

Chapter 1

Introductory Chapter: Creativity in Decision Making

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1. Introduction

Creativity is an attitude [1], even more, studied in the world competing with leadership, the most studied concept of all time. Both realities have a common denominator: They are innovation stimulators [2] and use technology to develop people and organizations. These have to make business and contract people to give new ideas and take decisions, and in what concern with this last element, the decision making is fundamental to leave organizations to make up mind itself. So what is creativity in decision making? Does it depend on leadership to innovate? Does it depend on the decision, nature, or level, itself? What kind of creativity do we need to make good decisions? It seems a higher kind of creativity originates from excellent decision making if we explore several possibilities or identify the necessary fundamentals to understand this problem. To understand this we believe that creativity and decision determine the impression of people's attitudes to creating namely social status, attitude in general and power, prestige, opinion, and decision [3]. As we leave in a turbulence era of big unknown changes, people try to solve the problems taking the decision making as a reference but supporting through a creative attitude; in other words, to develop overcome and resilience creativity help to highlight the evident factors that must overcome information limitations and prejudices that compromise decision making [4].

The creativity approach has an origin in lateral subject perspectives that characterize the relationship between people that use the brain to bring people together to a new world or a new form of human life [5] using to make up their minds and change their behaviors empower that relationship bringing reality closer to thought. This presupposes competencies learning, replacing inertia with activity in people establishing connections and turning every day into opportunities [6]. But what about creativity and decision-making? Observing the Eisenhower Matrix [7] we can see two important aspects: importance and urgency, but we know importance is a good catalyst for decision [8], and urgency is important for critical decision [9], so it seems us, to prioritize factorially, we'll need the creativity support. According to this, the greater the importance and the lower the urgency, the decision is based on a schedule, if the importance and urgency are low, it is best not to decide, if the importance remains low and the urgency is high, we decide to delegate to someone, if the importance and urgency are high, then you must decide, and now!

2. Literature review

2.1 Creativity

Creativity could be defined as the artist's production capacity, the discoverer, and the inventor, which is manifested by inventive originality or, even, by the ability to find different and original solutions in the face of new situations (innovation). According to several authors that follow the complexity of the phenomenon, this concept gains one or another meaning. However, the various definitions proposed are grouped, centered, and interconnected in four perspectives: (i) the person; (ii) the processes/techniques/means/acts; (iii) product/object/purpose/objective; and (iv) climate/environment.

Torrance [10] and Alencar [11], among others, refers to three mental capacities that can be considered intimately linked to creativity: (i) Fluency—"the abundance or quantity of different ideas on the same subject or answers to a question" or "the ability to think of a large number of ideas or possible solutions to a problem"; (ii) Flexibility—"the ability to alter the course of thought or devise different categories of responses" or "the ability to think in different methods or strategies"; and (iii) Originality—"the ability to think of unique or unusual possibilities" or the "rare, infrequent, or uncommon" but possible responses. Creativity is the expression of a potential human capacity for achievement that manifests itself through human activities, of inventive originality or innovation, and that generates products in the course of its process [12, 13].

2.2 Decision and decision making

Kirkwood [14] asks: "What is the decision?"

For any situation, the question is: What should be done? What is the decision to make? Has the problem been identified? What are the possible alternative solutions. A possible answer would be to consider the decision as a complex and comprehensive process that begins with the perception of the need for change and ends with the choice and implementation of a course of action, among the several viable ones [14].

March [15] states that decision-making is the activity that interprets the action as a rational choice. For this author, the term rational is usually interpreted as equivalent to "smart" or "successful", which describes actions as having the desired results. Rationality, in turn, is defined as a set of procedures, particular, and natural, for making choices. The views of rationality can be observed from two main perspectives, one based on Unlimited Rationality (Locke and Laplace) and on "Optimization with Constraints" and another based on Bounded Rationality developed by Herbert Simon in 1957 in his book "Heuristic of Satisficing" and, more recently, in "Quick and Simple Heuristics" [16] and the organizational decision-making mixes the two styles, rational and administrative [17].

2.3 Creativity and decision making

Clemen [18] states that creativity plays an important role in decision-making because it can be much more than an activity that generates new alternatives that determine the limits (boundaries) of the decision. An active decision-maker looks for decision opportunities and tries to create them whenever possible, looking for new

and better alternatives. Techniques such as Fluent and Flexible Thinking, List Building, Brainstorming, and Metaphorical Thinking can help to achieve high levels of creativity in decision-making processes. Group discussion techniques can promote creativity by appropriately managing group interactions and improving the creative environment (climate of creativity).

3. Methods

3.1 Objectives

As a general goal, we try to know if there's the possibility to people decide creatively in a global way. Specifically, we want to know what kind of creativity manner is necessary to take excellent decisions making and if the people develop creativity to do that and what's the consequences about it.

3.2 Sample

We consider a population from an industrial society composed of 45 subjects from a group of 71 resulting in the respective non-probabilistic sample fraction with a total of 63% being n the population and N the universe we have: $n = 45$ $N = 71$ ($n/N = 45/71 = 0,63$).

3.3 Hypothesis

According to the problem, we formulate the following hypothesis:1. The subjects present creative potential to decide.2. The knowledge level supports the creative decision. 3. Gender helps to decide creatively. 4. The potential to decide creatively depends on age. 5. The career progression increases the creative potential to decide. 6. The creative decision will be a myth or a reality.

3.4 Instruments and procedures

We proceed with three analyses. First using the Hermann Creative Potential Test [19] indicates that creative potential originates in the brain, more properly in the left and right cerebral hemispheres which represent both sides of the human brain, analytical and creative functions representing the past and future, control the hands, and act according to the four mediators: rational, cautious, experimental, and sensitive. According to this, he introduced us to the second strategy we will examine, with the application of a questionnaire, the detection of the creative potential of each subject arising from the biological basis of brain function [20].

We then carried out a second analysis, to confirm the aimed potential existence, using the Borda method [21], a support decision method, where we analyzed all preferences organizing the subjects according to their choices preferences and received points for that. 1 point for the last preference, 2 points if it's the second preference, and N points if it's the first preference. Whoever, in this case, has more points approximately powers greater decision-making ability. Finally, we used the third, simply descriptive, analysis to find options for the expected average that's 3 searching hypothesis confirmation.

Analysis 1 Qt

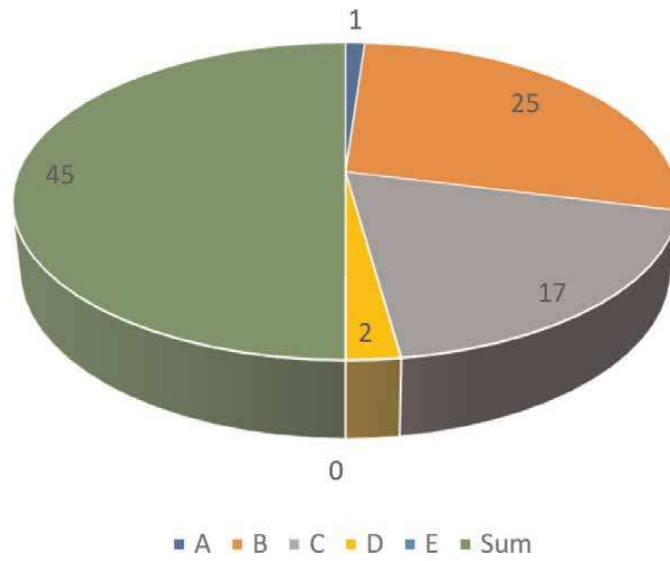


Figure 1.
Subject's creative potential.

Qt %

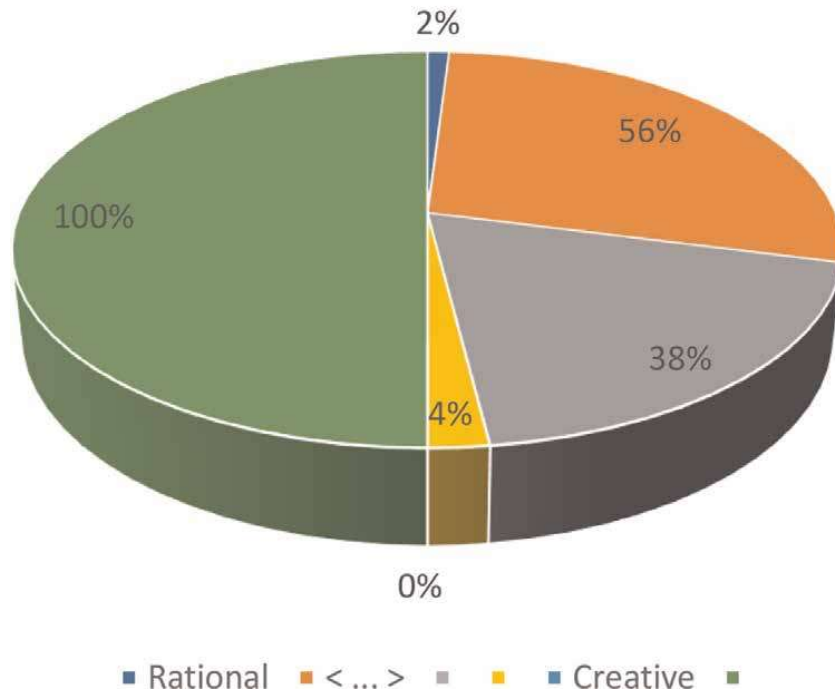


Figure 2.
% Subjects creative potential.

		A	B	C	D	E	Sum
Analysis 1	Qt	1	25	17	2	0	45
		<i>Rational</i>		< ... >		<i>Creative</i>	
	Qt %	2%	56%	38%	4%	0%	100%
		96%			4%		

Table 1.
 Subject's creative potential.

	Points	0	1	2	3	4	Sum
Analysis 2	weighted amount	0	25	34	6	0	65
Borda Method	weighted amount. %	0%	38%	52%	9%	0%	100%
		91%			9%		

Table 2.
 Subjects' creative potential confirmation.

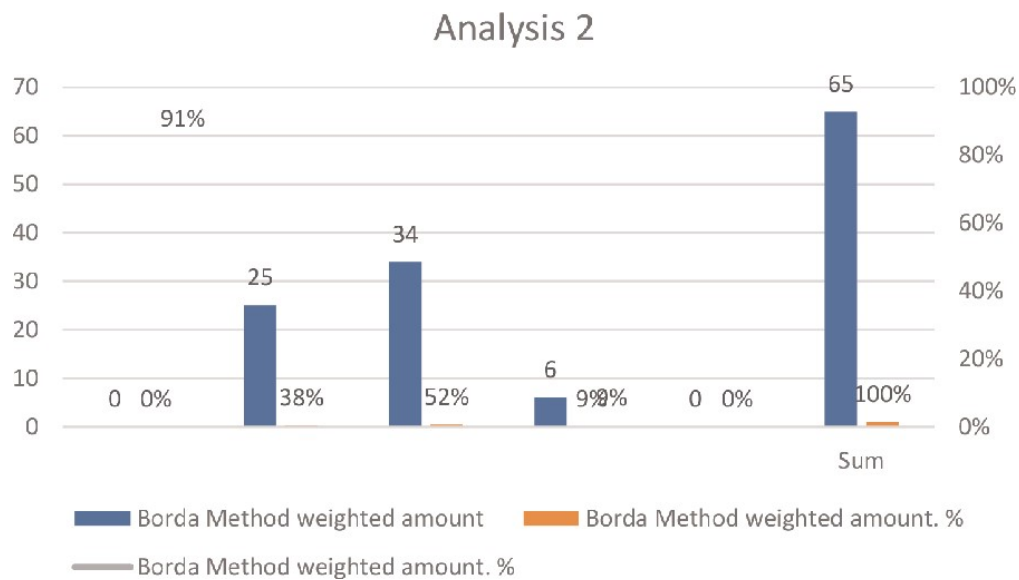


Figure 3.
 Subjects' creative potential confirmation.

4. Results

4.1 Analysis 1

According to the table above, we see that the majority of people are more rational ahead than creative despite the attitude being present but blocked, which makes us suppose that there may be created in their decisions, but not at this moment (Figures 1 and 2) (Table 1).

Analysis 3 - hypotesis

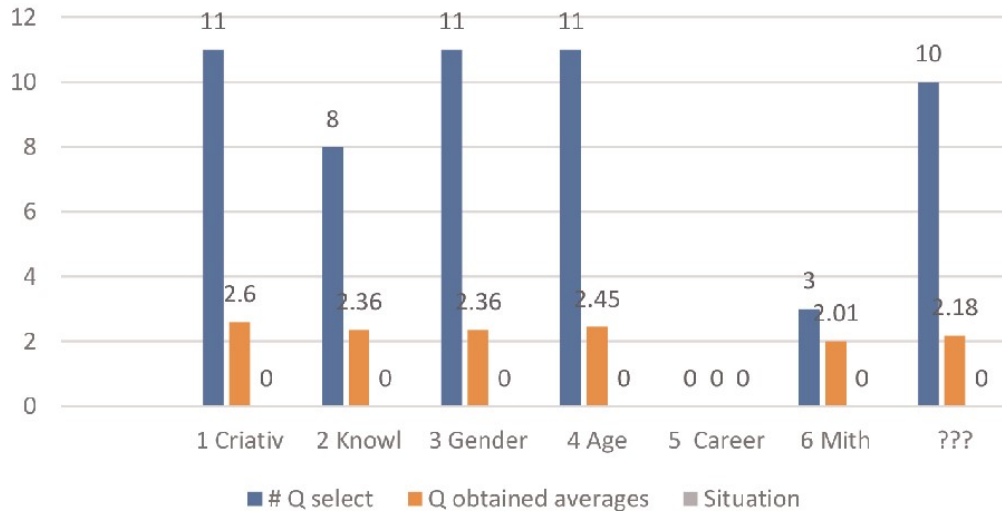


Figure 4.
Hypothesis confirmation.

	Hypothesis		Questionnaire corresponding questions 16 / 32	Selected questions	Averages obtained by questions	Results*
Analysis 3	1. The subjects present creative potential to decide.	1 Creative	Q01B, Q02A, Q03A, Q04B, Q05B, Q07B, Q09B, Q11B, Q14B, Q15A, Q16B	11	2,60	under
	2. The knowledge level supports the creative decision.	2 Knowledge	Q02B, Q05A, Q06A, Q07A, Q10B, Q13A, Q14A, Q15B,	8	2,36	under
	3. Gender helps to decide creatively.	3 Gender	Q01B, Q02A, Q03A, Q04B, Q05B, Q07B, Q09B, Q11B, Q14B, Q15A, Q16B	11	2,36	under
	4. The potential to decide creatively depends on age.	4 Age	Q01B, Q02A, Q03A, Q04B, Q05B, Q07B, Q09B, Q11B, Q14B, Q15A, Q16B	11	2,45	under
	5. The career progression increases the creative potential to decide.	5 Career	(without relation to potential)	0	0,00	none
	6. The creative decision will be a myth or a reality.	6 Mith	Q01A, Q06B, Q08A,	3	2,01	under
		Questions ahead of the hypothesis	Q03B, Q04A, Q08B, Q09A, Q10A, Q11A, Q12A, Q12B, Q13B, Q16A	10	2,18	none

Table 3.
Hypothesis confirmation.

4.2 Analysis 2

Considering **Table 2** where the 45 respondents are affected by the factor 0 to 4 which makes their sum equivalent to 65 (for the percentage calculation). That is, $0 \times 1 + 1 \times 25 + 2 \times 17 + 3 \times 2 + 4 \times 0 = 65$. So, according to with that we see the preferences choices on rationality as we saw in the first table. We verified that the principle of rationality is the choice that is imposed in this studied group, which confirms the blocking of the creative attitude and the correspondence with the two analyses (**Figure 3**).

4.3 Analysis 3

All results are below 3, the expected confirmation means.

According to the questionnaires, average answers through descriptive analysis to confirm eventual creative potential results represented by the average 3 we obtained the following averages considering the hypothesis and the questions selected from the total of the questionnaire (32) (**Figure 4**) (**Table 3**).

In face to obtained results, we can consider that any hypothesis is confirmed, because being under the average (3 points) and one that has no relation to the aimed theme. We have also isolated issues that have nothing to do with the hypotheses in question.

5. Conclusions

We can think that the subjects act with strong rationality and knowledge, being able to decide, however, without using creativity, regardless of age and gender, and career either. The creative decision, in this case, is a reality but not present now, and we consider that it is not a myth. The decision exists, it is an attitude [22], and it is present, as well as the latent creativity, according to the first two analyses. We think that the block is found in the way people learn and associate information, often in a memorized way, instead of solving problems using thought and words while practicing a decision-making activity, given that we retain 90% of what we say while we do it [23]. Regarding the study, we think that it should be extended to other organizations with more diversified and expanded samples to contribute to the improvement of culture management in organizations, namely in the processes of change, negotiation, and conflict.

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