

ANTECEDENTS OF ENTREPRENEURIAL DECISION-MAKING EFFECTIVENESS: A COGNITIVE PERSPECTIVE

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Abstract

Entrepreneurs adjust their use of cognitive system to match the characteristics of the decision tasks that they face in order to increase decision-making effectiveness. However, the literature lacks evidence regarding the role of an ability to match cognitive systems to decision tasks in the relationship between entrepreneurial decision task characteristics and decision-making effectiveness. The present study contends that the use of a particular cognitive system is influenced by the effects of decision tasks characteristics and moderated by the presence of an ability to match cognitive systems to decision tasks. In this study, theories regarding decision-making effectiveness, decision tasks characteristics, and an ability to match cognitive systems to decision tasks are reviewed and integrated. Then, a proposition and a comprehensive theoretical model are developed. Major theoretical contributions of this model are also discussed.

Keywords: decision-making effectiveness, entrepreneurial tasks, cognitive information-processing system

Abstrak

Pengusaha menyesuaikan penggunaan sistem kognitif mereka agar sesuai dengan karakteristik tugas keputusan yang mereka hadapi untuk meningkatkan efektivitas pengambilan keputusan. Namun, literatur tidak memiliki bukti mengenai peran kemampuan untuk mencocokkan sistem kognitif dengan pengambilan keputusan dalam hubungan antara karakteristik tugas keputusan kewirausahaan dan efektivitas pengambilan keputusan. Penelitian ini berpendapat bahwa penggunaan sistem kognitif tertentu dipengaruhi oleh efek dari karakteristik tugas keputusan dan dimoderasi oleh kehadiran kemampuan untuk mencocokkan sistem kognitif dengan pengambilan keputusan. Dalam penelitian ini, teori-teori tentang efektivitas pengambilan keputusan, karakteristik tugas keputusan, dan kemampuan mencocokkan sistem kognitif dengan pengambil keputusan ditinjau dan diintegrasikan. Kemudian, sebuah proposisi dan model teoritis yang komprehensif dikembangkan. Kontribusi teoritis utama dari model ini juga dibahas.

Kata Kunci: efektivitas pengambilan keputusan, tugas kewirausahaan, sistem pemrosesan informasi kognitif

INTRODUCTION

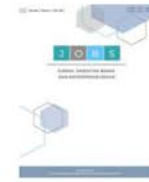


Entrepreneurs must make decisions fast and effectively under very difficult conditions (Busenitz & Barney 1997). Entrepreneurs are confronted with a difficult condition which is described as a situation with high levels of market uncertainty, technological uncertainty and dynamic competition (Mullins & Forlani 2005). Research shows that some entrepreneurs are more successful than others in dealing with the aforementioned conditions (Busenitz & Barney, 1997; Mullins & Forlani, 2005). This phenomenon can be linked to a higher decision-making effectiveness. Decision-making effectiveness is defined as stochastic probability that a decision relating to the management of a process contributes positively to its performance (Van Riel et al., 2003).

At the base of entrepreneurial cognition literature there is the fundamental question of how entrepreneurs make effective decisions (Gibcus et al., 2008). This phenomenon can be linked to how they use their cognitive skills appropriately in the decision-making process to increase decision-making effectiveness (Shepherd et al., 2015). Traditionally this kind of studies focus on the appropriate use of two distinct cognitive systems of the decision maker, that is, the use of rationality and/or intuition (Sadler-Smith, 2004). It is argued in the literature that intuition is likely to ease entrepreneurs' decision-making process, and rationality is useful to reduce cognitive biases arising during decision-making process (Groves et al., 2011). A more recent study argued that entrepreneurs employ either intuition or rationality depending on situational circumstances (Shepherd et al., 2015).

Entrepreneurs' cognitive ability to use the appropriate cognitive system is important because they often make decisions that have major consequences (Vermuelen and Curseu, 2008). They accept the responsibility for their strategic (i.e., non-routine) decisions and are sometimes the only agents involved in the decision-making process (Gibcus et al., 2008). Their activities (e.g., identifying and exploiting opportunities) take place in a swift, significant, and continuously changing environment. Thus, they must adapt their cognitive activities in response to these changes. Such a response is crucial in order to take advantage of opportunities arising in the said environment (Sadler-Smith, 2012).

Over the last decades, numerous studies have been devoted to describing and explaining entrepreneurial decision making. Due to the challenging environment in which it is performed, many studies have explored how emotion, attention, and motivation facilitate



or obstruct entrepreneurial decision making (e.g., Curseu et al., 2008; Kickul et al., 2009). These studies aim to better understand the elements, antecedents, and outcomes of an entrepreneurial mindset, but they have paid relatively little attention to entrepreneur's ability to adjust their cognitive skills during decision-making process. This ability must be considered to obtain a complete picture regarding the role of rationality and intuitive systems in order to increase entrepreneurial decision-making effectiveness. To date, no commonly accepted model of entrepreneurial decision making has emerged in the literature that allows researchers to fully understand the role of such an ability in increasing decision-making effectiveness.

RESEARCH QUESTION

Against the above-mentioned backdrop, the present research aims to provide a conceptual model of antecedents of entrepreneurial decision-making effectiveness from a cognitive psychology perspective. More knowledge is needed to draw the complex relationships between the use of cognitive information-processing systems (e.g., the rational or the intuitive system or combinations of both) and the nature of entrepreneurial tasks. Therefore, the present research addresses the following research question:

1. Which relationships exist between entrepreneurial decision task characteristics, the ability to match cognitive systems to decision tasks, and decision-making effectiveness?

LITERATURE REVIEW

Entrepreneurial decision tasks and decision-making effectiveness

The definition of decision-making effectiveness (mentioned above) takes into account that 'well made' decisions sometimes result in unwanted outcomes (and vice versa), because successful outcomes are determined by not only the effectiveness of the decision-making process, but also by other factors that cannot be controlled (e.g., external dynamics). It also suggests that if decision-makers (e.g., entrepreneurs) follow the most effective decision-making process under challenging conditions, the chances that their decisions result



in positive outcomes will probabilistically increase. Entrepreneurs often operate in challenging situations that have negative effects on the decision-making process.

Across decision-making contexts, there are significant differences in the characteristics of decision tasks. We stated previously that entrepreneurial decision tasks are decision problems characterized by multiple challenges: uncertain and dynamic environments, high levels of risk, and significant time pressure to make decisions (Baron, 2008; Busenitz & Barney, 1997; Mullins & Forlani, 2005). Shepherd et al. (2015) suggest that the following constructs largely depict the entrepreneurial decision task: environmental dynamism, environmental uncertainty, high-risk situations, and significant time pressure. Negative effects of these constructs on the decision-making process are well established in the literature (Groves et al., 2011; Van Riel et al., 2003).

Environmental dynamism refers to the rate of change in relationships between facts and variables (Dess & Beard, 1984). A study by Hough and White (2003) using a simulated decision-making environment found that environmental dynamism can diminish strategic decision-making performance, because decision-makers are unable or slow to respond to changing situations. Environmental uncertainty refers to situations in which the probability of outcomes is unknown, and decision-makers are unable to predict developments accurately, due to a lack of high-quality information (Lipshitz & Strauss, 1997). Baum and Wally (2003) found that high levels of uncertainty reduced the speed of strategic decision-making. High risk can lead to hesitation in decision-makers regarding which information processing strategy should be employed to increase decision-making effectiveness (Palich & Bagby, 1995). Significant time pressure can impair decision quality (Chu & Spires, 2001). Significant time pressure can also hinder the decision-making process as it hinders access to high-quality information, and reduces the availability of the necessary time to process it (Van Riel et al., 2003).

Cognitive information-processing system

In cognitive psychology literature, logical and non-logical information processing in decision-making process are formally distinguished as rational and intuitive cognitive styles (Barnard, 1938). This led to the unitary view of information-processing system, which



suggested that individuals perceive information and make decisions by relying on one single (bipolar) psychological process (Allinson et al., 2000). A focus on individual preferences for using one particular cognitive style over another have led to the development of one-dimensional measurement scales like the Myers Briggs Type Indicator (Myers, 1962). Based on the unitary view, Hammond et al. (1987) conceived rational and intuitive styles as being the endpoints of a continuum of cognitive styles that could be matched to the requirements of decision task characteristics. They also distinguished between task characteristics inducing the use of the rational information strategy on the one hand, and task characteristics inducing the use of intuitive information processing on the other.

In the literature, the observation of two different cognitive styles has led to extensive studies which ultimately stressed the co-existence of two cognitive information-processing systems. This development led to dual-process theories, which assume that individuals rely on two distinct but complementary cognitive systems to process information. Epstein et al. (1996) have specified two ways in which people process information: rational and experiential (intuitive). They described the experiential (intuitive) information processing system as automatic and driven by tacit knowledge and experience. These terms were later popularized by Kahneman (2011) who describes System 1 as the process that operates non-consciously and fast. He described System 2 as the conscious reasoning that operates slower, deliberative and reflective. In contrast to the unitary view with the one-dimensional conceptualization of the cognitive continuum, dual-process theories allow managerial scholars to posit independent effects of decision task characteristics on the relative use of the two information processing strategies, because these characteristics are generally not occurring in isolation (Van Riel et al., 2003).

Several entrepreneurial decision task characteristics and decision-making effectiveness are negatively related. Decision-makers can adjust their selection of information processing strategies for decision-making (Novak & Hoffman, 2009). Increasing degrees of some entrepreneurial decision task characteristics, such as uncertainty, levels of risk, and time pressure, can limit the ability of entrepreneurs to determine potential effects of choices and to consider which cognitive information processing system might be suitable to



employ. Decision-makers may have the ability to adjust their cognitive skills to use a more suitable cognitive system for decision making to increase its effectiveness.

The ability to match cognitive systems to decision tasks

Hammond et al. (1987) argued that decision tasks could be classified on a cognitive continuum ranging from rational to intuitive tasks. This argument suggests that decision tasks can be classified based on their characteristics. Linking this argument and the adoption of dual processing theory (Epstein et al) implies that specific tasks may actually require both intuitive and rational processing, either in parallel, or sequentially.

Intuitive tasks feature unstructured stimuli and information, involve a subjective process, and cannot be solved by following specific rules (Epstein et al., 1996; Hammond et al., 1987). The highly dynamic conditions involving significant uncertainty, risk, and time pressure under which entrepreneurs operate often demand that decisions be made rapidly despite a lack of high-quality information (Groves et al., 2011). Scholars have therefore suggested that an intuitive cognitive system might be suitable under these conditions (Dane, Rockmann, & Pratt, 2012).

A considerable number of studies also suggested that the intuitive system might be suitable for decision-making that requires the use of tacit knowledge and experience (Van Riel et al., 2003). As a result, some researchers (e.g., Allinson et al., 2000) contend that entrepreneurs frequently employ intuitive system, thereby increasing decision-making speed and preventing negative outcomes (Artinger et al., 2015). Thus, the negative effects of entrepreneurial decision task characteristics may be reduced by appropriately employing intuitive system, which can increase decision-making effectiveness.

Entrepreneurial decision-making effectiveness is related to the degree to which entrepreneurs adapt their information processing systems to the requirements of decision task characteristics (Van Riel et al., 2003). A study conducted by Gustafsson (2006) using a protocol analysis (i.e., thinking out loud) found that expert entrepreneurs were able to engage in intuitive system when the opportunity identification task involved greater uncertainty. Experiments conducted by Novak and Hoffman (2009) found that participants are able to use intuitive system in intuitive decision-making tasks and rational system in rational decision-

making tasks, confirming the assumption that decision-makers are able to adapt their information processing strategies to the requirements of decision task characteristics (Blume & Covin, 2011; Van Riel et al., 2003). These evidences show that there is a cognitive skill that implies an ability to match cognitive systems to decision tasks.

CONSTRUCTION OF THE THEORETICAL MODEL

The following constructs have been identified to have influence on entrepreneurial decision-making effectiveness; (1) entrepreneurial task characteristics and (2) An ability to match cognitive systems and decision tasks. This section will discuss what kind relationships exists between these constructs in relation to entrepreneurial decision-making effectiveness.

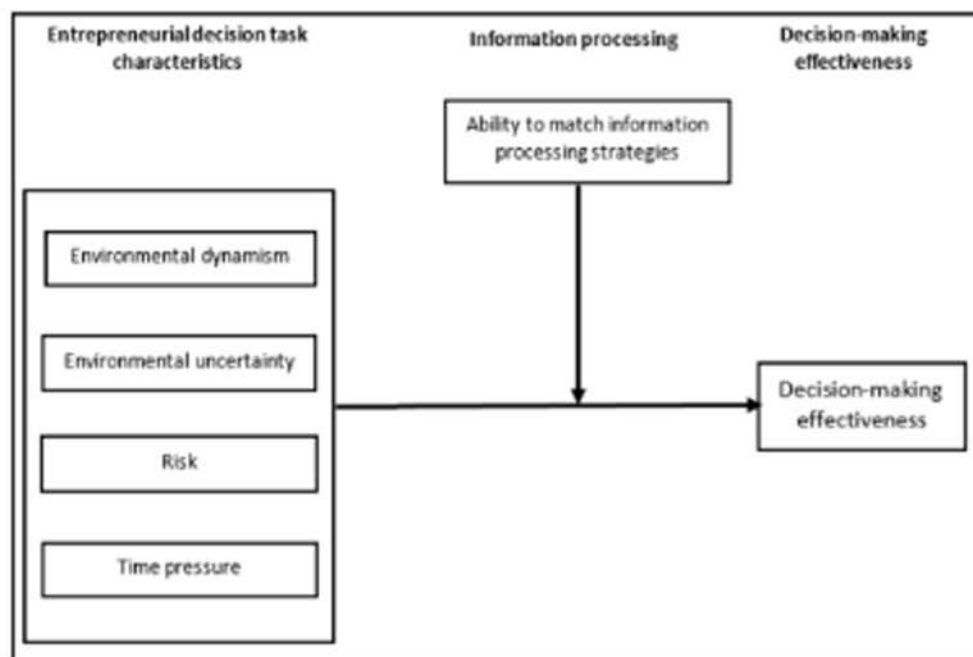


Figure 1 Conceptual model summarizing the antecedents of entrepreneurial decision-making

As discussed in previous section, the combination of all relevant task characteristics in entrepreneurial tasks could negatively influence decision-making effectiveness. This implies that entrepreneurial decision tasks have a direct negative influence on entrepreneurial



decision-making effectiveness. The previous section also shows that the ability to match cognitive systems to decision tasks could increase decision-making effectiveness. This evidence suggests that such an ability could positively moderated the relationship between decision tasks and decision-making effectiveness. In Figure 1, these mentioned relationships are summarized. In line with the proposed theoretical model, the following proposition is expected:

Proposition: *The choice to use rational or intuitive information processing strategy is adjusted to the various effects of entrepreneurial decision task characteristics and this adjustment is moderated by the presence of an ability to match cognitive systems to decision tasks.*

DISCUSSION

This article presented a model that reflects the antecedents of entrepreneurial decision-making effectiveness from the cognitive psychology perspective. The model presented in Figure 1 illustrates how challenges from task characteristics could negatively influence decision-making effectiveness and how an ability to match cognitive systems and decision tasks could positively moderated this relationship. Thus, the presented article has several theoretical implications.

The first theoretical implication of this article is that entrepreneurship scholars should caution in inferring entrepreneurs' preference to a particular cognitive system. For reasons suggested in the proposition, the actual use of a particular cognitive system is not the same with the preference of a particular cognitive system (Novak & Hoffmann, 2009). Thus, researchers who want to examine the cognitive aspect of entrepreneurship have to start measuring the actual use of a cognitive system rather than the preference of a cognitive system.

The second theoretical implication of this article is that the presented model shows the various effects of all relevant entrepreneurial task characteristics. These effects seldom happen in isolation (Van Riel et al., 2003). The combination of these effect could be perceived differently by different individuals. Therefore, there is a need to measure how entrepreneurs perceive the difficulty in relation to task characteristics.



CONCLUSION

Taking into consideration that entrepreneurs have a unique approach to decision making, in line with their need to address simultaneously occurring high levels of uncertainty, ambiguity and time pressure (Shepherd et al., 2015), it is surprising that few conceptual models have been developed to explain the antecedents of entrepreneurial decision-making effectiveness. This article addresses this gap in the literature by presenting a theoretical model of entrepreneurial decision-making effectiveness that considers an ability to match cognitive system to decision tasks. This article thus provides insights into the cognitive mechanisms shaping entrepreneurial decision making. The model may be theoretically valuable in further exploring the subjective approach to entrepreneurial decision making.

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