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EFFECTIVE DECISION-MAKING: THE ROLE OF COGNITIVE COMPLEXITY IN STRATEGIC DECISIONS*

Oana Cătălina IEDERAN[1], Petru Lucian CURŞEU[2], Patrick VERMEULEN[2]

[1] Department of Psychology, "Babeş-Bolyai" University, Cluj-Napoca, Romania

[2] Department of Organization Studies, Tilburg University, Room, P1.161;
Warandelaan 2, PO Box 90153, 5000 LE Tilburg, The Netherlands
E-mail: P.L.Curseu@uvt.nl

Abstract: The present study tests the mediating role of cognitive complexity in the relationship between a set of motivational attributes (self-efficacy SE, need for cognition NFC and tolerance for ambiguity TFA) and decision-making effectiveness. The model is tested using structural equation modeling in a sample of 59 Romanian entrepreneurs and the results support a partial mediation model. On the one hand, cognitive complexity partially mediates the relationship between self-efficacy and decision-making performance and on the other hand, cognitive complexity fully mediates the relationship between need for cognition and decision performance. The mediation hypothesis concerning tolerance for ambiguity is not supported.

Key words: cognitive complexity, need for cognition, self-efficacy, strategic decision-making, tolerance for ambiguity

INTRODUCTION

The success of entrepreneurial firms is to a large extent dependent upon strategic decision-making practices. Strategic decision-making is an intentional and goal-directed cognitive process of selecting one of several available alternatives when only incomplete information on the alternatives and their possible outcomes is available and the facts, variables and contingencies involved in the decision situation are highly complex (Curşeu, Vermeulen, Bakker, 2008). A distinctive characteristic of strategic decision-making in small and medium sized enterprises (SMEs) is that the entrepreneur or owner[1] usually bears the responsibility concerning the decision and has to cope with its immediate consequences. Dispositional factors are therefore very likely to play a key role in the way entrepreneurs make strategic decisions.

Previous research has extensively explored dispositional factors (such as self-efficacy, tolerance for ambiguity and need for cognition) that influence entrepreneurial decisions and especially those that dif-

* Correspondence concerning this paper should be addressed to Petru Lucian Curşeu.

[1] Although we recognize the distinction between entrepreneurs and owners of small and medium-sized businesses, we use these interchangeably in this paper. In our empirical study, we studied the current founders and owners of Romanian SMEs that were actively engaged in strategic decisions regarding their firms' activities. Moreover, the respondents in our sample were the first group of entrepreneurs to start businesses in the post-communist era in Romania.

ferentiate entrepreneurs from managers or other categories of decision makers (e.g., Chen, Greene, Crick, 1998; Forbes, 2005; Markman, Balkin, Baron, 2002). Despite general scholarly agreement that most of these dispositional differences can be traced back to differences in information processing, the role of cognition in strategic decisions remains a rather unexplored area. Exploring the role of cognitive representations in decision-making may improve our understanding of the interaction between process and contextual variables in strategic decision-making (Hastie, 2001). The aim of this study is to contribute to the decision-making literature in several ways. First, our study adds a cognitive perspective to the literature on strategic decision-making and tests a core assumption, namely that cognitive complexity mediates the impact of motivational attributes on decision-making effectiveness. We hypothesize that high self-efficacy, high need for cognition and low tolerance for ambiguity lead to highly complex cognitive structures, which then positively impact on decision-making effectiveness. Second, we shed light on some of the cognitive factors underlying strategic decisions in SMEs, a domain that has been rather unexplored until now. Third, we further develop the operationalization of cognitive complexity and we use cognitive mapping to elicit and evaluate the integrative cognitive complexity of small firm owners. Cognitive complexity is measured in this study by mapping respondents' oral statements about strategic decisions and is conceptualized as a hallmark of information processing structures in strategic decisions.

THEORY AND HYPOTHESES

The most influential cognitive models explain the effectiveness of decision-making in organizations by stressing the impact of activated cognitive representations on the decisional outcome. Interpretative as well as concrete and unambiguous cognitive representations are more effective in producing superior decisional outcomes and increasing decisional thinking than more general cognitive representations (Boland, Singh, Salipante, Aram, Fay, Kanawattanachai, 2001). These types of cognitive representations are more complex because they capture a larger number of relationships between the concepts of a knowledge domain. Consequently, cognitive complexity is a core factor influencing the way in which entrepreneurs make decisions and solve problems.

Initially considered a general personality characteristic (Bieri, 1955), cognitive complexity was redefined by Schröder, Driver and Streufert (1967) as a domain-specific information processing variable strongly connected to expertise. Individuals with a high level of cognitive complexity possess a highly differentiated, articulated and integrated conceptual system along with flexible information processing rules concerning data from a particular domain. As far as entrepreneurs are concerned, a high level of cognitive complexity reflects the capacity to see the decision situation from multiple, complementary perspectives.

According to Streufert and Swezey (1986) individuals with a high level of cognitive complexity (CC) perform better in tasks of medium or high complexity. They also stress the importance of matching the complexity of the environment to the decision maker's CC. Also, CC was found to be positively correlated to efficient outcomes of organizational decision-making (Ceci, Liker, 1986), due to the managers' ability to take into consideration the various alternatives and perspectives of a strategic problem. Individuals with high

CC process a larger amount of information, transmit more information, better differentiate and integrate the information and process information more effectively (Goodman, 1968; Tripodi, Bieri, 1964), which has direct consequences for the strategic decision-making and problem solving processes. To summarize, strategic decisions involve higher levels of environmental complexity, uncertainty and unpredictability and the cognitive complexity of the decision maker is accordingly a central requirement for a successful decision-making process. Therefore our first hypothesis is:

H1: Cognitive complexity has a positive impact on the effectiveness of strategic decisions.

Cognitive representations are ways of reducing environmental complexity and helping decision-makers impose order on volatile and uncertain environments (Gioia, Manz, 1985; Wyman, Randel, 1998) and they affect decision-making processes and outcomes (Boland et al., 2001). In a more general context, decisions are determined by the interplay between cognitive, motivational and emotional factors (Peklaj, Žagar, Pečjak, Puklek Levpušček, 2006) and cognitive representations are conceptualized as mediators in the relation between situational cues (knowledge) and behavior (Gioia, Manz, 1985; Wyman, Randel, 1998). Because entrepreneurial strategic decisions usually involve only one actor (the entrepreneur) it is very likely that motivational traits influence the CC of the entrepreneur and consequently play an important role in the quality of these decisions. A few motivational characteristics have received considerable attention in the literature on decision-making (namely need for cognition, self-efficacy and tolerance to ambiguity). The influence of these motivational traits on decisional outcomes is most probably mediated by information processing mechanisms that will ultimately impact on the cognitive representations developed by the decision maker.

Cognitive motivation or the *need for cognition* (NFC) is the tendency for an individual to engage in and enjoy thinking (Cacciopo, Petty, 1982). Individuals high in NFC are willing to make more cognitive effort in order to solve a cognitive task, show a propensity for active information search as well as for more thorough, elaborated and accurate cognitive processing. Previous research shows that individuals high in NFC are more effective in information processing tasks, have better logical reasoning abilities and perform better in problem solving tasks (Cacioppo, Petty, Feinstein, Jarvis, 1996). Moreover, Curşeu (2006) shows that NFC is positively associated with rationality in decision making and time spent in analyzing the information at hand as well as negatively related to indecisiveness. People high in NFC tend to seek information in order to reduce uncertainty, have an analytic rather than intuitive cognitive style (Cacioppo, Petty, Feinstein, Jarvis, 1996) and report higher levels of self-esteem (Sarmány-Schuller, 1999). People with high levels of self esteem are more likely to engage in extensive information search and, due to their analytic cognitive style, are more likely to be more effective in information processing (Cacioppo et al., 1996; Ruisel, 2004; Sarmány-Schuller, 1998; Sarmány-Schuller, Šimúth, 2006). We can therefore conclude that people with high NFC elaborate more complex conceptual representations of the task, because they also put more time and effort into dealing with the task and consequently perform better. Since information search and information evaluation are key elements of integrative com-

plexity, we hypothesize the following with regard to need for cognition:

H2: The positive impact of NFC on decision-making effectiveness is mediated by cognitive complexity.

Self-efficacy (SE) has been defined as trust in one's own capacity to dispose of one's cognitive and motivational resources in order to persist in and effectively solve a specific task (Bandura, 1977). The relationship between SE and individual performance is complex and bidirectional. With respect to information processing, general SE leads to a high level of concentration and a more effective management of cognitive resources (Bandura, 1977). However, positive decisional outcomes can also boost SE, as is shown in a study by Forbes (2005). Therefore SE and individual performance in information processing tasks are interdependent (Bandura, Locke, 2003; Kováčová, Sarmány-Schuller, 2008; Peklaj et al., 2006). In other words, due to high involvement in information processing, entrepreneurs high in SE are expected to develop more complex representations of the decision situation. Moreover, a high sense of SE increases commitment in dealing with complex tasks and reduces the probability of showing avoiding behaviors in cognitive tasks (Gist, Mitchell, 1992) and thus has a direct impact on the outcomes of a decision. Therefore our third hypothesis is:

H3: The positive impact of SE on decision-making effectiveness is partially mediated by cognitive complexity.

Strategic decisions often involve incomplete or ambiguous information. Ambiguous situations are difficult to categorize and understand because of the lack of direct and relevant cues (Budner, 1962). The capacity to cope with these ambiguous situations is therefore relevant for the effectiveness of information processing. In a study of top Fortune 500 startup companies, Bhide (2000) shows that the most successful entrepreneurs are those capable of operating with incomplete information. In Bhide's view, TFA refers to making informed choices in conditions in which it is known that relevant information is missing. Therefore, TFA describes the extent to which a person is confident of making decisions in ambiguous situations or, in other words, the extent to which a decision maker is confident in making a choice when he/she is aware that relevant information is missing. People high in TFA are usually confident in the decisions they make even when the information available is ambiguous or insufficient. Very often these individuals do not extensively search for additional information to clarify or reduce ambiguity. Individuals with a low TFA usually feel threatened by ambiguous situations or ambiguity in general and try to reduce it by looking for information and imposing a structure that will make the situation easier to understand and categorize and will increase their confidence when taking action (Budner, 1962). Therefore, TFA is very likely to be detrimental for cognitive complexity because of the restricted information search associated with a high tolerance for ambiguity. By reducing cognitive complexity, TFA will negatively impact on decision effectiveness in complex strategic issues. Therefore our fourth hypothesis is:

H4: The negative impact of TFA on decision-making effectiveness is mediated by cognitive complexity.

METHODS

Sample and Procedure

In modern Romania, SMEs flourished only after the fall of the communist regime

in 1989, and at the time this study was conducted, most SMEs were family owned businesses aimed at providing a sufficient income for the family. Data from 59 entrepreneurs (from the following industries: commerce and services, construction, architecture) who provided extensive data on a strategic decision made in the last three years (ranging from new product development, change of market strategy, change of internal processes, and temporary termination of activity) were included in the study. The respondents were first asked to fill in a questionnaire (with background information as well as the three independent variables used in the study) and then they were interviewed about the nature of their strategic decision.

Independent Variables

The length of the interview imposed important time constraints on our study and as a result we decided to use shortened versions of the questionnaires for our independent variables. NFC was evaluated using a shortened version (five items) of the Need for Cognition Scale elaborated by Cacioppo and Petty (1982). Based on their high factor loadings, the items were selected from a Romanian translation and adaptation of the NFC scale. Illustrative items are: "I like to have the responsibility of handling a situation that requires a lot of thinking" and "I really enjoy a task that involves coming up with new solutions to problems". The Cronbach's alpha for the NFC scale is 0.74. SE was evaluated through five items selected from the General Self Efficacy Scale elaborated by Chen, Gully and Eden (2001) based on the values for item information functions reported in Scherbaum et al. (2006). An illustrative item is: "I will be able to achieve most of the goals and plans I have set for myself and my company" or "In general I think I can obtain outcomes that are important to me". The Cronbach's alpha for this scale is 0.75. TFA was measured using a four-item scale elaborated by Lorsch and Morse (1974). Illustrative items for this scale are "The most interesting life is to live under rapidly changing conditions" and "Doing the same thing in the same places for a long period of time makes for a happy life" The Cronbach's alpha for this scale is 0.74. The rather low values for the Cronbach's alphas are most probably due to the small sample size and the small number of items in each scale. However, all scales are widely used in organizational settings and they received considerable support as regards validity and reliability (see for details Cacioppo et al., 1996; Scherbaum et al., 2006). All the answers are recorded on a 5-point Likert scale (1 - strongly disagree to 5 - strongly agree).

The Mediator Variable

The cognitive complexity is evaluated based on data collected with a semi-structured interview. Entrepreneurs were interviewed about a specific strategic decision-making process they had gone through in the previous three years. The central question in the interview is: *Can you describe the most important decision you made in the last three years, with the most significant consequences for your firm?* Several additional questions (*What were the factors that led you to make this decision? How was your decision put into practice? When did you actually make the decision? How do you look back at the decision you made?*) were used to get a more comprehensive view of the strategic decision. The benefit of these additional questions was that respondents could come

up with details concerning the causes, the factors determining the decision, the decision-making process itself and the way it was implemented, the main risk factors and other obstacles that influenced the decision-making, as well as details of the outcome of the decision. The verbatim transcripts of the interviews were used for further analyses.

A cognitive mapping content analysis procedure described by Curşeu (2008) was used to code the interviews. The first step is concerned with *surfacing first order concepts and links* (Calori, Johnson, Sarnin, 1994). In this step, the core concepts as well as their interconnections fundamental to the respondents' reasoning concerning the decisional situation were extracted. The second step is concerned with *weighting concepts*, or assessing the importance of each concept for each entrepreneur according to its explicit mentioning during the interview, spontaneity, priority in the interview as well as the relative length of the discussion (Calori et al., 1994). In an attempt to classify categories at a more abstract level the third step concerned *identifying second order concepts and links*. These second order categories have the function of organizing and providing a structure for the graphic representation of the cognitive maps in the next step of content analysis. The output of the final step of the analysis is the cognitive map. Each cognitive map is graphically constructed by including the output of the first step - first order concepts and links - and organizing them according to the specific structure provided by the output of the third step - the second order concepts and connections. Entrepreneurs were presented with the final maps and they were asked to analyze the extent to which they represented the strategic decision presented in the interview. No adjustments were needed after this stage.

The complexity of the cognitive maps was computed using a procedure described in Curşeu (2008) (see also Curşeu, Schruijer, Boroş, 2007). Three indicators were used: *cognitive map connectivity (CMC = number of connections among the concepts of the map), cognitive map diversity (CMD = types of connections among the concepts of the map), cognitive map comprehensiveness (NoC = number of concepts in the map)*. The formula for computing the absolute cognitive complexity is: ACC = CMCxCMDxNoC. Absolute map complexity reflects the richness of the cognitive representation of the decision situation. A high score shows that the decision maker uses a large number of concepts richly interconnected in several ways to describe the decision situation. The formula is therefore illustrative of the integrative cognitive complexity, which describes the degree of differentiation and integration in a cognitive structure (cognitive map), or in other words it reflects the number of parts a knowledge structure is composed of and the extent and rules for integrating those parts (Calori et al., 1994; Curşeu, 2008; Curşeu et al., 2007; Raphael, 1982).

Dependent Variable

Decision effectiveness was evaluated using five items, three of them referring to the perceived satisfaction regarding the decision's outcomes (e.g., "To what extent are you satisfied with the outcomes of your decision?") and the other two concerning the perception of a couple of objective parameters such as the firm's income or profit (e.g., "To what extent did the decision lead to an increase in profit?"). The answers were recorded on a 10-point Lik-

ert scale - an evaluation system similar to the one used in the formal education systems. The Cronbach's alpha for the scale is 0.90.

RESULTS

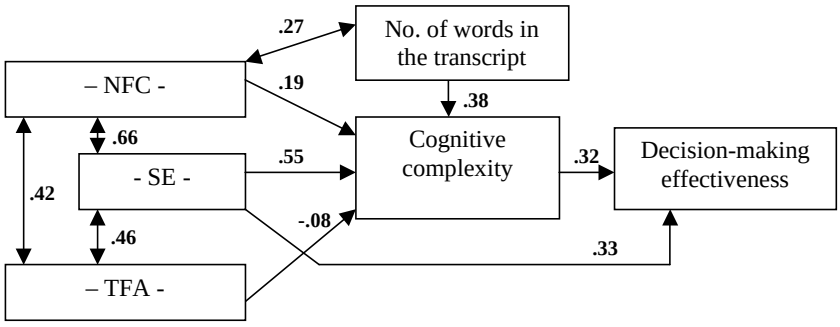
We tested the theoretical model using the AMOS structural equation modeling software version 16. We tested the path model presented in Figure 1 using the maximum likelihood procedure. Because the absolute cognitive complexity is likely to be influence by the length of the interview transcript we have controlled for the number of words in the transcript. As reported by Cacioppo et al. (1996) NFC is positively related to the number and richness of arguments used in discourse, and NFC and the number of words in the interview transcript were allowed to covariate in the model. On the basis of previous results reported in the literature concerning the interrelatedness of the three motivation traits (Cacioppo et al., 1996; Peklaj et al., 2006; Sarmány-Schuller, 1999; Scherbaum et al., 2006; Sollár, 2008), they were also allowed to covariate in the model. The descriptive statistics and correlations for all variables are presented in Table 1. The path model results are presented in Figure 1.

The fit indices for the model show that it is not significantly different from the data and cannot be significantly improved. We can therefore conclude that for the general model the variances and covariances implied in the theoretical model match the observed variances and covariances in the data. The RMSEA index is 0.001, lower than 0.1, the value recommended for an acceptable model. The TLI index is 1.00, which means that the tested model falls 100% of the way in mean-square metric units between the null model (TLI = 0) and an ideal model (TLI = 1) (see for details Widman, Thomson, 2003). The CFI index is 1.00, showing that the theoretical model falls 60% of the way in sum-of-square metric units along the continuum from the estimated non-centrality of the null model to the centrality associated with the ideal

Table 1. Means, standard deviations and correlations

	Mean	SD	1	2	3	4	5	6	7
1. Age	36.79	10.08	1						
2. No. of words in the transcript	1412.54	913.44	-.17	1					
3. ACC	7785.01	5383.16	-.18	.49**	1				
4. NFC	25.54	3.72	-.31*	.35**	.64**	1			
5. SE	27.37	3.80	-.31*	.13	.67**	.68**	1		
6. TFA	12.52	1.51	-.24	.08	.28*	.43**	.45**	1	
7. DM effectiveness	36.22	8.53	-.24	.23	.54**	.49**	.54**	.15	1

Legend:
ACC - absolute cognitive complexity; NFC - need for cognition; SE - self-efficacy; TFA - tolerance for ambiguity; DM - decision-making;
* $p < .05$; ** $p < .01$



Legend:
NFC - need for cognition, SE - self-efficacy, TFA - tolerance for ambiguity;
the fit indices for the path model are: $\chi^2 = 3.28$, df = 5, $p < .65$, NFI = .97, TLI = 1.00, CFI = 1.00, RMSEA = .001

Figure 1. Results of the path analysis for the overall conceptual model

model (see for details Widman, Thomson, 2003). In addition to the absolute fit indices, the incremental fit indices support the validity of the overall path model.

Hypothesis 1, stating that cognitive complexity is beneficial for the effectiveness of strategic decision-making process, was fully supported by the data. The path coefficient depicted in Figure 1 is positive and significant (.32). This means that entrepreneurs who have a more complex representation of the decisional situation evaluate the outcomes of the decision in a more positive way. As hypothesized in Hypothesis 2 the impact of NFC on decisional effectiveness is not a direct one, but is mediated by cognitive complexity. The positive and significant path coefficient (.19) shows that entrepreneurs high in NFC develop a more complex representation of the decisional situation, which in turn leads to higher decision effectiveness. Hypothesis 3 states that cognitive complexity partially mediates the impact of SE on decision effectiveness and is supported by the data. SE has a positive strong impact on decision effectiveness (.33) as well as an indirect effect mediated by cognitive complexity. Hypothesis 4 states that the negative impact of TFA on decision effectiveness is mediated by cognitive complexity and is not supported by the data. The results of the path analysis depicted in Figure 1 show that the standardized path coefficient between TFA and cognitive complexity is negative as hypothesized, though not significant.

DISCUSSION

Overall, the model developed and tested in this research received partial support. In general the results of this study indicate that 1) motivational traits of the decision-makers do influence the way they represent the strategic decision-making process, 2) the complexity of the representation of strategic decision making, has a significant

impact on the way entrepreneurs evaluate the efficiency of the decisional outcomes and 3) cognitive complexity acts as a mediator between self-efficacy and TFA on the one hand and decision-making effectiveness on the other hand.

Our results show that cognitive complexity is beneficial for the effectiveness of the strategic decision-making process. In the Romanian context of SMEs, characterized by the ambiguity and rapidity pertaining to economic, political and social factors, entrepreneurs with high levels of cognitive complexity will perform better in decisional tasks with a medium or high level of difficulty. These findings support previous lines of research stating that CC is positively correlated to effective outcomes of decision-making because it enables the decision-maker to take into consideration the numerous alternatives and perspectives of a strategic problem (Ceci, Liker, 1986). Consequently, the outputs of these information processing characteristics are highly elaborated representations capturing a higher number of relationships and concepts concerning the decisional situation and process that lead to more efficient decisional outputs.

The hypothesized positive impact of NFC on CC is fully supported by the data. Entrepreneurs with high levels of NFC will show a preference for an active information search, as well as for a more thorough, elaborated and accurate cognitive processing (Cacciopo, Petty, 1982). They are also more likely to be rational in decision-making tasks and spend more time analyzing the information at hand (Curşeu, 2006). These cognitive properties will assure entrepreneurs of proper tools to deal with the complexity of the organizational environment they are facing. Thus, entrepreneurs with high NFC are more thorough in elaborating conceptually rich representations of the organizational environment. This undoubtedly contributes to a more thorough evaluation of the alternatives in a decision-making situation as well as to making a more effective choice (Bailey, 1997). In other words, entrepreneurial cognitive complexity fully mediates the relationship between NFC and the efficiency of the decision-making process.

Entrepreneurs who are highly confident in their own capacity to dispose of their cognitive and motivational resources, associated with high levels of concentration and a more effective management of their cognitive resources (Bandura, 1977), will also elaborate more complex representations of the decisional situation. They will easily integrate multiple, complementary perspectives in order to develop an adequate, if not optimal, understanding of the organizational reality, addressing the impact of the core factors that influence its functioning. However, SE also has a significant direct impact on decisional effectiveness. The direct impact of managerial SE on decisional effectiveness can be explained by motivational factors such as a commitment to dealing with complex tasks and the small likelihood of showing avoiding behaviors (Gist, Mitchell, 1992). Alternatively, it is possible that entrepreneurs with low SE register fewer positive decisional outcomes due to the sense of being overwhelmed by the magnitude of the task they need to solve, which leads to feelings of doubt and hesitation that ultimately slow the decisional process.

Scherer, Maddux, Vlercandante, Prentice -Dunn, Jacobs and Rogers (1982) provide an alternative explanation of how decisional efficiency is influenced by SE through motivational mechanisms. First, entrepreneurs with low SE will perceive fewer opportunities in the organizational environment, but more costs and risks with

direct influence on decisional outcomes. Second, even if the perception of the potential risks pertaining to the organizational setting was identical for an entrepreneur who is low versus high in self-efficacy, the former would perceive himself/herself as being less competent in dealing with the problems. Therefore cognitive factors only partially explain the impact of SE on decisional effectiveness.

Our results indicate only a small negative impact of TFA on CC. Several explanations have been put forward. One explanation is that SME owners who tolerate ambiguity well, even if they show a significant openness toward unrestricted information processing, do not really try to extensively understand all aspects involved in a decisional situation, and they will therefore develop slightly less complex representations. A second explanation addresses the role of social, political and economical factors, such as those pertaining to institutional forces, resource availability, legal ambiguities, EU integration or governance, which may have combined to overshadow the real effects of TFA on the complexity of the decisional task representation. We also need to take into consideration the diversity of industries and organizational settings firms and entrepreneurs come from, such as: commerce, architecture, tourism, internet services, health, consultancy services, etc. as well as the diversity of the decisional tasks: going out of business, changing marketing strategy, changing the object of the activity, etc. This could be a confounding variable.

The main theoretical implication and the most important contribution of this paper is the empirical test of the proposition that cognitive complexity mediates the impact of several motivational attributes on strategic decision effectiveness. This proposition certainly covers the cognitive mechanisms through which motivational attributes influence the outcomes of ESDM. This result is also important for entrepreneurial cognition literature, which has focused on testing the use of cognitive heuristics and biases by entrepreneurs, little to no attention having been devoted to exploring the structure of knowledge representations. This study provides strong empirical evidence that the complexity of the cognitive representations developed in relation to a decision situation is beneficial for decision effectiveness. The study also opens new research directions in that other characteristics of cognitive representations may also impact on decision outcomes. Moreover, the impact of motivation on decision outcomes may be related to emotions too (Curşeu, Vermeulen, Bakker, 2008). The role of affective factors that help entrepreneurs deal with lack of structure and uncertainty should also be explored in further empirical studies. Therefore, besides the cognitive component of motivation, another relevant issue to be further explored is the interaction between affective and cognitive factors in ESDM. Finally, as regards methods, the paper uses a cognitive mapping technique to elicit and represent cognitive representations. This simple and parsimonious method allows researchers access to the "inaccessible" world of human information processing (Curşeu, 2008). Although this technique is extensively used in several research traditions, research should further explore its validity in eliciting and representing individual cognition.

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EFEKTÍVNE ROZHODOVANIE: ÚLOHA KOGNITÍVNEJ KOMPLEXNOSTI PRI STRATEGICKÝCH ROZHODNUTIACH

O. C. Iederan, P. L. Curşeu, P. Vermeulen

Súhrn: Vo výskume sme overovali mediačnú úlohu kognitívnej komplexnosti vo vzťahu motivačných atribútov (sebaúčinnosť, potreba kognície a tolerancia viacznačnosti) a efektívnosti rozhodovania. Model sme testovali modelovaním štrukturálnej rovnice na vzorke 59 rumunských podnikateľov. Získané výsledky podporili čiastočný mediačný model. Na jednej strane kognitívnu komplexnosť čiastočne sprostredkúva vzťah medzi sebaúčinnosťou a rozhodovaním a na druhej strane, kognitívna komplexnosť v plnej miere sprostredkúva vzťah medzi potrebou kognície a rozhodovaním. Nepotvrdila sa mediačná rola tolerancie viacznačnosti.