XVIII ICIEOM 2012
International Conference on Industrial Engineering and Operations Management
Guimarães - Portugal
July 9 - 11, 2012

Identification and Evaluation of the Abilities Requested in an Industrial Section: A Case Study of Application of the Methodology MCDA-C

Camila Avozani Zago[*+], Leonardo Ensslin[+], Sandra Rolim Ensslin[+]

* Management Sciences and the Enviroment Department, Universidade Federal Rural do Rio de Janeiro, Campus Três Rios, Rio de Janeiro, Brazil
+ Production and Systems Department, Universidade Federal de Santa Catarina, Campus Florianópolis, Florianópolis, Brazil

Email: camila.avozani@gmail.com

Abstract

The present study aims at demonstrating how the expansion of knowledge can help to improve people's performance in organizations. With such purpose a model was built to identify and evaluate the employees' skills in the printwork section of a textile company, seeking to identify improvement opportunities to its current and future members. The theoretical context approached is about the administration for competences, as well as the Methodology of Multi-criteria of Support to Decisions - Constructivist (MCDA – C – acronym in Portuguese). The procedures adopted in the construction of the methodology were: documental and bibliographical researches, allied to field research through semi-structured interviews. Through this study it was possible to define the abilities requested by the section of textile printworks, specifically for the quality tree, for which they were casted as explanatory factors of its acting: the visual acuity, the technology, and the processes. These were decomposed equally until it was possible to measure them in their factual form and not ambiguous. The generated knowledge allowed the representation of the context for a model used to identify improvement actions and operationalize the administration of competences, people's abilities and aptitudes of the printworks area.

Keywords: MCDA-C; Evaluation of Performance; Administration for competences and abilities.

1 Introduction

The economical alterations, allied to the technological innovations, cause alterations in the managerial scenery, affecting the acting of companies in the market, which is more and more competitive. To survive, in that market in constant changes, the companies look for enhancing the administration, through strategies that make possible to gain competitive advantage. Among them are the ISO Standards, which propitiate the evaluation and standardization of the activities of organizations.

The research reported in here had its origin turned to the attendance to a requirement of the ISO Standards, which in its item 6.2 foresees the evaluation of the requested abilities and developed by the employees in the several existent functions in the companies in its segment of performance, which the researched company wanted to evaluate to improve in an aligned way with its strategic objectives. Having in mind that the company didn't have a formalized and systematized instrument to assist to the Standards, which establish guidelines and formalizations to the procedures, after the research in subject was made. Under that prism, the research question that delineates the present study appears: Which are the criteria to be considered in a model that intends to identify and to evaluate the employees' abilities that already work in the section of printworks of the company and what do those who intend to work there?

To answer that question, it is proposed the construction of a model of abilities evaluation, that makes possible to the managers the accompaniment of the activities execution, as well as the originating result out of them. The construction of an identification and evaluation model of the employees' requested abilities that work in the company as managerial instrument makes possible the identification of the

employees' weak and strong points, with possible promotions in mind, as well as the employees' best allocation and larger accuracy in the recruitment process and new employees' selection, making possible, in a transparent and structured way, the implementation of training programs and continuous improvement in the development of activities.

In the construction of the model to identification and evaluation of the abilities and, in response to the research question it is used, as strategic and managerial tool, the Methodology of Multi-criteria of Support to Decisions - Constructivist (MCDA - C), which is a form of identifying, organizing and measuring the critical factors of success according to the perceptions and values of the people involved in the process (Ensslin, 2002). The option for that approach is justified for its wide coverage, flexibility and capacity to operationalize and integrate the strategy of the company to the Standards ISO, promoting the identification of the abilities, as well as its measuring in the performance evaluation.

Ensslin, Montibeller and Noronha (2001) propose the construction of a model of MCDA - C starting from four stages. In a first moment the identification of the decision context is made, in which the involved people are introduced (actors), the choices of the deciders, the definition of the possible actions, and also the problem. Starting from that, it is made the structuring of the problem, proceeding with the construction of the multi-criteria model and, finally, the generation and evaluation of the potential actions and analysis of the results of the model and recommendations. Front to the exposed, the authors selected such methodology for they judge the most appropriate for the resolution of the following problem proposed.

The objective of this article is building a model to identify and evaluate the abilities requested by the section of printworks of a textile company for the job of textile printer II, seeking to evaluate and to identify improvement opportunities to the people that already work there or may come to work in the future.

To operationalize the development of this research the case study is used as a research method, whose intervention tool is the Methodology MCDA - C. The instrument of data collection used was semi-structured interviews next to the decider, who analyzes, complements and legitimates the data used in the construction of the model. In this article the area of quality concern will be presented. This will be expanded and analyzed through a graph of influence relationships denominated cognitive map. The choice of the critical factor of success, Quality, was due to the fact that it has an importance and impact in the result of the productive process of the company and in the its financial requirement.

2 Theorical References

2.1 Administration for Competences and Abilities

Nowadays, the organizations try to have the professional's identity understanding the mobilization of a group of resources of their personality, of their knowledge, abilities and of the context, seeking the implementation of solutions for their problems. The organizational competences start from the individual competences of members in the organization. The competence concept is being used since the decade of 1970, as a group of characteristics that can be foreseen and structured, in way to establish an ideal group of qualifications so that the person can develop a superior performance in his/her work.

Competences are defined as a "group of knowledge, abilities and attitudes that justify a high performance" (Fleury & Fleury, 2001, p. 185), on the other hand, competence is the integration of a group of knowledge, abilities and attitudes that, in their manifestation, they produce a differentiated performance. The competences structure the ways of knowledge, necessary to the execution of tasks; they turn to people, documents and other structures of knowledge in the organization, once they can be inherent to people (individual), as well as to the organizations (core competences - central competences), with relationship to the countries.

According to Brandão and Guimarães (1999), the development of competences happens through the individual and collective learning, through the assimilation of knowledge, integration of abilities and adoption of important attitudes for a specific organizational context, or for the obtaining of high performance at work. The same authors define competence as the integrated union of three pillars, denominated of CHA - in Portuguese - (knowledge, ability and attitude), in other words, the competence exists when there is the integration of abilities (technique, ability and know-how), knowledge (information, to know what and why doing it) and attitudes of putting in practice what was proposed (interest, determination and wanting to do it). In that way, the abilities (know how to do it), focus of the present work, include the learning through professional experience associated to the tacit knowledge, corresponding to the capacity of applying the knowledge in the performance of the proposed tasks.

When the organization gets to develop competences starting from the integration of knowledge, ability and attitude, it should perfect its processes and personnel in order to identify the central competences and to focus its operations in it. Prahalad and Hamel (1990) comment that the key-competences should answer to three criteria: (i) to offer real benefits to the consumers; (ii) to be difficult to imitate (maintainable competitive advantage) and (iii) to provide access to different markets. Therefore, competence consists of the capacity of combining, to mixing and integrating resources in products and services, so that an organization, to obtain success, can combine several competences to draw, produce and distribute products and services to the customers, in the best possible way.

The authors mentioned above complement that the central competences are related (i) to the time that the competitiveness will be preserved in the business, if a certain competence is not controlled by the company; (ii) to the importance of the competence for the benefits noticed by the customer and (iii) to the future opportunities that will be excluded, if the company loses that competence. The authors also affirm, that the central competences should (i) allow potential access to a great variety of markets; (ii) contribute to increase the value noticed by the customer, in relation to the final product and (iii) be difficult for the competitors to imitate.

The competences, as well as abilities requested by the textile section, more specifically the printworks, have peculiarities, given that they demand special cares, which result in the improvement of the processes and in the quality of the product available to the customer. However, in the researched material it was not found, specifically, the necessary abilities to the development of the activities in the section, therefore, data of the company were used for the construction of the model, allied to the perspectives of MCDA - C.

2.2 Methodology Multi-Criteria of Support to the Decision - Constructivist (MCDA - C)

The act of evaluating is inherent to the very human nature, once it consists of the analysis and judgment of a certain fact, idea, objective and, also, in decision making in order to reach a wanted situation. According to Ensslin *et al.* (2001) and Kaplan and Norton (1997) what cannot be measured cannot be managed, given that the performance measurement means the process of quantifying the efficiency and the effectiveness of the actions taken by the company (Neely, 1996). However, to define the methodology to be used in the performance measurement consists of a task which Demo (2002) denominates as complex, because the process of performance evaluation integrates physical/logical structures, whose abrupt administration causes a groundless measurement.

According to Ensslin *et al.* (2001), formal models exist, whatever it is to support the decision (MCDA-C), or to make the decision (Methodology Multi-criteria for Decision Making- MCDM and Methodology Multi-criteria for Analysis of Decisions - MCDA). However, it is necessary to define the work rules to be used, which will define what is or not worth to accomplish, which methods can be used, which wanted objective and which problem to be solved.

MCDA - C consists of a methodology that seeks to increase the actors' understanding, in particular the decider, regarding a given context. What is accomplished by the support of the facilitator, so that the decider, using his/her values and preferences, can identify, organize, measure and integrate the aspects

judged important by him/her in the situation in study. The knowledge is built in the decider. And understanding will mean to visualize, with clarity, the consequences of the alternatives, existent and to be created, in the aspects identified as important for the situation in a given moment.

The Methodology MCDA-C had its starting point from PO, being consisted of an evolution of the same (Ensslin *et al.*, 2001), starting to consider perceptive aspects in the decision making, so the knowledge be the interaction and the objective in the search of a better solution for a given problem (Ensslin, 2002). For Lima (2003), MCDA - C consists of a new paradigm to analyze the decisions context in organizations, given that it involves multiple analysis criteria inside of the work scenery, not being a problem mathematically well resolved. Besides, MCDA - C tries to identify the best way of balancing the performance in the multiples criteria considered in a compensatory form.

Rummler and Brache (1994) explore the variables that influence an individual's performance or an organization, and that these variables should be measured and managed so that it is possible to obtain a competitive, adaptable (reactive and pro-active) organization and that focuses the continuous improvement of the performance.

Mintzberg *et al.* (1976) apud Ensslin *et al.* (2001) affirm that, in the decisions process, there is not, necessarily, a flow of decisions in stages pre-determined or organized in a logical way, where the existence, content and sequence of each one of those stages will be affected by the influence the actors have in the process. The actors consist of an individual or group of individuals that influence the decision process directly or indirectly through their system of values (Roy & Vanderpooten, 1996).

According to Ensslin *et al.* (2001) among the actors the intervening are represented, which for intentional actions participate directly on the decision process, while the acted suffer, in a passive way, the consequences of the decision taken, and they participate indirectly of the process; the deciders are already those to the which the power of the decision was delegated, in other words, the representative and also the facilitator, that is an actor too, once this will never be neutral in the process of supporting a decision and, therefore, it influences it.

With the intention of accomplishing the objective to which is intended, MCDA - C uses support activities to the decision, which are subdivided in four phases: (i) identification of the decision context; (ii) structuring; (iii) evaluation and (iv) elaboration of the recommendations (Ensslin *et al.*, 2001). The first phase consists of the characterization of the decision context, in which the diagnosis of the observed situation is accomplished. In that phase it is made the contextualization of the problem and the description of the context, in which it is identified whose dissatisfaction it is, and the reason that generated it, as well as the current and intended performance.

The second phase consists of the structuring, where the ones involved in the process are identified (decider, acted and facilitators), as well as the label (problem) and the primary elements of evaluation are collected (EPAs) (Bana & Costa, 1995), where all are grouped by areas of identity. The individual cognitive maps of the deciders are built, for their subsequent aggregation and construction of the congregated cognitive map (of the group). Still in the structuring phase the analysis of the cognitive map is made starting from the identification of the structural characteristics and of the content of the map and, finally the family of fundamental point of view is determined (PVFs - acronym in Portuguese), that consists of the aspects susceptible to measurability (Keeney, 1992), for subsequent evaluation (Ensslin *et al.*, 2001).

The third phase consists of the alternatives evaluation model, which is composed by the construction of the model itself, through the construction of the scale of local preference of the actions of each PVF and through the determination of rates of compensation and/or substitution, as well as the identification of the profile of impact of actions and global evaluation, for later moving on to the recommendations and actions (Ensslin *et al.*, 2001). For such, the software Macbeth-scores is used (Bana & Costa, 1997), which allows the local and global evaluation of the functions of value of the describers.

Finally, the fourth phase consists of the recommendations and improvement actions and improvement of the criteria that don't assist the expectations of the deciders. In that phase it is defined: the actions according to the reference problem; the analysis of the sensibility of the answers to the model front to the

variations of the used parameters, besides the generation of strategies guided to the action; and analysis of sensibility of the model facing the performance of the actions (Ensslin *et al.*, 2001).

After the considerations concerning the existent literature on the theme proposed in this work, we turn to the identification and methodological framing of the research, in which the construction of the model used in the research is explained.

3 Methodology of Research

The research methodology was based in bibliographical researches, in books, newspapers, scientific articles, theses, dissertations, websites and practical study, in order to formulate a theoretical referential chart, regarding MCDA - C and administration for competences and abilities, theme in study. However, as to the development of abilities in the textile section, specifically of printworks, a null level of relative scientific researches to the theme was found, what justifies the development of this study.

In reference to the methodological framing, the research consists of an exploratory investigation. Besides, a data collection research was made, based on the descriptive research method. In turn, the research delineating is of qualitative character, and the technique used for the research was through structured interviews with the manager of production in the company, that was the decider of the structuring process and development of the methodology.

The authors of the present work were the facilitators, and the acted were the other members of the company, which integrate and accomplish the activities in the printworks section. Furthermore, the fundamental point of views (PVFs) and the elementary point of views (PVEs) were defined for each arborescent structure made, as well as the function of value through the software Macbeth-scores and the evaluation of the current situation (status quo) for each proposed describer, in this case with the quality perspective approached.

In the configuration of the case study it was used, asunit of analysis, a large company of the textile branch, with about 3.000 employees, located in the state of Santa Catarina - Brazil. The choice of the company happened due to width of its productive process, which is initialized with the weaving, processing and dyeing, cutting, sewing, printworks, embroidery, folding, among others. However, the present study concentrated on the section of applied printworks, which counts now with about 150 employees and has a predominantly automated process (15 automatic machines and one manual). Most of the employees of that section are devoted to the operationalization of the machines of printing and to the preparation of printing pastes. The section works in two shifts, having one person responsible for each shift and a technical team that embraces the development, processes and quality areas.

As to the data appreciation and analysis, descriptive instruments were used, associated to the use of softwares and mechanisms derived from mathematical logic for the definition of the tree of value and of the status quo.

4 Case Study

In this stage an illustration of the approach of MCDA - C is presented through the case study. A model for the identification and evaluation of the abilities of the section of printworks of a textile industry is proposed, in agreement to the Standards ISO, item 6.2. In this item, the four stages of MCDA - C are presented, turned to the accomplishment of the objective proposed for now in response to the research problem presented. The decision context of the research was defined in agreement with the proposition of MCDA - C described by Ensslin *et al.* (2001) in the following way:

<u>Possessor of the dissatisfaction</u> - manager of production of the researched company;

<u>Generator of the dissatisfaction</u> - the non-agreement to the Standards ISO, item 6.2, that is about the evaluation of the employees' abilities;

Current Performance - inexistence of a formal procedure of identification and evaluation of the employees' requested abilities in the section of printworks of the company;

Intended Performance - it is wanted that the identification model and evaluation of the employees' abilities propitiates a structured and systematic methodology for such purpose, allowing the verification of the requested abilities of those people who work in the printworks section or that may work there;

Relevance - the problem should be solved, turned to the elimination of injustices in the process of performance evaluation of human potential, as well as to the agreement to the Standards ISO demands;

Feasibility - the problem is feasible of solution, due to the interest of the company in agreeing to the Standards ISO demands, through a fair and flexible methodology of identification and evaluation of the abilities (model MCDA - C), so much that the necessary information to the development of it are supplied by the company.

In sequence, the involved them in the process are identified, in a direct or indirect way, in other words, the actors - decider, facilitator, actors, and acted directly and indirectly, now defined as such for the present study:

Decider - production manager, responsible for the printworks section, more specifically for the job of textile printer II;

Actors - other employees of the company;

Facilitators - authors of the work and involved in the process;

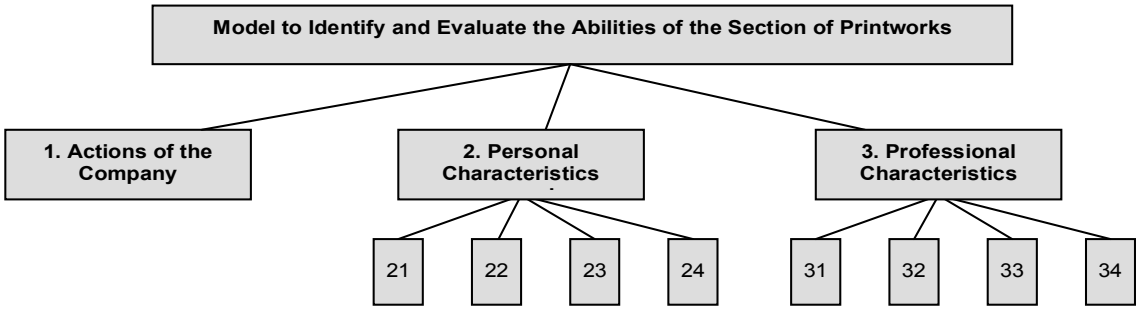
Acted directly - employees of the printworks section;

Acted indirectly - other members of the company.

To conclude the stage of the decision context, it's necessary to define the label, which for Ensslin *et al.* (2001), consists in defining the problem to be treated, where it should contain the focus of the work, indicating the objective to which it is intended. In the case of the present study, the label was defined as being the construction of a model to identify and to evaluate the requested abilities of the employees that work or may come to work in the company. After the decision context is defined, the construction of the model begins. Firstly, the EPAs are identified, which consist of the first concerns of the deciders in relation to situation at hand. To identify EPAs, brainstorming techniques and structured interviews with the decider were used, situation in which the EPAs were identified, guided to the action, as well as transforming them in concepts, with positive poles - present and the psychological opposite - minimum acceptable for the decider (Ensslin *et al.*, 2001).

In the present study a total of 81 EPAs were identified, which make it possible a better understanding of what is being proposed. After the formulation of the concepts, they are grouped in identity areas or clusters, which are structured hierarchically, with basis in the influence relationships (Ensslin *et al.*, 2001). That hierarchical structure, according to Bana and Costa (1994), is denominated as Tree of the Point of Views, which Keeney (1992) describes as Hierarchical Structure of Value.

The Illustration 1 presents the Hierarchical Structure of Value for the proposed problem, which is subdivided in three areas of interest (1, 2 and 3) and its Fundamental point of views (PVFs - 2.1, 2.2. 2.3, 2.4; 3.1, 3.2, 3.3, 3.4), as well as its Elementary point of views (PVEs), that consist of sub-itens of PVFs, till the criteria are identified, in other words, the point of view (PV) susceptible to measurability. PVs are considered the explanation of the problem to be treated in the construction of the model of identification and evaluation of the requested abilities from employees of the section of printworks in a textile company.



1. Company's actions: 1.1 compromising; 1.2 readiness; 1.3 capacity; 1.4 ethics; 1.5 fast answers and 1.6 agreement to the Standards ISO.
2. Personal characteristics: 2.1 aptitude (2.1.1 concentration; 2.1.2 organization; 2.1.3 persistence; 2.1.4 personal characteristics compatible to the function; 2.1.5 care; 2.1.6 communication; 2.1.7 initiative; 2.1.8 responsibility and 2.1.9 to criticize constructively); 2.2 Motivation (2.2.1 and 2.2.2 motivation; 2.2.3 safety; 2.2.4 calm; 2.2.5 happiness; 2.2.6 disposition; 2.2.7 not being selfish; 2.2.8 seriousness and 2.2.9 team-work); 2.3 Flexibility (2.3.1 and 2.3.2 easiness with technologies and learning; 2.3.3 being ready for changes; 2.3.4 dynamism; 2.3.5 interest in professional ascension; 2.3.6 improvement; 2.3.7 maturity; 2.3.8 disposition and 2.3.9 receptivity); 2.4 Health (2.4.1 differentiation of colors; 2.4.2 physical strength; 2.4.3 not having physical limitations; 2.4.4 not having medical restrictions and 2.1.5 resistance to heat.
3. Professional characteristics: 3.1 attention (3.1.1 waste; 3.1.2 punctuality; 3.1.3 assiduity; 3.1.4 job satisfaction; 3.1.5 rationality; 3.1.6 and 3.1.7 attention; 3.1.8 to identify defects and 3.1.9 and 3.1.10 cleaning); 3.2 Abilities (3.2.1 visual acuity; 3.2.2 hand agility; 3.2.3 creativity; 3.2.4 motivation capacity; 3.2.5 creative and manual ability; 3.2.6 knowing how to fill the machines and 3.2.7 sensibility); 3.3 Study (3.3.1 knowledge; 3.3.2 numeric easiness; 3.2.3 education; 3.1.4 understanding of goals; 3.3.5 knowing how to program the machines; 3.3.6 memorization and 3.1.7 agreeing to the technical specifications, among others); 3.4 Practice (3.4.1 interpersonal relationship; 3.4.2 vision of the work flow; 3.4.3 professional experience; 3.4.4 good curriculum; 3.4.5 time in the company; 3.4.6 quality; 3.4.7 productivity; 3.4.8 specialization and 3.4.9 correct distance).

Figure 1: Tree of the point of view.

Starting from the process of construction of the model to identify and evaluate the abilities of the employees of the section of printworks in the studied textile company, it was possible to identify the criteria that should compose it. In that way, having built the hierarchy of value it is started the construction of the describers that will allow the measuring and evaluation of the proposed actions. The Illustration 2 presents the subdivision of the quality describer, which is composed by the criteria of visual sharpness, technology and process (flow and reliability), the latter being subdivided in production without defects and agreement to the Standards ISO, relative to the criterion 3.4.6, concluding, this way, the stage of structuring the model.

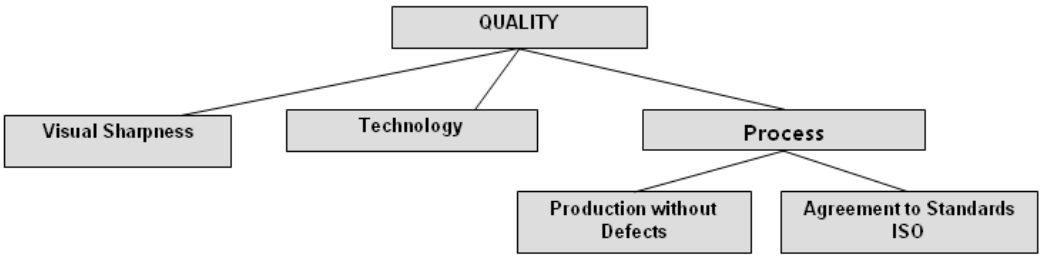


Figure 2: Quality describer.

After the structuring phase, the evaluation phase initiated, which intends, initially, to determine the local cardinal scales, through the construction of the value function for the describer levels, because this is what allows measuring the performance of each action in each one of the point of views, once the describers supply an ordinal scale of impact levels. The function of value will be able to quantify the attractiveness differences among the levels of the describer, and it is obtained through the comparison of the attractiveness difference among the potential actions. That process was accomplished with the aid of the software Macbeth-scores.

The reference levels for each describer were defined, which Bana and Costa (1994) denominate as anchor-levels, which determine the limits of impact of levels in the market level. The level superior to 'Good' is considered as the excellence level to be sought, in compensation, the level below the 'Neutral' is considered compromising to the model. After the anchorage the attractiveness difference is identified among the levels determined previously, for which a function of value is created, through the semantic method. For that, comparisons were made, pair-to-pair, using the software Macbeth-scores. It's pointed out that, for the construction of the function of value, in the present work, it was used only the requirement 'pieces of clothing produced without defect in the last week' in the quality describer.

The semantic scale used in the software Macbeth-scores is constituted by the levels: very weak, weak, moderate, strong, very strong and extreme. Such perspective exposes the mathematical representation of the preferences of the decider, once the numeric scales represent how much an impact level is preferable or more attractive in relation to another one, being represented through the substitution rates or compensation.

After determining the cardinal scales, through the construction of functions of value for each describer level and, with the purpose of making the analysis of importance, the software Macbeth-scores was used, through which it was evaluated the alternatives A1, A2, A3 and A0, obtaining the compensation rates for the established anchorage levels. This transformation made it possible to anchor the strip of variation of value causing the level 'Good' and ' Neutral' to have equivalent attractiveness in all the describers. It is noticed that the level 'Good' is N4 (99,9%) and the level ' Neutral' is N2 (99,7%) for the percentile of pieces produced without defect in the last week. That consists of a function of lineal value with growing perspective, exposing the importance of the quality in the development of the activities.

Giving sequence to the evaluation stage, the substitution rate is determined, which establishes the importance of each criterion in the model, those being able to be transformed, starting from the local evaluation, in a global evaluation. Firstly, the criteria are ordered for the subsequent construction of the matrix semantics, being differentiated from the construction process of the function of value by the introduction of the reference criterion A0, used as anchorage point in the point zero, to which the importance of 0% is attributed.

After evaluating the items of second level, linked to the perspective of processes, which obtained, as compensation rate for the alternatives A1, A2 and A0, 75%, 25% and 0% respectively. Later, appraised the sub-items of first level, in other words, the items linked to quality directly (visual sharpness, technology and process). In that phase the importance of each sub-group was evaluated, as well as its impact on the operations of the company, obtaining the following rates of compensation and/or substitution for the alternatives A1, A2, A3 and A0 27%, 20%, 57% and 0%, respectively. Concluded the generation of the substitution rates, it is also concluded the evaluation model, as to generate the understanding on the important criteria to the identification and evaluation of the abilities requested from the employees of the section of printworks in a textile company.

Once the local evaluations are known and made, the determination of the global evaluation is done, in other words, to join the evaluations of PVs in a general evaluation of performance. With the purpose of evaluating the global performance, concerning the abilities requested by the section of printworks of the studied company, the value of the status quo was calculated for the quality describer, joining the local evaluations of the point of view to the criteria. The global evaluation was made having as basis the following mathematical equation: $V(a) = W_1*V_1(a) + W_2*V_2(a) + W_3*V_3(a) + ... + W_n*V_n(a)$

where,

$V(a)$ = global value of the *status quo*

$V_1(a), V_2(a), V_3(a), ..., V_n(a)$ = partial value of the criteria 1, 2, 3, ..., n

$W_1, W_2, W_3, ..., W_n$ = substitution rates of the criteria 1, 2, 3, ..., n

n = number of criteria used in the model

Given that the status quo, in ordinal scale, for the describer of sharpness, was of 80, for technology it was of 15, for production without defects was of 0,25 and for Standards ISO it was of 2, the current global value was calculated (status quo) as it proceeds.

Alternative (a) = status quo = [80;15;0,25;2]

V (SQ) = 0,27*0+0,20*0+0,53*(0,75*50+0,25*50) = 26,5

It was possible to verify that, the status quo, for the quality tree, was of 26,5, in other words, a positive punctuation, once it was considered a scale that varied of zero (0) to a hundred (100). However, the result obtained in the evaluation of the status quo of this describer was below the expectation of the decider, however, the simple identification and evaluation of the requirement quality is not enough to base the process of decision making, as to the evaluation of the abilities requested from employees of the printworks section. Therefore, the accomplishment of the global evaluation was proceeded, which had been accomplished through the method of addictive aggregation, out of which the status quo of the model was obtained, reflecting a general performance below the expectation of the deciders, having some points that compromise the analyzed aspects. However, the detail and depth level that the methodology allows to evaluate becomes quite significant concerning the evaluation of the situation, thus aiding the decision support. The following considerations are approached concerning the study in subject, suggesting alternatives for future works.

5 Conclusion

Before a market more and more competitive, it is essential that the organizations look for means of standing out and differentiating themselves from their competitors. With that purpose, one of the possibilities observed in this work it is that the best understanding of the contexts allows the understanding of what are the key factors for their success and how these can be measured, out of which a transparent process rises, and well-founded for their administration. With this focus the objective of the present study was to demonstrate how the expansion of knowledge can help to improve the personnel performance in organizations. With such purpose, through the case study, it was built a model that allowed identifying and evaluating the abilities of the employees of the printworks section in a textile company. The study showed that for the concern 'quality of the printworks', it can be decomposed, establishing scales for its measuring, and from then having built actions for its improvement.

The objective appeared as a response to the research question that delineated the present study: Which are the criteria to be considered in a model that intends to identify and to evaluate the employees' abilities that already work in the section of printworks of the company and the ones who intend to work there? To identify and to evaluate these employees' abilities, a model was structured starting from the perspective of MCDA - C. It is highlighted that the study presents the evaluation made for the critical factor of success quality only, for which the identified criteria were: Visual sharpness; Technology; Production without Defect; and Agreement to the Standards ISO.

In the evaluation approach, the method allowed a description of the situation of the problem faced by the decider, checking significant subsidies for the analysis of the global situation, allowing an analysis under different perspectives of the decider, concerning the needs of the abilities and necessary competences for the execution of the tasks, in the analyzed processes.

Although the exhaustion of the theme had been approached in this study, it is neither unique nor concluded, once the methodology allows generating the more and more knowledge of the situation, elevating the perception level and quality in the support process to the decision. It is, therefore, important to point out that this study is not only opening possibilities of future studies, but also generating an larger level of knowledge of the situation 'problem'.

Therefore, it was concluded that the model allows, in a wide way, to visualize, identify and evaluate the abilities requested in a section of printworks of the studied company, reaching the objective of the

present study and the expectations of the decider. From this, it was possible to evaluate the status quo, which resulted in a positive punctuation of 26,5 in the critical factor of success quality and a global evaluation of 10,02; however, below the proposed by the decider. In spite of that, the methodology in subject was shown capable to accomplish the requirements of the study thoroughly, aiding the organization in the decision making, assisting to the needs of the same.

Besides pointing out the originality of the research for now presented, it is left recommendations to futures works. The amplification of the model to the other areas of the company is suggested, as well as to the other sections of the economy, given that the textile segment is seasonal and it demands high technologies and special cares in the development of the activities.

References

Bana & Costa, C. A. (1995). *Processo de Apoio à Decisão: Problemáticas, Actors e Actions.* Apostila do Curso Metodologias Multicritério de Apoio à Decisão – ENE/UFSC, Florianópolis, agosto.

_____.(1994). Concepção de uma "Boa" Alternativa de Ligação Ferroviária ao Porto de LISBOA: uma Aplicação da Metodologia Multicritério de Apoio à Decisão e à Negociação. *Investigação Operacional*, vol. 14, p. 115 – 131.

_____. (1997). Aplications of the Macbeth Approach in the Framework of an Additive Aggregation Model. *Journal of Multicriteria Decision Analysis*, p. 107 – 114.

Brandão, H. & Guimarães, P. (19 a 22 de setembro de 1999). *Gestão de Competências e Gestão de Desempenho.* Artigo apresentado no ENANPAD99. Foz do Iguaçu, Brasil.

Demo, P. (2002). *Complexidade e Aprendizagem*: a Dinâmica Não-linear do Conhecimento. São Paulo: Atlas.

Ensslin, S. R. (2002). Incorporação da Perspectiva Sistêmico-sinergética na Metodologia MCDA Construtivista: uma Ilustração de Implementação. *Tese de Doutorado.* Programa de Pós-Graduação em Engenharia de Produção – PPGEP, Universidade Federal de Santa Catarina – UFSC. Florianópolis. Brasil.

Ensslin, L., Montibeller & Noronha (2001). *Apoio à Decisão***:** *Metodologias para Estruturação de Problemas e Avaliação Multicritério de Alternativas.* Florianópolis: Insular.

Fleury, A. & Fleury, M. (2001). *Estratégias Empresariais e Formação de Competências*. 2. ed. São Paulo: Atlas.

Kaplan, R. S. & Norton, D. (1997). *A Estratégia em Ação: Balanced Scorecard.* 13. ed. Rio de Janeiro: Campus.

Keeney, R. L. (1992). *Value Focused-thinking***:** *a Path to Creative Decision-making*. Cabridge: Harvard University Press.

Lima, M. V. A. (2003). Metodologia Construtivista para Avaliar Empresas de Pequeno Porte no Brasil, sob a Ótica do Investidor. *Tese de Doutorado.* Programa de Pós-Graduação em Engenharia de Produção – PPGEP, Universidade Federal de Santa Catarina – UFSC. Florianópolis. Brasil.

Neely, A. (1996). Performance Measurement System Design - Should Process Based Approaches be Adopted?, *International Journal of Production Economics,* n.46-47.

Prahalad, C. & Hamel, K. (May/Jun 1990). The core competence of the corporation. *Harvard Business Review*, p. 79-91.

Roy, B. & Vanderpooten, D. (1996). The European School of MCDA: Emergence, Basic Features and Current Works. *Journal of Multi-Criteria Decision Analysis*, v. 5, p. 22 – 38.

Rummler, G. & Brache, A. (1994). *Melhores Desempenhos das Empresas*: *uma Abordagem Prática para Transformar as Organizações Através da Reengenharia.* São Paulo: Makron Books.