General Satisfaction Index (GSI) Applied to Organizational Climate Researches: a new approach focused on banking

Guilherme Luz Tortorella and Carlos Ernani Fries
Department of Production and Systems Engineering
Federal University of Santa Catarina
Florianópolis, SC 88000, Brazil
g.tortorella@ufsc.br, carlos.fries@ufsc.br

Abstract

The use of the GSI concept (General Satisfaction Index) is a great way to measure the organizational climate. However, the traditional concept has an inaccurate calculation approach. In order to review this concept, the present paper proposes a methodology to obtain this index through a more appropriate mathematical approach, supported by some linear algebra concepts. For this purpose, an organizational climate survey was carried out in a bank agency to exemplify application of this method. Each step of the application was detailed, as well as the intermediate results achieved. among its principal benefits are: improved accuracy to obtain the GSI; the possibility of a comparison with a minimum required rate for the decision-making process; and the possibility of identifying the order of priority of the organizational climate dimensions that mostly need improvements.

Keywords
General Satisfaction Index (GSI), Organizational Climate, Banking Institution

1. Introduction
The difficulty in acquiring knowledge about relationships between employees and work teams in a company is partly circumvented by one of the most used and important concepts regarding people management, the concept of Organizational Climate. According to Chiavenato (2003), climate is the psychological and social environment that exists in an organization and influences its members behavior. It is affected by a number of factors, such as: leadership styles, organizational structure, motivational strategies, each person's needs and reasons, among others. The result of the composition of these factors creates the organizational climate, which in turn influences performances, productivity, absenteeism rate, inter alia, of employees of an organization (Sbragia, 1983).

From this point of view, a concept introduced by Luz (2003), the General Satisfaction Index (GSI), is proposed. According to this author, the GSI is calculated as the arithmetic mean of the employees' satisfaction percentage rate, considering all other survey dimensions. GSI is of great importance because it is a single percentage value and can be assigned to each of the units under the responsibility of a people management division. Thus, it is possible to classify all agencies and departments with a unique number, facilitating decision-making processes with regard to the unit that need to undergo changes in order to improve the GSI and, consequently, the climate. Using this approach, the traditional ways of presenting the results become secondary tools, which will only be considered when the agency or department has been previously chosen based on the GSI.

Although the concept of GSI, introduced by Luz (2003), is important in this context, a mathematical update is required to have a more consistent meaning to reality. The approach proposed by Luz (2003) is often used in questionnaires that use five or more categories, such as: very dissatisfied, dissatisfied, somewhat satisfied, satisfied and very satisfied. In his notion of the use of GSI, the author guides the criteria for classifying satisfaction levels, ranging from the "somewhat satisfied" to "very satisfied", as unweighted increments used to calculate the GSI. In fact, this approach undermines the use of research data, as it removes specificity of the data, i.e., it transforms more accurate data in less accurate data.

Therefore, the relevance of present study is justified by the real utility of the GSI concept in this context, as well as the need to upgrade that tool mathematically. Thus, the objective of this research is to propose a new way of working up to this concept using a new calculation methodology. The proposed change aims to turn GSI into a more accurate and appropriate tool, making it even more valuable in decision-making processed faced by people management departments focused on improving or maintaining the organizational climate. To demonstrate the application of the new approach regarding this tool, an organizational climate study in a bank branch will be conducted.

2. Theoretical Framework

There are several climate models, ranging from general to specific. According to Bishop (2006), there are three main models developed specifically for application in organizational climate research in generic companies. These models can be found in the following works: Litwin and Stringer (1986), Kolb et al. (1986) and Sbragia (1983). In addition to these, Luz's model (2003) can also be mentioned. The most frequently used model (Azevedo, 2012; Maciel, 2011) in studies of this area was proposed by Luz (2003). Moreover, as the concept of GSI was portrayed in the work of this author and it represents the main focus of this study, the following section will further detail characteristics of this model.

According to Luz (2003), a climate survey is a formal method to assess the organizational climate of a company. It constitutes a valuable tool capable of providing subsidies to continually improve the work environment. In order to gather the views of employees, the author proposes the use of 34 dimensions. Below, Figure 1 summarizes these dimensions and their meanings.

3. Methodological Procedures

The working method was divided into three parts. The first part consists of the collection of data on employee satisfaction through a questionnaire based on Luz (2003) considerations and presented in a research performed by Maciel (2011), which uses 27 pertinent questions directed to the context of a banking system. These questions were answered on a scale from 0 to 4, where 0 means a very negative satisfaction condition and 4 a very positive one. The second part dealt with the application of the methodology for calculating the GSI. The third and final part consisted of proposing improvements to increase the GSI of the bank agency analyzed in the present study.

At first, a questionnaire was applied to the entire agency staff with the intention of obtaining data regarding organizational climate. Then, the same questionnaire, but with a different approach, was applied only to managers, to get the required parameters to calculate GSI.

The steps needed to perform the calculation of the GSI were the following:

1. For a sample size n that answered the questionnaire, a Respondents Matrix (**R**) is obtained. In the matrix, $n_{x,y}$ represents the number of respondents that answered x to the question y ($y = 1,...,27$), and x receives the values: 0 (very dissatisfied), 1 (dissatisfied), 2 (more or less satisfied), 3 (satisfied) and 4 (very satisfied). Furthermore, n_y corresponds to the number of respondents that answered question y. (This nomenclature will be maintained throughout the text).

2. The second step concerns the standardization of matrix **R** data. For this purpose, all $n_{x,y}$ values of that matrix are divided by n, thereby obtaining the percentage of responders for each level of satisfaction in the scale. The resulting matrix is called Normalized Matrix **L**.

3. To determine the respondents' satisfaction index for each of the 27 questions, vector **u** is established, determined on the basis of matrix **L** product by vector c. In order to define the satisfaction index for each dimension, u_y values must be grouped according to the questions that correspond to the dimension. Mean of the grouped values of the established t_j value ($j = 1,...,9$). Thus, a new vector **t** (GSIV) is obtained, and it is representative for the satisfaction level regarding the nine dimensions listed by Maciel (2011).

4. The last step introduces the concept of impact factor. The impact factor is how one dimension influences the organizational climate of an organization. To determine these factors, 7 agency managers were asked to answer the following question: "What is the intensity of the relationship between the dimension j and the organizational climate?". Responses were based on a scale from 1 to 10, where 10 represents the maximum intensity and 1 shows minimum intensity on relationship. The sum of relationship intensities of dimension j, mentioned by each respondent resulted in the impact factor value of this dimension, which is called p_j. Thus, impact vector **p** was established, representing the intensity of relationship between each dimension and the organizational climate.

Multiplying the transposed impact vector $\mathbf{p}^T$ by vector **t**, the response to the desired GSI value is set. This equation is given by:

$$GSI = \mathbf{p}^T \times \mathbf{t} \tag{1}$$

Seeking to establish a satisfaction parameter minimally required for the organizational climate of the company, a minimum general satisfaction index (GSIM) was defined, which would be used as a decision criterion for a company's action. To obtain the GSIM, an auxiliary research was elaborated, similar to that applied to the group as a whole, but with a differential response approach. To answer this auxiliary research, managers were asked to assign the lowest score, which would be the threshold limit value of minimum satisfaction for the company's decision

making process. After achieving the results, the following steps were taken to obtain the GSIM exactly as in the procedure described above for the GSI of the banking agency.

To prioritize dimensions of company's activity, ordering vector **o** was established, in which o_j values are given by equation 2:

$$o_j = t_j \times 100/p_j \tag{2}$$

This vector was created with the intention to prioritize the dimensions that have the lowest GSI and greater impact. Therefore, equation 4 shows GSI product for each dimension by the inverse of the impact factor for that dimension. To determine the order of choice of all dimensions, the dimension displaying the lowest o_j value in vector **o** gets priority. Then the next dimension displaying the lowest value among the remaining is chosen and so on.

To drive improvements the 5W2H tool was used, aiming at the development of some strategies of action for the main dimensions that required improvements, in accordance with the results achieved. The application of this tool followed the identification of three dimensions with the lowest o_j value, i.e., the 3 dimensions most in need of an action.

4. Results

For the application of organizational climate research, the group of 21 people on the agency staff, was convened on the same day, in an appropriate place, before normal business hours. On the same day, the auxiliary research was passed on to the seven managers. In the same auxiliary study, managers were asked to assign scores to the contribution of each of the nine dimensions presented in Maciel's work (2011) that compose the organizational climate. The average response time for this research was about 10 minutes. The result of multiplying the normalized matrix by the scale is the GSIV. Then, the impact vector (**p**) was established; it was constructed through the perception of managers about the importance of each dimension to compose the climate. Finally, the result of multiplying the transposed vector of the impact vector by the GSI Vector is 1439.1 (absolute value) or 63.2% of satisfaction. To obtain the GSIM, the same sequence of steps was used, generating a GSIM of 74.6%. This index, as previously mentioned, provides the percentage below which there is a need for improvement actions that should be performed by people management department. As the value obtained in the study was 63.2%, therefore below 74.6%, there is an evident need for improvements in some of the climate dimensions. Thus, equation 2 must be applied. Table 1 shows the vector for the application in question. The main dimensions that require immediate improvement actions are, in this order: salary ($o_9 = 1,8$), professional progress ($o_5 = 3,8$), valuation/recognition and communication ($o_8 = o_1 = 3,9$). With the aim of proposing solutions that would increase satisfaction levels, the following subsection offers some suggestions for each of these dimensions (Table 1).

Table 1: GSIV (vector **t**), Impact vector (**p**) and priority of dimensions (**o**)

Dimensions	t	p	o
Communication	2,6	66	3,9
Company's image	2,8	57	4,8
Training	3,1	58	5,3
Leadership/Management	2,7	65	4,2
Professional Progress	2,5	65	3,8
Autonomy	2,5	55	4,5
Motivation	3,1	66	4,7
Valuation/Recognition	2,7	68	3,9
Salary	1,2	69	1,8

Source: Elaborated by the authors

To drive improvements, the 5W2H tool, based on direct observation, was used. Firstly, the four dimensions with the lowest o_j values were identified, as previously mentioned. Then, the tool was applied, as shown in Figure 1.

Dimensions	What?	Why?	Who?	How much?	How?	When?	Where?
Salary	Salary consistent with the activity	Increasing agency GSI	Bank senior executives	Real gain of 1,3% per year	Foreseeing the bank workers strike	Each year in August	Fenaban negotiating table
Professional progress	Efficient selection process	Increasing agency GSI	People management department	-	Transparency in selection processes	In all selections	Via e-mail to all collaborators
Communication	Improving communication	Increasing agency GSI	Collaborator's immediate superior	-	Communication through several different media	Guidance on activities	Workplace
Valuation/ Recognition	Recognizing collaborator	Increasing agency GSI	People management department	-	Financial incentive	The immediate manager indicates	Payroll system

Figure 1: Application of 5W2H in four dimensions with the lowest o_j.

"Salary" dimension displayed the lowest o_j value. The proposed solution to this issue was the alignment of the salary received with the activities performed. According to Dieese (2013), from 2004 to 2013, a wage gain of approximately 100% was registered, as a result of various strikes, which generated an average annual adjustment of 1.3% above inflation for that period. These strikes occur almost every year in September, after the collective bargaining of the category. The proposed remedy would then be the salary adjustment before strikes erupt, on the basis of the average adjustment of 1.3% above the accumulated inflation over the last 12 months.

Another dissatisfaction was related to "professional progress" dimension, where questions refer to the transparency of selection processes. This particular issue raised the possibility that the people management department could make available the evaluation of the candidates for all participants in the process, sending the assessment by e-mail to all collaborators.

"Communication" dimension questions are focused on the instructions received to perform work activities. Thus, variation in forms of communication is the best solution to increase satisfaction, which can occur through the use of different forms of oral and written communication, among others. Valuation/Recognition is another dimension that requires modification. A novelty could be implemented through the inclusion of a monthly bonus in the payroll, to be indicated by the immediate manager in the monthly closing process. At the end of then-current monthly period, the manager would indicate a percentage wage raise, limited to, for example, three times a year, and according to the outstanding performance of the employee.

5. Conclusions

In response to the demands for upgrading a tool which is rather useful in the analysis of organizational climate, a new methodology for calculating the general satisfaction index was developed. This methodology was supported by some mathematical tools, relying primarily on the use of matrices and vectors of linear algebra. Each of the steps of this method was described in detail and properly illustrated with equations and tables. In addition to a modification in the way to address the GSI, the concept of GSIM was also introduced, which is capable of directing the needs for positive changes in the organizational climate of a particular banking agency.

To illustrate the application of the proposed method, an organizational climate survey was conducted in a banking agency, detailing the intermediate steps taken to carry out that application. Results have shown the need for improvements directly comparing the GSI and the GSIM.

In relation to the methodology described, in one of the steps, the calculation of impact factors for each dimension was required. It is important to underline that this step displayed impact factors with very similar values, which suggests the possibility that respondents had not understood the approach adopted in this research, or one could

assume that the use of these factors maybe is unnecessary. Thus, the study does not conclusively demonstrate the real need of impact factors, indicating that future studies could be carried out to check their real need.

In general, the tool has proved to be a great ally to climate research and also to identify the need for improvements in banking context. Finally, the use of the 5W2H tool has proved important to improve weak points observed in the climate analysis, providing an initial guide to raise the agency's GSI and achieve the goals pursued by the company. It is noteworthy that, due to the fact that improvement actions have been inferred based on direct observation, there is still a need for further analysis and/or debates about the impact and viability of these solutions.

As a contribution of this study may be pointed out that the quantitative approach proposed here intends to make GSI a more accurate tool, making it even more useful in decision-making processes that aim to maintain or enhance the organizational climate.

References

Azevedo, P. R., Análise do clima organizacional nas agências do Banco Itaú de Campina Grande - PB. 41p. *Trabalho de Graduação em Administração – Universidade Estadual da Paraíba*, Campina Grande, Brazil, 2012.

Bispo, C. A. F., Um novo modelo de pesquisa de clima organizacional, *Produção*, vol. 16, no. 4, 258–273, 2006.

Chaves, L. A.; *Trabalho, tecnologia e ação sindical: a condição bancária no panorama da acumulação flexível*; São Paulo: Annablume, 2005.

Chiavenato, I., *Introdução à teoria geral da administração: uma visão abrangente da moderna administração das organizações*, Elsevier, Rio de Janeiro, 2003.

CONTRAF – Confederação Nacional dos Trabalhadores do Ramo Financeiro, 24º Congresso dos Funcionários do BB aprova pauta específica, *O Espelho*, no. 270, pp. 4–12, (2013).

Costa, M. R., Clima organizacional em uma agência bancária. 61 p., *Trabalho de Graduação em Engenharia de Produção e Sistemas – Departamento de Engenharia de Produção e Sistemas*, Universidade do Estado de Santa Catarina, Joinville, Brazil, 2011.

Ferreira, M. C., Seidl J., Mal-estar no Trabalho: Análise da Cultura Organizacional de um Contexto Bancário Brasileiro, *Psicologia: Teoria e Pesquisa*, vol. 25, no. 2, pp. 245–254, 2009.

Freitas, M. E., O Day-After das reestruturações: as irracionalidades e a coisificação do humano, *Revista de Administração de Empresas Light - RAE Light*, vol. 6, no. 1, pp. 5–7., 1999.

Grams, C. C. S., Clima Organizacional: Estudo de Caso da Divisão de Provimento de Cargos da Diretoria de Recursos Humanos do Tribunal de Justiça de Santa Catarina, *Coleção Gestão Organizacional e Tecnologia em Recursos Humanos*, vol. 2, pp. 109–128, 2012.

Kolb, D. A., Rubin, I. M., Mcintyre, J. M., *Psicologia organizacional: uma abordagem vivencial*, São Paulo, Ed. Atlas, 1986.

Lemos, D. M. R., Martins, P. O., "Avaliação de clima organizacional e a análise da relação entre a variável comportamento da chefia nas demais variáveis de clima: Um estudo de caso em uma instituição financeira capixaba", in: *EnANPAD 2007 XXXI Encontro da ANPAD*, Rio de Janeiro, pp. 22–26, set., 2007.

Litwin, G. H., Stringer, R. A., *Motivation and organizational climate*, Cambridge: Harvard University Press, 1986.

Luz, R. S., Gestão do clima organizacional: proposta de critérios para metodologia de diagnóstico, mensuração e melhoria. Estudo de caso em organizações nacionais e multinacionais localizadas na cidade do Rio de Janeiro. 182 p. *Dissertação (Mestrado em Sistemas de Gestão)* – Universidade Federal Fluminense, Niterói, Brazil, 2003.

Maciel, G., Análise do clima organizacional de uma agência bancária de Curitiba-PR. 55p. *Especialização em Gestão de Negócios Financeiros – Programa de Pós-Graduação em Administração*, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, 2011.

Rego, A., Souto, S, Comprometimento Organizacional em organizações autentizóticas: Um estudo Luso-Brasileiro", *Revista de Administração de Empresas*, vol. 44, no. 3, pp. 30–43, 2004.

Rizzatti, G., Categorias de análise de clima organizacional em universidades federais brasileiras. 307 p. *Tese (Doutorado em Engenharia de Produção) – Programa de Pós-graduação em Engenharia de Produção*, Universidade Federal de Santa Catarina, Florianópolis, Brazil, 2002.

Sbragia, R., Um estudo empírico sobre clima organizacional em instituições de pesquisa, *Revista de Administração*, vol. 8, no. 2, pp. 30–39, 1983.

Silva, W. T., Diagnóstico do clima organizacional no Banco do Brasil - Agência Londrina. 37 p. *Especialização em Gestão de Negócios Financeiros – Programa de Pós-Graduação em Administração*, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, 2009.

Zanatta, R. W., Estudo sobre clima organizacional de uma agência bancária na cidade de Criciúma. 76p. *Trabalho de Graduação em Administração de Empresas – Universidade do Extremo Sul Catarinense*, Criciúma, Brazil, 2011.

Biography

Guilherme Luz Tortorella is Adjunt Professor at the Department of Production and Systems Engineering of the Federal University of Santa Catarina (UFSC), Florianópolis, Santa Catarina State, Brazil. He earned his Bachelor degree in Mechanical Engineering from the Federal University of Rio Grande do Sul (UFRGS). His Master in Production Systems and PhD in Production Engineering were also earned from UFRGS. Mr. Tortorella has experience in Production and Quality Systems, having taught in the graduate programs at UFRGS, ULBRA, PUCRS, UNOESC, FSG and ESADE as a guest professor. He also has twelve years of experience in the automotive industry with international activities in Mexico, England, USA and Uruguay.

Carlos Ernani Fries is Assistant Professor of the Department of Production and Systems Engineering at the Federal University of Santa Catarina (UFSC), Florianópolis, Santa Catarina State, Brazil. Mr. Fries holds a Bachelor degree in Civil Engineering as well as a Master and PhD in Production Engineering from UFSC. He has taught courses in Operations Research applied to Manufacturing and Logistics, Decision Theory, Statistics and Forecasting Models among others. His research interests include manufacturing, simulation, optimization, management games, data analysis applied to logistics, and application of big data tools. He is member of POMS.