Structural equations to analyze entrepreneur satisfaction as indicator of human resources management at the territorial level

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ABSTRACT

This research is based on the premise that entrepreneurs, require and aspire to hire the best human talent existing in the territories and with it, experience a certain satisfaction with the contracts made. That is why the objective of this paper is aimed at identifying, through multivariate statistics, those variables that from the theoretical and practical order affect the management of human resources at the territorial level and its modeling through an analysis of structural equations, which allows interpreting its impact on the satisfaction of entrepreneurs. The main results evinced demonstrate in accordance with the autochthonous characteristics of the analyzed object of study, that the process is of a multifactorial nature, with a decisive influence on the Processes dimension, being also important those related to the Strategic and Environment dimensions. It can be said that entrepreneur satisfaction is a direct expression of the level of management granted to the process dimension (DProcesses). The present study addresses the nature of the relationships between the variables considered in the context of a particular territory. The results have indicated that there are relationships between the variables that ensure the management of human resources at the territorial level and the satisfaction of entrepreneurs.

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Introduction

Research on the management of human resources at the territorial level, from now on (HRMt), has shown a growing interest of recognized researchers in this field, highlighting the development of thoughts related to planning, selection, training, incentives, recruitment, selection and safety and health. Subsystems recognized systematically in the literature for the business level, which has undergone a broad theoretical development, expressed fundamentally by the proposals developed by De Miguel-Guzmán (2006) and Cuesta-Santos (2010), characterized by the insertion of the strategic and systemic nature of human resources management (HRM) and the integration of qualitative and quantitative analysis (Rodríguez- Fariñas, 1990; García-Espalter & García-Espalter, 2009; Bonardo, 2009; Becerra-Lois & Toledo-Diez, 2010; Pérez-Izquierdo, 2010; Torres-Cala & García-Borrego, 2011; Cribeiro- Díaz, 2011; Goycher, Skuba, Bugrova, Zakirova, & Strelkov, 2018; Martínez-Vivar, Sánchez-Rodríguez, García-Vidal, & Pérez-Campdesuñer, 2016).

On the other hand, from the territorial level, there are limited proposals that adopt a prospective nature (Lazareva, Anopchenko, & Murzin, 2020), which in one way or another have been oriented to the use of endogenous potential, leading to the consolidation of the social and economic results of the level under study (García-Espalter & García-Espalter, 2009; Bonardo, 2009; Becerra-Lois & Toledo-Diez, 2010; Pérez-Izquierdo, 2010; Torres-Cala & García-Borrego, 2011; Cribeiro-Díaz, 2011; Molina, Rodríguez-Silva, & Herrera, 2016; Pérez- Izquierdo & Argüelles- Pando, 2011).

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Currently, the HRMt is oriented not only to the quantitative but also recognizes and covers the need to consider the profiles of training or technical skills as a variable that is planned, which include authors such as: MES (2006); Pérez-Izquierdo (2010); Cribeiro-Díaz (2011); Parakhina, Ustaev, Boris, Maximenko, & Belousov (2017); and Sánchez-Rodríguez, Martínez-Vivar, & Moreno-Lázaro (2017). However, neither these, nor the others that refer to the HRMt from the quantitative point of view, present a tool for the integration of this important characteristic, at the same time that it is not possible to establish the chronogram of execution of the processes of the classic HRM, to ensure in this way its necessary systemic approach in the territories is manifested. Aspects that have been approached in a fragmented manner by the authors consulted.

The aforementioned is reinforced by observing limitations to apply HRMt control indicators at the territorial level, which is a necessary trend for the management of this process (Torres-Cala & García-Borrego, 2011; Cribeiro-Díaz, 2011; Molina et al., 2016; Pérez-Izquierdo & Argüelles-Pando, 2011).

On the other hand, the current HRMt processes that are developed have a marked organizational orientation, without being able to identify the essential variables that affect this phenomenon for its proper management.

These contradictions and limitations in the theoretical elements addressed, have determined the existence of dissimilar omissions in the practical development of HRMt, observing limitations in praxis to achieve satisfying both quantitatively and qualitatively the human resources (HR) required for territorial performance. Aspects reflected in several researches developed by the author, which can be summarized in:

- i. That, although there are strategies that regulate the HRM processes at the territorial level, these do not have a prospective nature because their planning is not conceived, also affecting their systemic overlap, which determines that although there are the HRs that are demanded, they manifest themselves territorially in deficit or excess.
- ii. The HRMt process is restricted to the quantitative determination of personnel needs, without contemplating the inclusion of the execution schedule of the remaining HRM processes at this level, which affects its systemic character by not ensuring the necessary order and level of interrelation of these, which limits their effectiveness and efficiency and, consequently, their impact to satisfy the requirements of HR demanded by the development interests at the territorial level.
- iii. The HRMt lacks control mechanisms that allow its results to be measured in terms of efficiency and effectiveness that contribute to making the appropriate adjustments to guarantee the RH in quantity and quality required.

What has so far been addressed shows both theoretical and practical shortcomings in the HRMt. All this determined by the limited knowledge of those variables that affect the HRMt and its incidence in the satisfaction of HR needs at this level. Which generates the states of deficits or exceedance of the RH thus manifesting a research problem to be solved.

This paper is structured as follows. We begin with the referential framework that is used as a starting point for this research. The methodology section explains the procedure used to obtain the results that are shown and discussed in the next section. Finally, the limitations and future work, the main management implications, are analyzed and conclusions are provided.

Literature review

The evolution of business thinking while generating and consolidating new knowledge also causes multiple divergences on the same theory, which causes various interpretations that hinder the consensus of researchers to address the same object. This problem affects the analyzes developed to treat the human being and its relationship with organizations and (or) environments in general, highlighting various meanings to refer to this object, characterized by the very means of developing the theory.

Some authors (De Miguel-Guzmán, 2006; Vega-De la Cruz, Lao-León, & Nieves-Julbe, 2017; Chiavenato, 2009) reflect the term as a Human Resource (HR), hyperbolizing it from the economic perspective and considering it as a means and not an end in itself; others (Goycher *et al.*, 2018; Kaplan and Norton, 2004) refer to human talent (HT) observing the innate qualities in people and in other cases equating it to the referred RH; those who explain it as human capital (HC) stand out (Sánchez-Rodríguez *et al.*, 2017), observing a traditional treatment to focus their management; others (Goycher *et al.*, 2018; Martínez-Vivar *et al.*, 2016; Niebel & Freivalds, 2009) involve the contemporary theories about intellectual capital (IC) without clear differentiation with respect to the HC; while, at the territorial level, they associate it with the term skilled workforce (SW) (García-Espalter & García-Espalter, 2009; Torres-Cala & García-Borrego, 2011) to highlight the specialized qualification levels for the performance of functions of the same character. This diversity in the treatment of the term does not contribute to maintaining a logical consequence to describe people as a holistic whole, an aspect that leads to the development of this research to assume the term human resource, understood by the people who work and for its adjustment to the territorial context, potentials to work that contribute to human capital and intellectual capital.

In the territorial context, the forms of public administration are determinant in the search for the development of their localities, where governments must play the role of connectors or facilitators for interaction and integration between the different social, local and regional actors of the potentialities and interrelations between economic, political, social, natural, institutional and cultural

factors; as a condition of a development that incorporates strong external components to the own territory, but with a prospective vision from the local.

The approach to territorial (local) development was initially manifested in the 70s in Europe, from the great transformations that accompanied the productive restructuring, which abandoned the Fordist industrialism for flexible production systems together with the advancement of the integrationist processes and the impact of the technological revolution. This development perspective depends inescapably on the quantity, training and use of HR and its capacity to apply, consolidate and assimilate new knowledge, affirming this as the center and purpose of the model for the political and social economic management of the territories (Goycher et al., 2018).

Under this prism, the HRMt stands out, with notable authors such as García-Espalter & García-Espalter (2009), Pérez-Izquierdo & Argüelles-Pando (2011) and Martínez-Vivar et al. (2016) who agree on the need to address it as a process that meets the development interests at this level, where the subprocesses associated with the knowledge of the demographic characteristics of the population (population register) are linked in a systematic way to planning quantitative as qualitative of the HR requirements for the development of the territorial plans, to the recruitment, selection and induction, both of the requirements resulting from the planning and of the training process itself, to the attention on the actions of both incentives and safety and health for the minimization of the migration patterns of the HR of the territory. Activities that have had greater theoretical and technical development at the organizational level (Goycher et al., 2018), but in their essence have similar characteristics for analysis at the territorial level.

The incidental variables in the HRMt have been in constant evolution in line with the increase in both organizational and territorial needs (Goycher et al., 2018; Martínez-Vivar et al., 2016; Pal, 2008); these have been expressed from the very emergence of man and his need to organize for work, where variables linked to incentives for the distribution of work results were distinguished, for the recognition of the status of the person in its social nucleus, for the improvement of living standards, the protection of the community, leisure, among others that distinguish the incipient appearance of a primitive HRM function.

Another variable of this period was related to the qualification for the development of tasks (associated with the accumulation of skills for the development of works), structuring groups of people with similar abilities for the execution of activities, which were transmitted between generations through of what has now been called training and development, which depended on the degree of old age of the person and their social distinction. Elements that allowed at the time the maintenance of the morale of social groups, the consolidation of loyalty to the community and in itself the very sustainability of life.

In the beginning and middle of the Industrial Revolution, the technological complexities increased, evolving from manufacturing activities to mechanical schemes, where the requirements of territorial planning both economically and of people that made the challenges of development viable, consolidating the variables previously discussed and developing others.

Among the new variables developed are: the consideration of the mobility phenomena of people, highlighting two currents for their analysis: one that guides their theory from the territorial level (García-Espalter & García-Espalter, 2009; Goycher et al., 2018) focusing the subject from the demographic order from the migration analysis of both HR and population in general, and another (De Miguel-Guzmán, 2006) that is sustained from the business level and manifests itself from the staff turnover experienced by HR in the organizations in certain periods of time; results that are associated with better salary improvements and living conditions; the sectoral recognition of the professions and the polyvalence of both positions and training profiles; the quality of the training centers and the competences of their faculties as references for the selection processes; attention to the safety and health of employees; the increase of the costs of training and development as a result of the more complete identification of the requirements of the positions for the performance of the functions; the attention to the expiration of the useful life of the employees (retirements) and their replacements; the development of new investments and the purposes thereof (strategic analysis); technological modernization; the population increase and the improvement of life expectancy and birth indicators.

These variables were generally conditioned by: the satisfaction of security needs, physiological, participation, recognition; and for companies and territory by: increasing productivity, achieving objectives and maintaining the best employees.

In contemporary terms, these variables have assumed a preponderant role to ensure at the territorial level the harmony between the creation of goods and services and their consumption, an element that distinguishes the emergence of strategic plans of better quality and control that assume the variations in the levels of activity and the consequent requirements of HR for its development. Promoting at the territorial level processes of training, recruitment, selection, incentives, safety and health, oriented towards these plans; supporting sectoral recognition towards specialties and, as a consequence, social recognition, acting on the capacities of the training centers, the associated costs, the efficiency of the training cycles and the applicability of the competences developed as part of the contribution of the HRMt.

The hitherto addressed, although dispersed in the consulted literature, reflects an evolution in the theoretical recognition of groups of variables that affect the HRMt, which must find a methodological treatment for their management at this level, which will be addressed in the future.

Research & Methodology

To organize the development of this research, the steps described below were structured.

- i. Selection of the incident variables in the HRMt: for the selection of these variables, it should be based on the review and classification of the variables addressed in literature related to the HRMt and then be subject to the assessment of a set of experts.
- ii. Design of the variable evaluation method: The instruments will be designed to evaluate the variables identified for the HRMt and satisfaction of needs and a method to interconnect them. The designed instruments must be subjected to the analysis of their reliability and apparent validity and content.
- iii. Analysis of the relationship and influence between the variables: For the analysis of the relationship between the variables a system of structural equations will be modeled taking into account the advantages of the same to propose the type and direction of the relationships that are expected to be found among the various variables contained in it, to later pass to estimate the parameters that are specified by the relations proposed at the theoretical level.

Implications

Selection of the incident variables in the HRMt

For the identification of the variables, a panel of experts was formed that was structured with executives, specialists and academics familiar with the subject; and to obtain their opinions, a questionnaire was designed based on a theoretical review, consulting a set of authors (García-Espalter & García-Espalter, 2009; Bonardo, 2009; Becerra-Lois & Toledo-Diez, 2010; Pérez- Izquierdo, 2010; Torres-Cala & García-Borrego, 2011; Cribeiro-Díaz, 2011; Goycher et al., 2018), from which the explicitly stated variables were extracted and submitted to the assessment to verify the agreement between the opinions issued by the experts. Of the total of proposed variables, 35 were selected as shown in Table 1, which were those referred by 80% or more of the respondents. As shown in Table 1.

Table 1: Variables of the HRMt selected according to the criteria of the experts

Variables identified theoretically that affect the HRMt			
Sociodemographic evolution	Quality of training centers	Training possibilities	Training process
Training capacity of educational centers	Efficiency of the training process	Applicability of competencies	Existence of the strategic plan
Social recognition of the profession	Priority of the state towards the profession	Process of health and safety at work	Quality of control of the strategic plan
Social recognition of the sector	Incentive process	Life conditions	Control of the strategic plan
Benefits for being of the profession	Transfer to another territory	Retirement by age	Quality of the strategic plan
Benefits for being of the sector	Transfer to another center	Recruitment process	Changes in activity levels
Priority of the state towards the sector	Distance from training centers	Personnel inventory process	New investments
Deaths	Retirement due to illness	Selection process	Competencies of teaching staff of the training centers
Training costs	Promotion possibilities	Economic conditions	

Design of the method of evaluation of the variables

The measurement instruments were designed for the ordering of the variables obtained according to the degree of importance, for which a total of 400 experts were surveyed, extracting the matrices of data for its processing by means of the statistical package SPSS for Windows. Using the analysis of main components.

Table 2: Results of the factorial analysis of correspondences for HRMt

Reliability Analysis: Cronbach's Alpha coefficient: 0.893				
Validity Analysis: Kaiser-Meyer-Olkin coefficient: 0.885; Bartlett's Test of Sphericity: 15504,807; Sign: 0				
Study of the variables				
	Axis I	Axis II	Axis III	Axis IV
Eigenvalue	7.8	7.4	5,8	5,4
Contribution to the total variance	22.37%	21.16%	16.69%	15.62%
Accumulated percentage of variance explained	22.37%	43.53%	60.23%	75.85%

Table Cont'd

Correlation between variables and axes				
Variables /Components	1	2	3	4
ExistenceStrategicPlan	0.051	-0.008	-0.028	<u>0.742</u>
QualityStrategicPlan	-0.003	-0.011	-0.027	<u>0.647</u>
ControlStrategicPlan	-0.053	-0.037	-0.050	<u>0.944</u>
QualityControlStrategicPlan	-0.070	-0.040	-0.056	<u>0.957</u>
ChangesActivityLevels	-0.050	-0.051	-0.066	<u>0.955</u>
NewInvestments	-0.017	-0.056	-0.057	<u>0.945</u>
SociodemographicEvolution	-0.019	-0.049	-0.037	<u>0.917</u>
ProcessHealth&SafetyWork	0.031	0.104	<u>0.983</u>	-0.051
PersonnelInventoryProcess	0.032	0.098	<u>0.979</u>	-0.054
RecruitmentProcess	0.034	0.097	<u>0.987</u>	-0.054
SelectionProcess	0.024	0.100	<u>0.987</u>	-0.059
TrainingProcess	0.008	0.101	<u>0.981</u>	-0.062
IncentiveProcess	0.010	0.100	<u>0.961</u>	-0.058
PriorityStatetProfession	<u>0.618</u>	-0.022	0.026	-0.007
PriorityStatetSector	<u>0.449</u>	0.095	0.031	-0.036
BenefitsSector	<u>0.892</u>	0.050	0.072	0.007
BenefitsProfession	<u>0.875</u>	0.054	0.076	0.012
SocialRecognitionSector	<u>0.918</u>	0.045	0.032	-0.016
SocialRecognitionProfession	<u>0.955</u>	0.013	0.024	-0.017
CapacityTrainingCenters	<u>0.837</u>	0.024	-0.030	0.006
TrainingCosts	<u>0.846</u>	-0.014	-0.014	-0.043
DistanceTrainingCenters	<u>0.781</u>	0.030	0.014	-0.025
CompetenciesTeachingStaff	<u>0.810</u>	0.003	0.012	-0.028
EfficiencyTrainingProcess	<u>0.787</u>	0.027	-0.056	0.025
QualityTrainingCenters	<u>0.769</u>	0.019	-0.028	-0.026
RetirementEage	0.039	<u>0.975</u>	0.085	-0.034
RetirementIllness	0.021	<u>0.718</u>	0.056	-0.070
Deaths	0.095	<u>0.735</u>	0.030	-0.059
TransferAnotherCenter	-0.020	<u>0.681</u>	0.055	0.042
TransferAnotherTerritory	0.055	<u>0.958</u>	0.086	-0.041
EconomicConditions	0.031	<u>0.923</u>	0.075	-0.056
LifeConditions	0.054	<u>0.843</u>	0.076	-0.002
PromotionPossibilities	0.065	<u>0.900</u>	0.059	-0.023
ApplicabilityCompetencies	0.001	<u>0.869</u>	0.091	-0.070
Training Possibilities	0.003	<u>0.894</u>	0.049	0.023

Table 2 shows the results of validity and reliability of the factor analysis developed. Highlighting the statistical explanation in the first four components with 75.85% of the total variance. Confirming in this way the structuring and assessment of the axes on the variables considered incidents in the HRMt and their ability to explain this process to a high degree.

Figure 1 shows the factorial plane derived from the developed analyzes, where the differentiated grouping of each dimension is illustrated. Variables associated with influences are highlighted in the first dimension. The second dimension includes the variables that affect the mobility of HR, both interterritorial and extraterritorial. The third dimension groups the processes and, finally, the fourth dimension groups the prospective variables.

Figure 1: Factorial Map of the Principal Component Analysis for the HRMt

Table 3: Descriptive statistics

	Minimum	Maximum	Mean	Std. Deviation
Influences	4.50	6.50	5.47	0.55997
Prospective	4.50	6.50	5.43	0.60450
Mobility	3.00	7.00	4.81	0.86702
Processes	4.00	7.00	5.94	0.89572

On a scale of seven points, of the different evaluated elements related to the HRMt the most depressed of them is the mobility dimension and the one with the best score is the one related to the Processes. Likewise, a survey designed to evaluate their level of satisfaction with the HRs formed by the territory was applied to a total of 300 entrepreneurs, using the dimensions and attributes summarized in Table 4.

The Cronbach's Alpha coefficient was determined as an expression of the reliability of the instruments, and in all cases the apparent validity and content were evaluated. In the case of the instrument to assess satisfaction, a construct validity analysis was performed in which the existence of the five dimensions was verified, with an explained variance of 75.91% and a Kaiser Meyer Olkin Coefficient of 0.928, what endorses the validity of the tool used.

Table 4: Dimensions and essential variables of entrepreneur satisfaction

Dimensions	Essential variables	Explained variance	Cronbach's Alpha
Number of HR	Hiring on time	25.80	0.94
	Availability in the labor market		
	Gender balance		
Competences of the HR	Cognitive competencies	22.00	0.91
	Socio-affective competencies		
	Physical-motor competencies		

Table 5: Descriptive statistics of the entrepreneur satisfaction variable

	Minimum	Maximum	Mean	Std. Deviation
Satisfaction	5.00	7.00	5.51	0.53358

The result of the satisfaction obtained an average that indicates a high level of satisfaction (on a scale of 7 points) on the part of the surveyed entrepreneurs.

Analysis of the relationship and influence between the variables: The model presented below was constructed with all the variables extracted from the literature addressed; deriving from the variances and covariances between the observable variables, obtaining initial data used for the construction of the recursive model and its variables.

Table 6: Model data

N	498
Number of variables in the model	35
Number of observed variables	35
Number of variables not observed	0
Number of exogenous variables	16
Number of endogenous variables	19
Number of different moments of the sample	31
Number of different parameters to be estimated	17
Degrees of freedom (21 - 13)	8

The results of the computed standardized estimates are shown in Figure 2 showing the causality relationships.

The model shows the significant relationships between the variables and dimensions that are analyzed linked to HRMt and entrepreneur satisfaction. It can be pointed out that depending on the case under study, the dimension linked to mobility has a low influence on satisfaction. This result may be motivated by the stability of the HR in the selected study object. As shown in Table 7,

only the relationship between the mobility dimension and satisfaction is not significant, but it is not conceived as a direct relationship in the previous established model. The mobility dimension influences satisfaction through four mediating variables: pensions, training possibilities, living conditions and retirement due to illness.

Figure 2: Structural Equation Model, Standardized Estimates for HRMt

Table 7: Standardized Regression Weights

Dimensions			Estimate	Standardized Estimate	S.E.	C.R.	P	Label
Strategic	<---	Satisfaction	0.535	0.792	0.019	28.536	***	
Environment	<---	Satisfaction	0.546	0.564	0.036	15.003	***	
Mobility	<---	Satisfaction	-0.003	-0.004	0.002	-1.112	0.266	
Processes	<---	Satisfaction	0.527	0.628	0.004	144.776	***	

With the analysis of the multiple square correlation for each endogenous variable, it is possible to determine that the reliability estimation of the Processes dimension is 99.1% and that of Satisfaction is 62.9%. It is interpreted that the Processes dimension explains in a summarized way in 99.1% the behavior of the variables that precede it in the model, while the satisfaction is consequence in 62.9% of the Processes dimension. This allows us to ensure that satisfaction is not solely the result of the HRMt, even though it is strongly conditioned by it.

The specific measurements of the model adjustment are shown in Table 8. The default model is considered for the adjustment measure.

Table 8: Adjustment indicators of the derived model

Measure	Value obtained
CMIN / DF (Chi-square statistic not centered)	2.756
NFI (Normed adjustment index)	0.903
RFI (relative adjustment index)	0.817
IFI (incremental adjustment index)	0.905
CFI (Index of comparative adjustment)	0.904
RMR (square root of the mean squared residuals)	0.021
PNFI (Parsimonious Norm Adjustment Index)	0.882
PCFI (Parsimonious Adjustment Goodness Index)	0.884
GFI (Goodness of fit index)	0.827
AGFI (Adjusted goodness of fit index)	0.843
PGFI (relative goodness of fit index)	0.811

The results obtained express that the model obtained is adequate and that it allows to express the relationships between the variables considered.

Conclusions

The analyzes developed as part of this research allow us to affirm that the HRMt constitutes a complex, multifactorial process, where the diverse characteristics of the territorial environment act in order to achieve high levels of entrepreneur satisfaction.

The results achieved in the HRMt in the object of practical study, are the reflection of the attention given to the state of the determining dimensions, for example: Process, based on its variables, especially the process of incentives and safety and occupational health. At the same time, the assessment given to the Strategic and Environment dimensions is important, aspects that have contributed to the degree of maturity observed in the HRMt of the object of study evaluated.

Although there is a positive correlation of the different dimensions evaluated, it can be affirmed that the entrepreneur satisfaction is a direct expression of the level of management granted to the Processes dimension (DProcesses), observing the existence of external factors that affect the management itself, they could and should be the subject of future research.

As a conclusive part of this study it should be noted that: the explicit results are essentially framed in the specific conditions of a specific territory, so there is the possibility of deepening in the redesign or not of the model generated under other territorial contexts with other peculiarities specific.

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