# Intuition as management understanding, decision-making and action

**REVIEW # 13817**

["We] can treat *intuition as real*."
James G. March (1999), p. 321

## Introduction

In reviewing the symposium proposal on *intuition as a driver of organizational decisions and actions* (Hitt, Barney, Miller, Zahra, & Govin, 2002) covering opinions and views stemming from a wide range of theoretical perspectives, I begin with lining out the main ideas as they were presented throughout the symposium proposal. In the main, "*intuition*" has been portrayed by the joint group in many diverse ways:

- intuition as *a cognitive ability*, rooted in experience and implicit learning[1], to know things through subconscious reasoning without having relied on formal analysis or conscious logic [comparable to the notion that Piaget had of *genuine conservation* grounded in self-organizing and self-regulating groupings of sensorimotoric, concrete and formal operational intelligence leading to superior combinations of knowledge constructions and cognitive schemes (De Mey, 1992(1982))]

- intuition as *a vision* or the capability of perceiving essential new things or opportunities regarding the organization that are important for a business that other – both internally of externally to the individual- do not see [collective intuition thus is the collective capability amongst a management team's member to recognize (strategic) issues especially in fast changing environments (Eisenhardt, 1999)]

- intuition as *a key part of decision-making* based on, at the one side, partially conscious, logical and factual basis, and, on the other side, partially non-factually, rather sensitivity or even instinctive, and hence inexplicable basis [intuitive decision makers cannot explain in a rational way or in anticipation of standard theories of choice why they make certain choices; nevertheless they feel very comfortable and happy about them as they see possible actions that are outside our present scheme for justifying behavior (March, 1999)]

- intuition as *a competence to undertaken action* in a swift, alert and clear-cut manner in instable, urgent, complex, uncertain, ambiguous and therefore highly unpredictable situations based on the recognition of a familiarity of the context and application of previous apprehension through learning (automated expertise) [comparable to intuitive judgment based on biases and implicit heuristics as described by Kahneman & Tversky (1982(1979)) and Tversky & Kahneman (1982(1974))].

[1] Individuals can learn complex rule structures without even being able to articulate what the structure is or even being aware that a structure exists (Shapiro & Spence, 1997).

More specifically, intuition was characterized by the following elementary constituents:

| | |
|---|---|
| *A funny bone instinct* (gut feel) | (Hitt et al., 2002, pp. 3) |
| Cognitive ability to leverage through subconscious reasoning intangible or tangible results from subconscious (emotional and non-emotional) learning, understanding and insight (= automated expertise) based on rapidly accessible chunks of tacit knowledge | (Hitt et al., 2002, pp. 4, 7, 11, 12-13 & 19) |
| Organizational routine(s), general or specific, tacit or explicit, path dependent or path breaching | (Hitt et al., 2002, pp. 7-8) |
| A manager's (or management team's) good luck, i.e. decision whose value creating outcomes were impossible to predict or to anticipate a priori | (Hitt et al., 2002, pp. 8) |
| The biases and heuristics that managers use to *simplify* decision-making (for instance codes, visuals, symbols etc.) | (Hitt et al., 2002, pp. 9) |
| Integration of knowledge, routines, luck etc… in decision-making processes | (Hitt et al., 2002, pp. 9) |
| Holistic hunch or comprehensive picture or understanding of a given 'unanalyzable' situation (i.e. problem) or environment | (Hitt et al., 2002, pp. 11 & 14) |
| A combination of foresight and insight producing flashes of creativity and entrepreneurship | (Hitt et al., 2002, pp. 16-17) |

A lot of these elements will re-emerge while presenting my personal views on the context, nature and relevance of intuition for the (strategic) management practice (see further). In conclusion to this introduction, these are some of the basic principles concerning intuition that were presented in Hitt et al. (2002). First of all, it is said that intuition is inherent in all human decision-making and complements the analytical part of management decision-making. Secondly, unexamined or 'untapped' (individual) intuition cannot be valued, therefore an effort is required to raise intuition to a more or less explicit level in order to be able to develop the (collective) intuitive knowledge base. Third, the higher the degree of decision process control, formalization and structure, the lower the aptitude to leverage intuition. Therefore, fourthly, it is argued that intuition is to a large extent a function of the nature of the problem to be solved, its complexity and structuredness or the lack of certainty, precedents for action, salient facts and figures, and ambiguity concerning the solution alternatives. Fifthly, intuition largely sustains strategic visioning and a holistic comprehension of the environment and issue context. Sixth, because intuition as a form of improvisation creates a valve for creativity and innovation (Weick, 2001) firms that leverage intuition in their management processes are expected to be better of in spontaneously developing new competitive capabilities and sustaining their competitive advantage than firms that don't. Finally, intuition is much appreciated when successful, but largely undervalued when dissatisfactory; rationality in management decision-making on the contrary is always appreciated.

The *when, why and how's* of these principles will be further explored in the following section, as such presenting my personal contribution to the symposium.

## Intuition in the (strategic) management practice

*Organizational decision-making context: decision culture, structure and hierarchies*

Whilst the widely acceptance of the link between effective management decision-making and firm competitive advantage or performance, the link between intuition, *cutting-through* to the essence, judgment and effective management practice is only made in implicit ways (Papadakis & Barwise, 1998a, 1998b; Waller, Huber, & Glick, 1995). Effective decision-making differs from not so effective decision-making in the way it can cope with the issues that the decision process aims to resolve, at the same time dealing with the interaction between the shape and definition of the problem, building and developing support for strategic or long lasting solutions, and the influence of particular people within the decision group on the nature and timing of the decision process itself (Hambrick & Mason, 1984). Two elements deserve our attention when discussing intuition in organizational contexts: firstly, the number of participants throughout the problem solving process, and secondly, the '*split brain*' organizational embeddedness and tolerance.

As individuals' judgements of a particular situation or problem directly affect the effectiveness of the group decision (Dean & Sharfman, 1996; Hickson, 1995) and since homogenous teams will make decisions more quickly and effectively than heterogeneous teams (Clarke & Mackaness, 2001), it is believed that more dissimilar perceptions and judgments on the issue to be solved are likely to turn out dysfunctional for the group decision-making process. Even when expert judgments are often very flexible, the balance of more analytic "left-brain" expert model-based reasoning and intuitive "right-brain" judgment-lead management seems to lead to superior decision-making (Blattberg & Hoch, 1990; Burke & Miller, 1999; Mintzberg, 1994a, 1994b; Shapiro & Spence, 1997; Simon, 1987)[2]. "The theory is that intuitive managers learn to recognize clusters or chunks of information and act accordingly. While their behavior often seems nonrational, in that the managers concerned are unable to give formal accounts or justifications of why a particular decision has been made, however, implicit analytical processes are involved" (Morgan, 1997, pp. 80). The degree to which more intuitive, nonlinear "right-brain" approaches of decision-making are internalized in the *firm's knowledge and experience base, management culture and hierarchical structure* will as a consequence not only determine the status of intuitive decision-making within the organization, but also the firm's management effectiveness and flexibility. Shapiro and Spence (1997) proposed that "when combining intuitive and analytical [decision-making], as underlying relationships become more complex, greater weight should be attached to the intuitive judgment relative to the analytic judgment." Since intuitive decision-making is based on implicit analytical processes, or since any prediction or forecast involves a large component of judgment, intuition or 'educated guesswork' (Kahneman & Tversky, 1982(1979)) the act or process of coming to direct knowledge through intuition and without reasoning or inferring, a keen and quick insight, should not produce lower certainty. As suggested by Morgan (1997) in the very first lines of his *Images of Organization* "[effective] managers and professionals in all walks of life have to become skilled in the art of "reading" the situations they are attempting to organize or manage."

Assuming that "intuition is positive *only* for firms with cultures and strategies emphasizing constant exploration for new capabilities, […] and then only when intuition is defined in a particular way" (Hitt et al., 2002), different understandings of intuition refer to different ways of incorporating and processing intuitive expertise, knowledge assets, learning

---

[2] Under the influence of the findings of split brain research, there has been much interest in understanding the implications of the functioning of the creative right and analytic left hemispheres, including the separate specializations of functions as well as the interconnection between the two (Morgan, 1997).

and emotions into the decision process. Therefore, intuition is assumed to get on only in those organizational settings where this particular knowledge, experience, expertise etc. is expected to contribute to the firm's strategic and operational flexibility and as managers have great confidence in their intuitive decisions and are likely to attribute their ability to make them rapidly based on such complex bundles of tacit information, knowledge, experience or expertise (Simon, 1987; Weick, 2001). As there is no point of searching any underlying structure in complex and unstructured problems as evidenced by Simon's chess expert versus novice experiments (Simon, 1976(1945)), if an organization tolerates intuition and intuitive decision-making in terms of 'the making of something out of nothing' then there seems to be no ground for supporting the old adage to "*Sleep on it*" in order to maximize a manager's intuitive powers (Shapiro & Spence, 1997). Even though individual managers will seek first and foremost information that confirms their initial beliefs -anchoring or restraining their judgments (Tversky & Kahneman, 1982(1974))- and even though the initial judgment is affected by the representativeness of analogies they draw with other similar situations (Kahneman & Tversky, 1982(1973); Tversky & Kahneman, 1982), in essence the preferred sequence in ambiguous, complex and unstructured management decision-making would be *more than less* 'explorative' (Agor, 1989): first, formulate the problem, then express an intuitive reaction or solution to the problem, write down the response, and then engage in analytic reasoning (Shapiro & Spence, 1997).

*Strategic management context: problem definition*

Concerning the significance of intuition in the strategic management context, two items are brought to discussion: firstly, the ambiguity, complexity and structuredness of the decision problem, and secondly, the level of top-management involvement in strategic issue management.

Problems lie on a continuum of structuredness. At the one end are well-structured problems, to which established decision rules apply in order to yield an ideal, satisfying or acceptable solution; at the other are ill-structured problems for which no widely accepted decision rules apply (Cooke & Slack, 1991; Shapiro & Spence, 1997). Because the issues and problems dealt with in strategic management (strategy making and implementation) are far more ambiguous, complex, unstructured and therefore unclear, undetermined, and unpredictable, they are less subject to coherent, rationality-based and logical checks and balances. Moreover, since the intuitive ability seems to function best when levels of uncertainty and risk are high, when little or no previous precedents exist, when hard data or cues are limited, when data analysis is of little use, when time is limited and/or when a numerous amount of plausible but complex alternatives to the problem exist (Agor, 1989), intuitive decision-making is assumed to predominantly appear in strategic management and strategy decision-making. "[Intuition] is therefore a key management resource that should be used to help guide strategic decisions" (Agor, 1989, pp. 8). And, whereas intuition is mutually important within purely operational contexts, the general feeling of the symposium proposal correctly seems to give particular attention to the value of intuition as sense-making source in complex *strategic decision-making* (Jenkins & Johnson, 1997).

In *Intuitive Management: Integrating left and right brain management*, Agor (1984) asserted that intuitive ability varied by managerial level based on levels of expertise, experts having highly organized, factual, domain-specific knowledge that allows the to encode complex information; this knowledge results in faster and more accurate interpretation of a problem and decision performance, i.e. cutting through a decision situation (Clarke & Mackaness, 2001). "Managers at the top […] scored higher than middle- or lower-level managers on their ability to use intuition to guide their key decisions at the .05 statistical significance level" (Agor, 1989, pp. 7), hence confirming the relationship between the level of expertise and judgmental or intuitive decision-making. Moreover, strategic (issue) management has always been the playground of largely skilled, experienced and proficient senior executives and top management. Based on the premise that employees who are older or who hold top management positions tend to have an innate problem solving experience, more personal information, a questioning outlook fed by singular information or case data, and therefore use their intuition more (Blattberg & Hoch, 1990; Burke & Miller, 1999; Kahneman & Tversky, 1982(1979); Molloy & Schwenk, 1995), debating strategy and strategic issues –hence the fuzzier types of problems- will gravitate more toward *expert judgment*- and intuition-based decision processes (Shapiro & Spence, 1997).

*Environmental complexity*

As said, depending on the environmental change or context volatility, intuition seems to become more important and suitable as information needs are high, information flows are uncertain and information sources unclear. More weight is therefore given to intuitive management as environmental conditions shift to unprecedented hyper-change, turbulence, chaos as well as crisis (Burke & Miller, 1999). Lack (or extreme overload) of information, lack of understanding and insight prevents the crystallization of a guiding strategic theme as well as the rationalization of the decision process, and therefore intuition is expected to come into play as an emergent source of learning-based and experiential knowing or emotive-based sensing about what may be most feasible and functional considering the available options (Choo, 1998). Hence, intuition is inherently connected to a kind of problem-solving management style that is able to serve the need to quickly adapt to the changing environment without the possibility of relying on hard data. This in turn expresses the need for a capability to recognize and retrieve coexistence or unexplained relationships of conscious and unconscious cognitive patterns from the firm's collective strategic memory or the individual strategic management team member's strategic subconscious intuition base without really thinking in-depth (Clarke & Mackaness, 2001). Both patterns are not mutually exclusive, since it has been empirically demonstrated that what is learned implicitly slowly seeps into consciousness, thereby affecting analytical ruling. Similarly, it is likely that the basis for analytical decision-making is likely incorporated, at least to some extent, into intuitive judgments (Shapiro & Spence, 1997)[3]. Now this is basically the secret of the Herbert Simon's grand chess master's intuition or judgment (see: Simon (1976(1945)) intuition in chess-playing), the chess game symbolizing environmental instability and unpredictability.

## Concluding remarks

Although prior research has developed the idea that managers were long time reluctant to develop their intuition to any significant extent and were trained to mistrust their own judgments, from the above discussion it seems that intuition can serve strategic management and decision processes (Schwenk, 1995), firstly, by expediting decision-making processes also lacking hard data, by getting the job done, secondly, by improving the decision by providing checks and balances or in fair dealing with people, and thirdly, by facilitating personal involvement and company culture development. Therefore, intuition *is* seemingly important for both the entrepreneurship, scanning opportunities and threats (see the work of

[3] As an example (see: Shapiro & Spence (1997, pp. 66)) subjects in implicit learning studies performed more poorly on implicit learning tasks when they were instructed to search for its underlying structure –in other words, engage in analytic reasoning- before making a judgment. Meanwhile, subjects who were not instructed to search for structure per performed much better.

Frances Vaughan as referred to in Agor (1989), pp. 6), as well as for the individual and collective management understanding, decision-making and action (Simon, 1987, 1976(1945)). Since executives do not often enjoy the luxury of making their decisions on the basis of orderly rational analysis, not surprisingly forms of improvisation and intuitive decision-making are all around us (often hidden or kept secret though[4]), on every management and other functional level in every organization. Confirming Agor's findings, Burke and Miller's study (1999) for instance reported "almost all respondents (91.5 percent) said that they had combined intuition with data analysis in their history of workplace decision making, employing intuition in concert with deductive processes." Intuition indeed seemed to be no magical or mystical thing… but rather a decision aid that managers consciously use to guide their most important decisions. Moreover, if we take a closer look at the processes used, intuitive decision-making is often based on an ability to develop deep appreciation of the initial situation being addressed while remaining open and flexible in imagining various scenarios and actions until a more comprehensive understanding of the situation emerges (Morgan, 1997). But, if the skill at imagining and anticipating possible futures often is not just cognitive but intuitive, then what makes the study of intuition –not to speak of the relation between intuitive decision-making and firm performance- so very speculative? One of the issues involved concerns the attribution of intuition. Namely, notwithstanding the empirical findings of Blattberg and Hoch (1990) and Chakravarthy (1997) suggesting that intuition improves decision making and that managerial judgment can outperform model-based estimates in very complex environments, findings in general do not unconditionally suggest that managers using intuition in their decision-making are intensely confident in their intuitions (Burke & Miller, 1999) or even that managers are able to identify what intuition is and how it decreases or increases planning, forecasts and estimate accuracy (Shapiro & Spence, 1997). Therefore, "[perhaps intuition] is simply an excuse for doing something we cannot justify in terms of present values or for refusing to follow the logic of our own beliefs" (March, 1999, pp. 321). Moreover, as intuitive problem solving goes largely unexplained, cognitive elements of decision schemas are frequently being confused with more intuitive dimensions, basically referring to the ability to appraise a situation holistically and pull patterns together (= *helicopter vision*) (Clarke & Mackaness, 2001). Giving further inputs to the question of what intuition may or may not contribute to successful strategic management, let's depart from a more general definition of ***intuition*** –or else improvisation, gut feel, managerial judgment etc.- that may be thought of as

> ***a holistic, comprehensive, prompt[5] and arousing[6] response to information stimuli regarding an ill-structured problem, based on a decision maker's non- or subconscious cognitive schemas clustering recognizable, transcendent, interrelated as well as associative patterns of cumulative and implicit experience, implicit learning, expertise and emotion.***

In relation to the importance of intuition for the firm's survival and sustainable growth, Barney sees higher levels of intuition intangibility, ambiguity, inimitability, and uniqueness as a precondition for developing new competitive capabilities. Therefore, more intuition will induce a sustainable competitive advantage (referring to J. Barney's contribution to Hitt et al., 2002). Assuming that intuition may be to the long-term advantage of the firm,

---

[4] Nearly half of the respondents in Agor's study (1980-1984), when asked if they tended to keep their use of intuition a secret or felt comfortable sharing this information with others, indicated that they kept it secret!

[5] Following the causal "*if – then*" mode as described in Simon (1976(1945)).

[6] Both referring to the overwhelming sense of excitement and the total sense of commitment, harmony as well as to the mixed emotions and a sense of anxiety about the judgment, described by Agor (1989).

the conditions under which intuition will prove beneficial are above all determined by the nature of the decision problem, the embeddedness of intuition in the organization culture and the management processes. In essence, the more base-rate data and cues available, the less likely management will call on intuition as the sole source to find or select between proper solution alternatives (Kahneman & Tversky, 1982(1979)). Conversely, the more unspecified the problem is, the more apt it may be to rely on intuitive decision-making, since it has been proven more effective in such circumstances (Burke & Miller, 1999; Mintzberg, 1994b). The representation of the management decision-making dilemma by a *weighing scale* is therefore meaningful, the one end of the balance symbolizing intuition –given more weight by more ambiguous unprecedented problems- the other end symbolizing analysis –given more weight depending higher amounts of unambiguous data, facts and figures or explicit experience or knowledge. Therefore, "[intuition] seems to come more into play as a means of 'going beyond' the rational data and information, by using experiences to 'cut trough' to the essence of a situation, helping to make sense of it, and as a test of its validity" (Clarke & Mackaness, 2001, p. 166).

These days, many firms experience the need among their top managers to transcend traditional linear decision-making and to effectively engage their intuition and non-linear approaches when addressing complex business decisions (Blattberg & Hoch, 1990). Mintzberg (1994a, 1994b), for instance, advocated the cautiousness by which linear strategic decision-making based on planning and forecasting, or else *strategic programming*, has to be dealt with. Much alike Mintzberg, Agor (1989) suggested management should come into complex and ambiguous decision problems in an explorer mode, using intuition to foresee the correct path to follow at the same time leaving all rigid systems or step-by-step methods of decision-making. We must be wary, however, of the possible dangers following the flight intuitive decision-making might take. Namely, intuition –just like improvisation- is expected to become self-feeding and self-supporting whenever successful, however, with more speed and acceleration since it is far easier, quicker and more veiled than analytical forms of decision-making processes. Nevertheless the fact that combinations of experts increase decision accuracy because the inconsistencies of one judge tend to cancel out the inconsistencies of another (Blattberg & Hoch, 1990), any glorification of judgmental decision-making may lead to over-exaggeration of the power of intuitive decision-making, in turn nullifying all rationality in decision processes. As said, this danger especially will surface when intuitive decisions produce extremely prosperous outcomes or when analytic decision-making systematically fails to generate viable solutions. However, also in the case of intuition an extremely good outcome will eventually be followed by some poorer intuitive decision outcome. Nevertheless intuition is -compared to analytic forms of problem-solving- seen as more beneficial in complex, unstructured and ambiguous decision processes, "[…] intuitions play an important part even where forecasts are obtained by a mathematical model or a simulation" (Kahneman & Tversky, 1982(1979), pp. 414), not to say that intuition will work more effectively if the problem to be solved is more precisely defined… So, let's treat intuition as real.  - Questions or comments: tom.schamp@rug.ac.be

**References**

Agor, W. (1989). The Logic of Intuition. In W. Agor (Ed.), *Intuition in Organizations* (pp. 157-170). Newsbury Park, CA: Sage Publications.

Blattberg, R., & Hoch, S. (1990). Database Models and Managerial Intuition: 50% model + 50% managers. *Management Science, 36*(8 [August]), 887-899.

Burke, L., & Miller, M. (1999). Taking the Mystery out of Intuitive Decision Making. *Academy of Management Executive, 13*(4), 91-99.

Chakravarthy, B. (1997). A New Strategy Framework for Coping with Turbulence. *Sloan Management Review*, *38*(Winter), 69-82.
Choo, C. (1998). *The Knowing Organization. How organizations use information to construct meaning, create knowledge, and make decisions*. NY/Oxford: Oxford University Press.
Clarke, I., & Mackaness, W. (2001). Management 'Intuition': An interpretative account of structure and content of decision schemas using cognitive maps. *Journal of Management Studies*, *38*(2 [March]), 147-172.
Cooke, S., & Slack, N. (1991). *Making Management Decisions* ( Second edition ed.). NY: Prentice Hall Europe.
De Mey, M. (1992(1982)). *The Cognitive Paradigm. An integrated understanding of scientific development*. Chicago/London: The University of Chicago Press.
Dean, J., & Sharfman, M. (1996). Does Decision Process Matter? A study of strategic decision-making effectiveness. *The Academy of Management Journal, 39*(2), 368-396.
Eisenhardt, K. (1999). Strategy as Strategic Decision Making. *Sloan Management Review, 40*(3), 65-72.
Hambrick, D., & Mason, P. (1984). Upper Echelons: the organization as a reflection of its top managers. *Academy of Management Review*, *9*(2), 193-206.
Hickson, D. (1995). *Managerial Decision Making.* Aldershot: Darthmouth.
Hitt, M., Barney, J., Miller, C., Zahra, S., & Govin, J. (2002). *Intuition as a Driver of Organizational Decisions and Actions.* Paper presented at the Academy of Management (Symposium proposal for BPS and Entrepreneurship Divisions), Denver.
Jenkins, M., & Johnson, G. (1997). Linking Managerial Cognition and Organizational Performance: a preliminary investigation using causal maps. *British Journal of Management*, *8*(Special Issue), 77-90.
Kahneman, D., & Tversky, A. (1982(1973)). On the Psychology of Prediction. In D. Kahneman & P. Slovic & A. Tversky (Eds.), *Judgment under Uncertainty: heuristics and biases* (pp. 48-68). Cambridge, UK: Cambridge University Press.
Kahneman, D., & Tversky, A. (1982(1979)). Intuitive Prediction: biases and corrective procedures. In D. Kahneman & P. Slovic & A. Tversky (Eds.), *Judgment under Uncertainty: heuristics and biases* (pp. 414-421). Cambridge, UK: Cambridge University Press.
March, J. G. (1999). *The Pursuit of Organizational Intelligence*. Oxford: Blackwell Business Publishers Ltd.
Mintzberg, H. (1994a). *The Rise and Fall of Strategic Planning*. NY: The Free Press - Pearson Professional Education.
Mintzberg, H. (1994b). The Rise and Fall of Strategic Planning. *Harvard Business Review, 72*(1 [January-February]), 107-114.
Molloy, S., & Schwenk, C. (1995). The Effects of Information Technology on Strategic Decision Making. *Journal of Management Studies*, *32*(3), 283-311.
Morgan, G. (1997). *Images of Organization*. Thousand Oaks, London: Sage Publications.
Papadakis, V., & Barwise, P. (1998a). Research on Strategic Decisions: where do we go from here? In V. Papadakis & P. Barwise (Eds.), *Strategic Decisions* (pp. 289-310). Hingham/MA: Kluwer Academic.
Papadakis, V., & Barwise, P. (1998b). What Can We Tell Managers about Making Strategic Decisions? In V. Papadakis & P. Barwise (Eds.), *Strategic Decisions* (pp. 267-287). Hingham/MA: Kluwer Academic.
Schwenk, C. (1995). Strategic Decision Making. *Journal of Management, 21*(3), 471-493.
Shapiro, S., & Spence, M. (1997). Managerial Intuition: A conceptual and operational framework. *Business Horizons, 40*(1 [January-February]), 63-68.

Simon, H. (1987). Making Management Decisions: the role of intuition and emotion. *Academy of Management Executive*, *1*(1 [February]), 57-64.

Simon, H. (1976(1945)). *Administrative Behavior. A Study of Decision-Making Processes in Administrative Organization* ( Third Edition ed.). New York: The Free Press.

Tversky, A., & Kahneman, D. (1982). Judgments of and by Representativeness. In D. Kahneman & P. Slovic & A. Tversky (Eds.), *Judgment under Uncertainty: heuristics and biases* (pp. 84-98). Cambridge, UK: Cambridge University Press.

Tversky, A., & Kahneman, D. (1982(1974)). Judgement under Uncertainty: heuristics and biases. In D. Kahneman & P. Slovic & A. Tversky (Eds.), *Judgment under Uncertainty: heuristics and biases* (pp. 3-20). Cambridge, UK: Cambridge University Press.

Waller, M., Huber, G., & Glick, W. (1995). Functional Background as a Determinant of Executives' Selective Perception. *Academy of Management Journal*, *38*(4), 943-974.

Weick, K. (2001). *Making Sense of the Organization*. Oxford, UK: Blackwell Publishers Inc.