changes are self-introduced than forced by competitors or market trends. *Systems thinking* could contribute to *innovativeness* by providing rational sources of patterns and interrelationships that already exist and, at the same time, lack on the market.

In relationship to proactiveness, results show that all three strategic thinking skills (systems thinking, reframing, and reflecting) enable higher levels of entrepreneurial proactiveness. Proactiveness, as the initiative taken by the entrepreneur, implies first-mover activities such as introducing a new product/service on the market (Covin & Slevin, 1988, 1989; Miller, 1983), acting opportunistically and exploiting market opportunities (Lumpkin & Dess, 1996), anticipating opportunities, and showing a forward-looking initiative (Hughes & Morgan, 2007).

Since innovativeness is more based on openness and readiness for new challenges, proactiveness is based on actions directed toward identifying the real opportunities among many ideas, by anticipating environmental change, their realization, and proliferation for the purpose of being the leader and first mover in the market place. Proactiveness picks ideas and places them in the right market place, at the most suitable moment and in the most appropriate manner.

Again, *systems thinking* significantly predicted *proactiveness*,  $b = 0.341$ ,  $t(125) = 4.206$ ,  $p < .001$ . *System thinking* explained a significant proportion of variance in *proactiveness*,  $R^2 = .110$ ,  $F_{(1,125)} = 17.687$ ,  $p < .001$ . *Systems thinking* is essential in understanding, based on already-known combinations, processes, and interrelatedness, the possibilities on, whereas *proactiveness* contributes with new ideas and suggestions.

*Systems thinking* is a more formative way of getting insights into environmental trends and the existence of lack of market demand. In order to operationalize a new idea in the business context, it is necessary to know the network of players on the existing market and if there are potentials for creating a new market, new rules, and new players.

*Reflecting* and *reframing* are additional skills that significantly relate to higher levels of *proactiveness*. This is achieved through new insights based on current experience and by questioning assumptions and shifting mental models. *Reflecting* is a general ability for self-administered process of learning from experience, events, competitors, and the process itself. *Reflecting* significantly predicted *proactiveness*,  $b = 0.271$ ,  $t(125) = 3.256$ ,  $p < .001$ . *Reflecting* explained a significant proportion of variance in *proactiveness*,  $R^2 = .066$ ,  $F_{(1,125)} = 10.604$ ,  $p < .001$ .

*Reframing* helps in understanding the existing state of things and at the same time helps in one's try to position him/her differently in the market to achieve a competitive advantage. *Reframing* significantly predicted *proactiveness*,  $b = 0.349$ ,  $t(125) = 4.318$ ,  $p < .001$ . *Reframing* explained a significant proportion of variance in *proactiveness*,  $R^2 = .116$ ,  $F_{(1,125)} = 18.641$ ,  $p < .001$ .

These findings capture the essence of the relationship between the use of strategic thinking skills and individual entrepreneurial behavior. The relation is set in two directions: predictive power of *systems thinking* on all elements of individual entrepreneurial behavior and the predictive power of all elements of strategic thinking skills on *proactiveness*. Although this is just one study, it demonstrates that a relationship exists, and through replications in different industries, the strength of the findings can be determined.

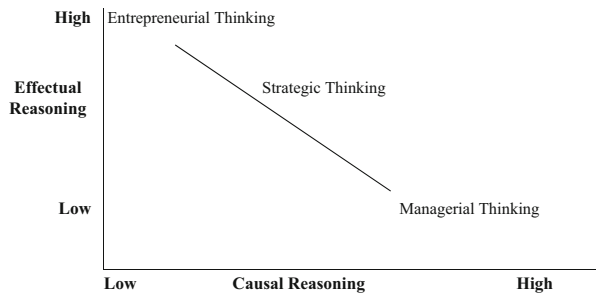
## 6 Bridging Effectual Thinking and Strategic Thinking

Causal and effectual reasoning have been thoroughly contrasted in the extant literature (Pisapia, Jelenc, & Mick, 2015; Read & Sarasvathy, 2005). As seen in Fig. 1, a heavy reliance on effectual reasoning results in entrepreneurial thinking, while a heavy reliance on causal thinking results in managerial thinking. The bridge between these two types of thinking is strategic thinking. Figure 1 presents the relationship between entrepreneurial, strategic, and managerial reasoning.

The traditional view on entrepreneurship research is based on rational decision-making models, seeking to predict the future and uncover competitive advantages. In fact, Bird (1989) and Drucker (1998) claimed that most opportunities are discovered through purposeful search procedures. These models use causal reasoning, which begins with a given goal, a competitive analysis of capabilities, threats, and opportunities and ends in a prediction of the future. Analytics and analysis are at the center of causal reasoning. Causal reasoning is useful in cases when the future is predictable and the environment stable. Thus, managers who tend to use a causal logic use discipline, control, and monitoring to reduce complexity. In such environments, causal reasoning helps managers choose. Causation underpins the traditional strategic planning processes as well as managerial thinking.

However, effectual reasoning, created and championed by Saras Sarasvathy (2001), argues that entrepreneurs try to control their future rather than predict it. Effectuates assume that opportunities are not waiting to be discovered. They are created by the entrepreneur and her/his partners. Improvisation and bricolage are at the center of effectual reasoning (Baker, Miner, & Easley, 2003; Baker & Nelson, 2005). From their perspective, entrepreneurs start with a rough idea of what means they possess: who they are, what they know, and who they know. They use counterfactual thinking to remain open to change, in that they exploit unexpected knowledge, not existing knowledge (Fischer & Reuber, 2011). Sarasvathy suggests that entrepreneurs determine their goals according to the resources they possess. Then, they determine the downside of their actions and set an affordable loss figure to manage their risk (Dew, Sarasvathy, & Read 2009). If they can afford it, they pursue the opportunity by attempting to get customers and income early in the process by networking with self-selected stakeholders and thus spreading the risk to others (Chandler, DeTienne, McKelvie, & Mumford, 2011).

**Fig. 1** The relationship of entrepreneurial, strategic, and managerial thinking (Source: Authors)



Whereas the causal thinker believes that the future is predictable and the effectual thinker believes the future can be controlled, the strategic thinker believes that only the shape of the future can be predicted (Pisapia, 2009). Thus, the strategic thinker envisions potential futures and devises new strategies to move the organization toward an evolving future, while creating a horizontal alignment internally. Synthesis is at the center of strategic thinking (Mintzberg, 1991; Pisapia, 2009). Strategic thinkers use strategic reasoning which blends causal and effectual logic and adds synthesis, creative and divergent thought processes. The strategic way of reasoning enables intelligent opportunism, openness to new experience, and a holistic view of the organization and environment (Bonn, 2001; Senge, 1990) which leads to an intentional but emergent strategy (Hamel & Prahalad, 1994) that focuses attention on the gap between the current reality and the intent for the future. The key questions the strategic thinkers ask are “What if” and “If. . .then.” The outcome of strategic thinking is an integrated perspective, invention, and a sense of direction (Pisapia, 2009).

We propose positioning strategic thinking in the middle of the effectual-causal continuum proposed by Sarasvathy. While there are clear differences between causal and effectual reasoning, corporate executives, even those in Sarasvathy’s study group, use both forms of reasoning. They also apply strategic thinking. Strategic leaders employ cognitive ambidexterity: they switch back and forth between causal and effectual approaches. The importance of strategic thinking for entrepreneurs goes pretty much unchallenged because it deals with sensing future opportunities and making judgmental decisions to capture these opportunities (Casson, 1982; Dragoni, Oh, Vankatwyk, & Tesluk, 2011; Hebert & Link, 1988) which results in assessing, estimating, and inferring the likelihood of an event to occur and establishing a preferred future to fit to the environment and choosing courses of action (Hastie, 2001).

More closely, the relation between entrepreneurial and strategic thinking is interesting. The differences between entrepreneurial and strategic thinking come from the context in which they are used. Both of them are alternative research directions within the domain of entrepreneurship and strategic management. They are practice-based approaches explaining real-time activities in the office and not abstract paradigms of a specific school of thought. Their elements, concepts, heuristic processes, and pragmatic vocabulary are not usually seen in other types of approaches in literature. Both of them have developed as a response to the call from practitioners to bring together the research and the challenges practitioners face and not as separate worlds and self-efficacy approaches.

Starting from definitions, both of them have common key elements. The entrepreneurial definition can be adjusted to fit strategic thinking definition and the other way round the definition of strategic thinking to fit entrepreneurial thinking. The element in common is the agent who has responsibility and power to make decisions about creating purpose, direction, action, and the allocation of resources when creating new value. The only difference is in the size of the firm and the formality of the role in company in which they are practiced.

The way of thinking is based on the heuristics of the entrepreneur/top manager. He/she is (in both roles) using far from rational, linear, causal, and predicted decisions. His/her behavior is based on heuristics, depending on the situation, context, and the combination of all theoretically known types of behavior. It is not a dichotomous type of behavior and theory does not offer such a wide range of behavioral types.

Both entrepreneurial and strategic thinking are oriented not necessarily to the predefined goal that needs to be achieved but toward the process. The process brings unexpected changes, adjustments, and creation of new goals and definitely concludes as the best way of using resources in given circumstances. The process recognizes both formal procedures and those informal as of equal importance. The type of strategy used is defined as unpredictable; it is better not to follow and/or to be followed by the competition.

The content of both types of thinking is based on the dynamic processes and heuristic tools explained with the vivid labels in case of effectuation and wide concepts in case of strategic thinking. Both types of thinking support an active role in creating the future, expanding the perception of barriers and cognitive limits of individuals.

The best way to promote both types of thinking is to put them in relation to performance. In practice people certainly know when there is a lack of entrepreneurial or strategic thinking, but when you express this lack in monetary units, the attention in practice and literature put them on the top of the priority list. In order to succeed, it is important to find appropriate measures for each type of thinking.

## 7 Conclusion

In this chapter, we presented two bridges linking entrepreneurship and strategic thinking. First, we linked individual entrepreneurial behavior with strategic thinking skills. We found that *systems thinking* is the strongest predictor of all three elements of individual entrepreneurial behavior (risk-taking, innovativeness, and proactiveness). While *systems thinking potentially has* the most practical usage for entrepreneurs, the entrepreneur needs a wide array of cognitive skills to call upon. Each of the three strategic thinking skills contributes to the entrepreneur's ability to take risks and be innovative and proactive. Skill in *systems thinking* is essential to recognize the patterns forming the opportunity and the interdependencies among opportunities and actors. It enables risk-taking, innovativeness, and proactiveness. Skill in *reframing* is vital to recognize new opportunities and being open to different ways of acting on them. It enables proactiveness and could be developed by listening to customers, stakeholders, and employers and seeing the creation process from different perspectives. *Reframing* could be perceived as the source of competitive advantage, as it emerges from trying to think differently than other competitors. *Reflecting* has a wide range of uses. It is an important skill to make sense of the information entrepreneurs collect through systems thinking and

reframing and from this sense making develop wisdom that helps nurture the heuristics that guide much of entrepreneurial work. *Reflecting in action* can also be used in practice to generatively process information. Most importantly *reflecting for action* can enable one to decide how to respond, act, and/or exploit possibilities (Pisapia, 2009). As we saw in our findings, reflecting enables proactiveness. The links we found between strategic thinking skills and entrepreneurial behavior were strong enough to recommend that strategic thinking skills should be learned, trained, and practiced by entrepreneurs, leaders, and managers at all levels of the organization.

Our second bridge between entrepreneurship and strategic thinking positioned strategic thinking, as a link between the effectual and causal reasoning continuum. We noted the binary nature of causal and effectual reasoning which needed a synthesizing function. The extant literature speaks of strategic thinkers employing cognitive ambidexterity (see Pisapia et al., 2015). They use analytical, critical, synthetic, integrative, adaptive, creative, and innovative thinking skills to switch back and forth between causal and effectual approaches and thus are able to gather as much information about situations as possible before acting.

We began this chapter by suggesting that entrepreneurs recognize and exploit opportunities that others fail to see and in doing so find and/or create the future. We suggested that one barrier to making this definition actionable was a perceived gap between entrepreneurial thinking and behaving. The second barrier we identified was the inability of some to “see” and “recognize” opportunities. By suggesting possible bridges between entrepreneurship and strategic thinking, we hoped to open new research questions within the domain of strategic entrepreneurial literature. Hence, we extracted several propositions from our discussion of the relationship of entrepreneurship and strategic thinking that could be further tested in different settings.

**Proposition 1** Does the use of strategic thinking skills by entrepreneurs influence the enactment of the entrepreneurial principles of a bird in hand, affordable loss, crazy quilt, make lemonade, and pilot in the plane?

**Proposition 2** Does the use of strategic thinking skills by entrepreneurs enhance their ability to spot opportunities?

**Proposition 3** Does the use of strategic thinking skills by entrepreneurs enhance their risk-taking, innovativeness, and proactiveness in firms other than IT sector?

**Proposition 4** Is there a causal link between the entrepreneur’s use of strategic thinking skills, their individual entrepreneurial behavior and entrepreneurial action principles, and firm performance?

**Proposition 5** Does the entrepreneur’s use of strategic thinking and entrepreneurial thinking skills coexist or dominate the firm’s entrepreneurial orientation at different stages of development?

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## References

- Baker, T., Miner, A., & Easley, D. (2003). Improvising firms: Bricolage, retrospective interpretation and improvisational competencies in the founding process. *Research Policy, 32*(2), 255–276.
- Baker, T., & Nelson, R. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly, 50*(3), 329–366.
- Baron, R. A. (1998). Cognitive mechanisms in entrepreneurship: Why and when entrepreneurs think differently than other people. *Journal of Business Venturing, 13*, 275–294.
- Baron, R. A. (2007). Behavioral and cognitive factors in entrepreneurship: Entrepreneurs as the active element in new venture creation. *Strategic Entrepreneurship Journal, 1*, 167–182.
- Baum, J. R., & Locke, E. A. (2004). The relationship of entrepreneurial traits, skill and motivation to subsequent venture growth. *Journal of Applied Psychology, 89*(4), 587–598.
- Baum, J. R., Locke, E. A., & Smith, K. G. (2001). A multidimensional model of venture growth. *Academy of Management Journal, 44*, 292–303.
- Bird, B. (1989). *Entrepreneurial behavior*. Glenview, IL: Scott Foresman.
- Bolton, D. (2012). Individual entrepreneurial orientation: Further investigation of a measurement instrument. *Academy of Entrepreneurship Journal, 18*(1), 91–98.
- Bolton, D., & Lane, M. (2012). Individual entrepreneurial orientation: Development of a measurement instrument. *Education + Training, 54*(2/3), 219–233.
- Bonn, I. (2001). Developing strategic thinking as a core competency. *Management Decision, 39*(1), 63–71.
- Boshoff, A. B., & Scholtz, C. P. T. (1995). Measuring attitudes as a way of differentiating entrepreneurs. *South African Journal of Economic and Management Sciences, 16*, 1–11.
- Busenitz, L., & Barney, J. (1996). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in the strategic decision-making. *Journal of Business Venturing, 12*, 9–30.
- Busenitz, L., & Barney, J. (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in the strategic decision-making. *Journal of Business venturing, 11*, 9–30.
- Casson, M. (1982). *The entrepreneur*. Totowa, NJ: Barnes Noble Books.
- Chandler, G., DeTienne, D., McKelvie, A., & Mumford, T. (2011). Causation and effectuation processes: A validation study. *Journal of Business Venturing, 26*(3), 375–390.
- Ciavarella, M. A., Buchholtz, A. K., Riordan, C. M., Gatewood, R. D., & Stokes, G. S. (2004). The Big Five and venture survival: Is there a linkage? *Journal of Business Venturing, 19*, 465–483.
- Covin, J. G., & Slevin, D. (1988). The influence of organizations structure on the utility of entrepreneurial top management style. *Journal of Management Studies, 25*(3), 217–234.
- Covin, J., & Slevin, D. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal, 10*, 75–87.
- Covin, J. G., & Wales, W. J. (2012). The measurement of entrepreneurial orientation. *Entrepreneurship Theory and Practice, 36*(4), 677–702.
- Dew, N., Read, S., Sarasvathy, S., & Wiltbank, R. (2009). Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices. *Journal of Business Venturing, 24*(4), 287–309.
- Dew, N., Sarasvathy, S., & Read, J. S. (2009). Affordable loss: Behavioral economic aspects of the plunge decision. *Strategic Entrepreneurship Journal, 3*(2), 105–126.

- Dragoni, L., Oh, I., Vankatwyk, P., & Tesluk, P. (2011). Developing executive leaders: The relative contribution of cognitive ability, personality, and the accumulation of work experience in predicting strategic thinking competency. *Personnel Psychology, 64*, 829–864.
- Drucker, P. (1970). Entrepreneurship in business enterprise. *Journal of Business Policy, 1*, 3–12.
- Drucker, P. (1998). The coming of the new organization. In P. Drucker (Ed.), *Harvard business review on knowledge management*, (Vol. 1, pp. 1–19). Boston, M.A.: Harvard Business School Press
- Fischer, E., & Reuber, A. (2011). Social interaction via new social media: (How) can interactions on Twitter affect effectual thinking and behavior. *Journal of Business Venturing, 26*, 1–18.
- Foo, M., Uy, M., & Baron, R. (2009). How do feelings influence effort? An empirical study of entrepreneurs' affect and venture effort. *Journal of Applied Psychology, 94*(4), 1086–1094.
- Graetz, F. (2002). Strategic thinking versus strategic planning: Towards understanding the complementarities. *Management Decision, 40*(5), 456–462.
- Hamel, G., & Prahalad, C. (1994). *Competing for the future*. Boston: Harvard Business School Publishing.
- Harris, M. L., & Gibson, G. S. (2008). Examining the entrepreneurial attitudes of US business students. *Education and Training, 50*(7), 368–381.
- Hastie, R. (2001). Problems for judgment and decision making. *Annual Review of Psychology, 52*, 653–683.
- Hebert, R., & Link, A. (1988). *The entrepreneur: Mainstream views and radical critiques* (2nd ed.). New York: Praeger Publishers.
- Heracleous, L. (2003). *Strategy and organization: Realizing strategic management*. Cambridge: Cambridge University Press.
- Horwath, R. (2014). *Elevate: The three disciplines of advanced strategic thinking*. New York: Wiley.
- Hughes, P., & Morgan, R. E. (2007). A resource-advantage perspective of product-market strategy performance strategic capital in high technology firms. *Industrial Marketing Management, 36* (5), 503–517.
- Ireland, R. D., Hitt, M. A., & Simon, D. G. (2003). A model of strategic entrepreneurship: The construct and its dimensions. *Journal of Management, 26*(6), 963–989.
- Jacobs, T. O. (1994). *A guide to the strategic leader development inventory*. Washington, DC: National Defense University Industrial College of the Armed Forces.
- Jelenc, L. (2009). *The impact of strategic management and strategic thinking on the performance of Croatian entrepreneurial practice*. Doctoral dissertation, University of Ljubljana, Slovenia.
- Jelenc, L., & Pisapia, J. Individual entrepreneurial behavior in IT firms in Croatia: The relative contribution of strategic thinking skills (under review).
- Jelenc, L., & Swiercz, P. M. (2011). *Strategic thinking capability: Conceptualization and measurement* (pp. 1–25). The 56th Annual ICSB, Stockholm.
- Joardar, A., & Wu, S. (2011). Examining the dual forces of individual entrepreneurial orientation and liability of foreignness on international entrepreneurs. *Canadian Journal of Administrative Sciences, 28*, 328–340.
- Kaish, S., & Gilad, B. (1991). Characteristics of opportunities search of entrepreneurs versus executives: Sources, interests, and general alertness. *Journal of Business Venturing, 6*, 45–61.
- Karagozlu, N., & Brown, W. B. (1988). Adaptive responses by conservative and entrepreneurial firms. *Journal of Product Innovation Management, 5*(4), 269–281.
- Khandwalla, P. (1977). *The design of organizations*. New York: Harcourt Brace Jovanovich.
- Kimberly, J. R. (1981). Managerial innovation. In P. C. Nystrom & W. H. Starbuck (Eds.), *Handbook of organizational design* (pp. 84–104). New York: Oxford University Press.
- Kolman, T., Christofor, J., & Kuckertz, A. (2007). Explaining individual entrepreneurial orientation: Conceptualizing of a cross-cultural research framework. *International Journal of Entrepreneurship and Small Business, 4*(3), 325–340.



- Krueger, N. (2003). The cognitive psychology of entrepreneurship. In Z. J. Acs & D. B. Audretsch (Eds.), *Handbook of entrepreneurship research* (pp. 105–140). London: Kluwer Law International.
- Lau, V. P., Shaffer, M. A., & Au, K. (2007). Entrepreneurial career success from a Chinese perspective: Conceptualization, operationalization, and validation. *Journal of International Business Studies*, 38, 126–146.
- Liedtka, J. M. (1998). Strategic thinking: Can it be taught? *Long Range Planning*, 31(1), 120–129.
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135–172. doi:10.2307/258632.
- Lumpkin, G. T., & Erdogan, B. (2004). If not entrepreneurship, can psychological characteristics predict entrepreneurial orientation? – A pilot study. *The ICFAI Journal of Entrepreneurship Development*, 1, 21–33.
- Markman, G. D., & Baron, R. A. (2003). Peron-entrepreneurship fit: Why some people are more successful as entrepreneurs than others. *Human Resource Management Review*, 134, 1–21.
- McClelland, D. C. (1961). *The achieving society*. New York: Van Nostrand.
- McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). *The achievement motive*. New York: Appleton-Century-Crofts.
- Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, 29(7), 770–791.
- Miller, D. (2011). Miller (1983) revisited: A reflection on research and some suggestions for the future. *Entrepreneurship Theory and Practice*, 35(5), 873–894.
- Miller, D., & Friesen, P. H. (1982). Innovation in conservative and entrepreneurial firms: Two models of strategic momentum. *Strategic Management Journal*, 3(1), 1–25. doi:10.1002/s4250030102.
- Mintzberg, H. (1973). *The nature of managerial work*. New York: Harper Row.
- Mintzberg, H. (1991). Learning 1, planning 0 reply to Igor Ansoff. *Strategic Management Journal*, 12, 463–466.
- Mintzberg, H. (1994). The fall and rise of strategic planning. *Harvard Business Review*, 72(1), 107–114.
- Pisapia, J. (2009). *The strategic leader: New tactics for a globalizing world*. Charlotte, NC: Information Age Publishing.
- Pisapia, J. (2013). Developing the strategic mind: Think differently to think different. In G. Shive (Ed.), *Leadership and social change in America*. Beijing: Peking University Press.
- Pisapia, J., Jelenc, L., & Mick, A. (2015). The foundations of strategic thinking: Effectual, strategic, and causal reasoning. In I. V. Raguz, N. Podrug, & L. Jelenc (Eds.), *Neostrategic management*. Heidelberg: Springer.
- Pisapia, J., Morris, J., Cavanaugh, G., & Ellington, L. (2011, November 6–9). *The strategic thinking questionnaire: Validation and confirmation of constructs*. The 31st SMS annual international conference, Miami, FL.
- Pisapia, J., Reyes-Guerra, D., & Coukos-Semmel, E. (2005). Developing the leaders strategic mindset: Establishing the measures. *The Leadership Review*, 5(1), 41–68.
- Poon, J., Ainuddin, R., & Junit, S. (2006). Effects of self-concept traits and entrepreneurial orientation on firm performance. *International Small Business Journal*, 24(1), 61–82.
- Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation and success. *European Journal of Work and Organizational Psychology*, 16, 353–385.
- Read, S., & Sarasvathy, S. (2005). Knowing what to do and doing what you know: Effectuation as a form of entrepreneurial expertise. *Journal of Private Equity*, 9, 45–62.
- Read, S., Song, M., & Smit, W. (2009). A meta-analytic review of effectuation and venture performance. *Journal of Business Venturing*, 24(6), 573–587.

- Richard, O. C., Barnett, T., Dwyer, S., & Chadwick, K. (2004). Cultural diversity in management, firm performance, and the moderating role of entrepreneurial orientation dimensions. *Academy of Management Journal*, 47(2), 255–266.
- Robinson, P. B., Stimpson, D. V., Huefner, J. C., & Hunt, H. K. (1991). An attitude approach to prediction of entrepreneurship. *Entrepreneurship Theory and Practice*, 15(4), 13–31.
- Rosche, A. L. H. W. (2003). *Personality correlates of strategic thinking in an organizational context*. Faculty of the California School of Organizational Studies, Alliant International University, Alhambra, CA.
- Rosenberg, N. (1994). *Exploring the black box: Technology, economics and history*. Cambridge: Cambridge University Press.
- Sarasvathy, S. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243–263.
- Sarasvathy, S. (2008). *Effectuation: Elements of entrepreneurial expertise*. Cheltenham: Edward Elgar.
- Sarasvathy, S., & Dew, N. (2005). New market creation through transformation. *Journal of Evolutionary Economics*, 15(5), 533–565.
- Sarasvathy, S., Simon, H., & Lave, I. (1998). Perceiving and managing business risks: Differences between entrepreneurs and bankers. *Journal of Economic Behavior and Organization*, 33(2), 207–225.
- Schumpeter, J. (1942). *Capitalism, socialism, and democracy*. New York: Harper and Brothers.
- Senge, P. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25, 217–226.
- Shariff, M. N. M., & Saud, M. B. (2009). An attitude approach to the prediction of entrepreneurship on students at institution of higher learning in Malaysia. *International Journal of Business and Management*, 4(4), 129–135.
- Shaver, K., & Scott, L. (1991). Person, process, and choice: The psychology of new venture creation. *Entrepreneurship Theory and Practice*, 16, 23–42.
- Simon, M., Houghton, S. M., & Aquino, K. (2000). Cognitive biases, risk perception, and venture formation: How individuals decide to start companies. *Journal of Business Venturing*, 15(2), 113–134.
- Sloan, J. (2013). *Learning to think strategically* (2nd ed.). London: Routledge.
- Staw, B. M. (1981). The escalation of commitment to a course of action. *Academy of Management Review*, 6, 577–587.
- Stevenson, H., Roberts, M., & Grousbeck, H. (1989). *Business ventures and the entrepreneur*. Homewood, IL: Richard D Irwin.
- Stewart, S. (2014). *A foot in both camps: The influence of role identity centrality of professional service entrepreneurs on entrepreneurial orientation and firm performance*. Unpublished Dissertation, Florida Atlantic University, Boca Raton, FL.
- Stewart, W. H., Jr., & Roth, P. L. (2001). Risk propensity differences between entrepreneurs and managers: A meta-analytic review. *Journal of Applied Psychology*, 86(1), 145–153.
- Stimpson, V. S., Huefner, J. C., Narayanan, S., & Shanthakumar, D. (1993). Attitudinal characteristics of male and female entrepreneurs of the United States and India. *Psychological Studies*, 38(2), 64–68.
- Stubbart, C. I. (1989). Managerial cognition: A missing link in strategic management research. *Journal of Management Studies*, 26, 325–347.
- Torset, C. (2001, July 5–7). *Strategic thinking: Why, what, and how? An organizational model of strategic thinking*. EGOS XVIIth Colloquium, The Odyssey of Organizing, Lyon.
- Townsend, D. M., Busenitz, L. W., & Arthurs, J. D. (2010). To start or not to start: Outcome and ability expectations in the decision to start a new venture. *Journal of Business Venturing*, 25, 192–202.

- van Wyk, R., & Boshoff, A. B. (2004). Entrepreneurial attitudes: A distinction between two mutually exclusive groups on the Holland hexagon of occupations. *South African Journal of Business Management*, 35(2), 33–38.
- Venkataraman, S. (1997a). Advances in entrepreneurship, firm emergence, and growth. In J. Katz & R. Brockhaus (Eds.), *The distinctive domain of entrepreneurship research: An editor's perspective* (Vol. 3, pp. 119–138). Greenwich, CT: JAI Press.
- Venkataraman, S. (1997b). The distinctive domain of entrepreneurship research: An editor's perspective. In J. Katz & R. Brockhaus (Eds.), *Advances in entrepreneurship, firm emergence, and growth* (Vol. 3, pp. 119–138). Greenwich, CT: JAI Press.
- Wiltbank, R., Dew, N., Read, S., & Sarasvathy, S. (2006). What to do next? The case for non-predictive strategy. *Strategic Management Journal*, 27(10), 16.
- Wiltbank, R., Dew, N., Read, S., & Sarasvathy, S. D. (2009). Effectual versus predictive logics in entrepreneurial decision making: Differences between experts and novices. *Journal of Business Venturing*, 24(4), 287–309.
- Zabriskie, N., & Huellmantel, A. (1991). Developing strategic thinking in senior management. *Long Range Planning*, 24(6), 15–26.
- Zhao, H., & Seibert, S. (2006). The big five personality dimensions and entrepreneurial status: A meta-analytic review. *Journal of Applied Psychology*, 91(2), 259–271.
- Zhao, H., Seibert, S. E., & Lumpkin, G. T. (2009). The relationship of personality to entrepreneurial intentions and performance: A meta-analytic review. *Journal of Management*, 36(2), 381–404.