Organizational Climate Assessment Using the Paraconsistent Decision Method

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Abstract: In this work we consider a model of organizational climate assessment, considering the integration of success codes with concepts of the Paraconsistent Decision Method. The methodology contributes to a previous scenario analysis that can return more precise feedback of the organizational culture conditions of the organization.

Key-Words: Organizational Climate, Organizational Cultural, Paraconsistent Decision Method, Paraconsistent Annotated Logic Evidential Et, Paraconsistent logic, Decision-making.

1. Introduction

The organizational climate refers to the organizational context for in-unit performances, being a concept related to culture, although it is distinct from it. It represents the meaning that the members of the organization attribute to their experiences in the workplace, while culture represents the underlying assumptions and values that drive these actual experiences. That is, the climate is the current manifestation of more deeply rooted and abstract organizational cultural values and can be expressed regarding interpersonal relationships and meanings that generate tangible results. In this way, the organizational climate captures social attributes, observable or understood, that make the members of the organization feel motivated to interact and produce in this environment [1] [2].

Historically, the organizational climate has been studied since the 1930s [3], as well as in Brazil Souza [4], and Saldanha [5] were the main subjects of the study in this area, and this one addressed the subject more specifically from the perspective of the organizational atmosphere and had as objective to alert about the importance of the components of the organization have a psychic well-being and also the relevance of organizational psychology within the context , because a company that aims to improve its organizational development is fundamental to the adoption of strategies that make the organizational environment healthier.

The Paraconsistent Decision Method has the function of assisting the decision-making process, so, when integrated into an organizational climate analysis, the result will be more precise, because, consequently, the contradictions are considered and treated differently, extracting to the maximum the information collected.

This article aims to be the introduction to an analysis of the organizational climate based on the paraconsistent method of decision. To do so, a survey on Organizational Climate will be presented, using the organizational climate research model [6], considering the contradiction in the arguments of the respondents. This adaptation is necessary for the Paraconsistent Logic.

2. Problem Formulation
2.1 Organizational Climate
The organizational climate may appear to be a polemic topic since many authors do not agree on the distinction between climate and organizational culture. According to Souza [7], the organizational climate is more straightforward to identify than its

causal factors, being able to compare it with a perfume where its aroma is identified without it being possible to identify each component used in the making, i.e., it is easier to detect the effects of organizational climate on people within an organization than to discover the reason why that climate presents itself in that particular way.

One of the significant achievements of the research on the organizational climate and the development of so-called focused climates, where climate research can have a lot or little focus on references, for example, focus on leadership and the style of supervision [8].

According to Luz [9], the organizational climate is the equivalent to what people call the "work environment", from this perspective it is possible to understand the concept of organizational climate as a corporate environment and psychological atmosphere, being an increasingly important concept when the intention is to describe the perceptions that the members of the corporation have over their work environment.

It is still possible to emphasize climate concepts studied by Pillars [10] and Oliveira [11]. Pillars describes the concept of climate as a filter through which pass data is not intended to measure reality as it is but how it is perceived.

Pillars emphasizes the importance of knowing the filters applied by the individuals of the corporation, that is, how people perceive their organization and their work environment, such filters need not necessarily correspond to the reality of the facts [10].

Oliveira [11] understands that the climate is a momentary internal state that a company finds itself, being susceptible to change in the face of new factors that can arise in a short time and that can follow from decisions and actions taken or not by the company. This internal state is affected not only by internal factors, but also by external factors, and that such factors can cause new events and future factors or impact decisions made by the company.

The surveys of these states are provided by several already existing and consolidated techniques, their description is related to the values, beliefs, opinions, attitudes and/or feelings of the members of the corporation [12].

The climate is related to the motivation of the members of the organization, when motivation is high among the members of the organization, the climate rises and results in relationships of satisfaction, animation, interest and collaboration, however, when motivation is low, either by frustrations or barriers imposed on the satisfaction of the needs, the result is that the organizational

climate also falls, causing foci of disinterest, dissatisfaction, depression and in extreme cases leading to more aggressive levels such as strikes, turmoil, nonconformity where the members of the organization openly conflict with the organization itself. [13].

The metaphor in which the term climate originates describes the difficulty of defining the organizational climate since observations of the atmospheric climate is hardly accurate and reliable [12].

It is then possible to define the organizational climate as the quality or property of the organizational environment that is perceived or practiced by the members of the organization, and that has a high influence on its behaviour, the climate involves a broad and flexible framework influenced by external factors that act on the motivation [13].

According [14] the variation in the leadership style that the corporation assumes can create different organizational climates in a short time, but with reliable characteristics, once created, the climates have a direct impact on the motivation and consequently on the productivity of the employee, that is, both employer and employee have an interest in maintaining a healthy organizational climate, as both sides are benefited.

The organizational climate is favorable when it provides the adequate satisfaction of the personal needs of the members of the organization, consequently raising its morale. Moreover, it proves unfavorable when such personal needs are frustrated, that is, the organizational climate is influenced by the motivational state of the members of the organization that are influenced by it [13].

Table 1 – Basic Motivation Equations
Source: (Chiavenato, 2014)

People	+	Knowledge	=	Effective People
Effective People	+	Skills	=	Improved Products
Improved Products	+	Improved Services	=	Increase Sales
Increase Sales	+	Greater Productivity	=	Profit Increases
Profit Increases	+	Rewards to People	=	Motivated People

The climate can be considered good when positive attitudes predominate that make the environment more pleasant to work, is considered impaired or bad when a considerable amount of variables negatively affect the majority of employees, making the climate tenser. The climate

can be synthesized as favorable, unfavorable or neutral about the members of the organization [9].

It is necessary to clarify as, in the study by Mello [12], this study considers the following aspects related to the organizational climate.

1 – It is tied to volatile, situational factors, where changing conditions can change it and influence the behavior of the members of the organization, as well as their performance and personal satisfaction.

2 – It is perceived in varied ways, which use to base their beliefs, values, life history, attitudes, perceptions, among others. It can be measured by an objective measure.

3 – It is affected by internal and external organizational and formal environment variables. It is directly connected to the work environment, being able to distinguish between different work poles within the same organization, that is, there are several internal climates, which makes the task of improving it more complex than it initially appears.

Moran e Volkwein [15] consider the organizational climate a relatively long-lasting characteristic that:

- It includes the collective perceptions of members of their organization related to dimensions such as autonomy, trust, cohesion, support, recognition, innovation, honesty, creativity, etc .;
- It is produced by the interaction of the members;
- It serves as a basis for interpreting situations;
- It reflects the attitudes, norms, and prevailing values of the organization's culture; Acts as a source of influence for the behaviors presented.

Organizational climate can help or hinder the implementation of changes in the organization. It is up to the excellent administrator to know the climate and the culture of the organization so that it works in favor of its decisions and, when appropriate, to interfere positively to the own gradual change of the climate and the culture. The organizational climate is undoubtedly influenced by the motivation of the employees to fulfill their obligations to the satisfaction. Such influence can be positive or negative, and act on the extrinsic or intrinsic factors [16].

It is known that the organizational climate has a direct impact on the quality of work life, which is related to satisfaction and emotions. The quality of work life participates in the social responsibility of the company, involving the attendance of the needs and aspirations of the individuals with attitudes as the restructuring of positions and innovative forms of work organization associated with the formation of teams with the higher power of autonomy and

with improvements in the environment of the organization. The term empowerment is used in the designation of increased empowerment with the responsibility of employees, which contributes to their increased motivation and self-respect. It is a relatively common mistake to manage the company, seeking higher productivity and profit margins, neglecting or even inhibiting the creation of these conditions to improve the quality of life at work [16].

3. Problem Solution

3.1. Paraconsistent Decision Method

Based on Carvalho's studies [17], it is possible to synthesize the definition of the Paraconsistent Decision Method, which is a method that assists the decision making through the Paraconsistent Logic [18].

The Paraconsistent Decision Method was developed by Carvalho [17], in which it sought to identify factors that influence the success or failure of an enterprise, that is, that end up influencing the decision to carry out a given project or not. Their analysis made it possible to identify that attributes may in some cases indicate favorable conditions, in others unfavorable and other indifferent cases. These factors can be of different orders: economic, social, legal, environmental, technical, political, among others [19].

The Paraconsistent Decision Method uses as input the experience of the participants in the decision-making process who are called specialists as a fundamental tool for evaluating a given question, making feasible or unfeasible any situation [20].

Starting from a problem, question or note, which receives the name of the proposition, the method determines the need to finish the so-called factors, which as the name says are the factors that impact on the viability or unfeasibility of the present proposition [21].

Factors can be sectioned to increase the accuracy of the analysis of a given factor, the sections created can extract more from the knowledge of the experts who are evaluating them [22].

As an example it is possible to make analogy to the feasibility analysis of creation of a given organization, the planning, and assembling of the analysis environment will be the responsibility of a particular person (Consultant or Administrator and etc.), who will translate the data extracted from the experts so that they can be introduced into the

Paraconsistent Logic, this person is called the Knowledge Engineer [17].

According to Carvalho [19], the Paraconsistent Decision Method consists of mainly 8 steps:

1. Define the degree of the requirement that will be parameterized in the decision-making process.

2. Define the factors that impact the proposition that will be analyzed.

3. Define the sections that constitute the factors, better explain the limits of the factor; there is no limit on sections to give the factor nor a standard to be followed.

4. Form the database, which can be formed by the weights attributed to the factors and by the factors of favorable evidence and the contrary evidence, that are deposited to each factor and in its particular sections; such weights and opinions are drawn from people who are considered specialists in the area of knowledge that the proposition is inserted.

5. Perform the field research to see, in what condition each of the factors lies.

6. To obtain the favorable evidence value (ai, R) and the value of the opposite evidence (bi, R), with $1 \leq i \leq n$, for each of the chosen factors (Fi) in the sections found in the research (Spj), through the maximization (MAX) and minimization (MIN) techniques of logic Et.

7. Obtain the degree of favorable evidence (aw) and the degree of contrary evidence (bw) of the global analysis of the points representing the factors chosen in the lattice t.

8. Finally, decide with the help of the data obtained.

The theoretical basis for the Paraconsistent Decision Method is the maximization and minimization rules of the Paraconsistent Annotated Evidential Logic Et. Such rules are applied to the degrees of favorable evidence or degrees of favorable belief (μ) and the degrees of congruent evidence or degrees of contrary belief (λ), which compose the constant annotation calls: p ($\mu;\lambda$).

The application of the rules of maximization and minimization can be accomplished in two ways:

1. Maximizing the degrees of evidence of a set of annotations to look for:

- The best evidence that is favorable for μ (The highest amount of favorable evidence μ).
- The worst evidence to the contrary λ (The highest amount of favorable evidence λ).

2. Maximizing or minimizing the degree of certainty: Gce = μ - λ of the set of annotations, a degree that, to a certain extent, reflects how much information contained in this set allow inferring by the truth or falsity of the premise. (This form is more intuitive and leads to more predictable and consistent results).

The maximization of the degree of certainty (Gce) is obtained by searching for:

- The best evidence that is favorable for μ(The highest amount of favorable evidence μ).
- The best evidence to the contrary λ (The lowest value of favorable evidence λ).
  Thus the minimization seeks:
- The worst evidence that is favorable for μ (The lowest value of favorable evidence μ).
- The worst evidence to the contrary λ (The highest amount of favorable evidence λ).

This article presents applied research that seeks to generate knowledge for practical application [23]; of the qualitative approach, whose concern is the understanding of the organization and the social life. The exploratory objective of this study is to provide familiarity with the problem and to construct the central hypothesis that is the use of the Paraconsistent Decision Method and the Organizational Climate Analysis. This type of objective requires a bibliographical survey, analysis of examples of instruments and methods.

The instrument resulting from this work analyses the organizational culture based on the paraconsistent method of decision, using propositions that consider the participant's imprecise or neutral vision. The questions are formed by statements, unlike the other instruments that use questions in the form of interrogation, considering that the expert is part of the proposed scenario and that he can ponder the scenario with the data of how much it is compatible with its reality. Thus, the questionnaire creates a more comfortable context analysis for the respondent, since there are no wrong answers, including their contradictions will be used in the decision-making process.

After collecting the data obtained through the questionnaire, there will be a knowledge matrix compatible with a paraconsistent system, which works as follows:

- Step 1: receiving the information.
- The information is obtained through two independent variables, which are between 0 and 1, the first being the degree of favorable evidence and the second, the degree of contrary evidence.
- Step 2: Data Processing.
- The data are processed using the following equations:

- GCT=(μ + λ) – 1, to find the degree of contradiction.
- GC=μ – λ, to find the degree of certainty
- Step 3: Conclusion
- To conclude, the following conditionals are used:

a) If there is a high degree of Contradiction, there is still uncertainty about the decision. Therefore, new evidence must be sought.

b) If there is a low degree of Contradiction, one can formulate the conclusion, provided one has a high degree of certainty.

3.2. Evaluation tool

The evaluation tool, presented here, is an adaptation of Bispo's work [6], which carried out an extensive bibliographical analysis of methods of analysis of the organizational climate through questionnaires, and from there, created a model that can analyze profoundly the organizational climate taking into account the evolution of the political-economic, socio-cultural and ecological scenario nationally and internationally.

The original questionnaire covers the internal and external elements of the macro factors. However, this research uses only the internal factors, as it meets the needs presented within the context approached.

The internal factors of influence are those that originate within the company itself, which can act directly on these factors to try to improve them and produce better results for the company, customers, and employees, such factors are:

- Work environment - places the degree of relationship among co-workers, fundamental for collective and even individual activities;
- Assistance to employees - establishes the level of medical, dental, hospital and social assistance to employees;
- Bureaucracy - evaluates whether the bureaucracy is compatible with the activities performed by officials;
- Organizational Culture - evaluates the level of interference that the company's organizational culture exerts on employees and their activities;
- Organizational structure - measures the level of leadership relationship and empowerment and their interference in the activities performed by employees;
- Socio-cultural level - establishes if the intellectual, cultural and social levels of employees are by the needs inherent in their activities;
- Professional Incentives - aims to establish the level of professional recognition of employees;

- Remuneration - evaluates whether the remuneration is by the activities provided to the company;
- Professional security - evaluates the risk of dismissal without reason perceived by employees;
- Transportation home/work - measures the level of difficulty found for the locomotion between the employees' home and the company and vice versa;
- Professional life - establishes the degree of professional identification of employees with the company, trying to measure the level of their pride in the company and their professional success.

Table 2 – Author, an adaptation of Bispo's work [6] Basic Motivation Equations

Fill in the "I believe" fields with the percentage of how much you believe in the affirmation and the "I do not believe" field with the percentage of how much you do not believe in the affirmation.		
Professional life		
	I believe	I do not believe
I am proud to work for this company.		
I am proud of my activity in this company.		
I think the company offers me a good career plan.		
I often indicate this company as an employment alternative for my friends and relatives.		
I worry about the future of this company.		
I believe that I am achieving success in my career and my professional life.		
I would like my children to work in this company.		
I depend only on my efforts to achieve professional and career success in the company.		
The courses and training I have done are sufficient for the exercise of my activities.		
Organizational structure		
I fully trust my immediate boss.		
My immediate boss is a leader.		
My immediate boss is the person best suited for the job.		
I am satisfied with the hierarchical structure (bosses and subordinates) to which I am linked.		
Professional Incentives		
I consider that my work is recognized and valued by the company.		
I consider that my work is recognized		

and valued by my family.		
I consider that my work is recognized and valued by my friends and relatives.		
Remuneration		
I think my current salary is fair.		
My equity is commensurate with the efforts I have made for the company.		
Professional Security		
My job is safe for the company, that is, I do not run the risk of being fired for no reason.		
Sociocultural level		
My cultural and intellectual level is sufficient for the exercise of my activities in the company.		
My social level is sufficient for the exercise of my activities in the company.		
Employee Transportation		
I have had problems with home-business / company-home transportation.		
Work Environment		
The work environment favors the execution of my activities in the company.		
The relationship with my colleagues favors the execution of my activities in the company.		
Bureaucracy		
The bureaucracy adopted in the company favors the execution of my activities in the company.		
Organizational culture		
The traditions, practices, and customs adopted by the company, which are not foreseen in any rule, adopted in the company favors the execution of my activities in the company.		
Employee Assistance		
The doctor's and dentist's assistance and the social assistance adopted by the company favor the execution of my activities in the company.		

4. Conclusion

This work, with a broad view of the topics addressed, invites the reader to reflect on the use of paraconsistent logic as a way to improve analysis and evaluation of organizational culture. By studying organizational culture, both in theory and in practice, it was possible to analyze that even though it is a qualitative process based on human opinions and sensors, it is necessary to have high-reliability statistical techniques to keep the organizational culture healthy.

The bibliographical survey was critical to elucidate the entire path through which research

would pass; many authors devoted much of their lives to consolidate the concepts used in this research, denoting the latent importance of the areas that were addressed.

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