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URBAN PUBLIC TRANSPORT SYSTEM: ANALYSIS OF QUALITY MODELS IN THE VIEW OF BUS MANAGERS AND USERS IN THE METROPOLITAN OF BELÉM-MDB IN THE STATE OF PARÁ-BRAZIL

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1

Abstract: This study of relevance in the area of public transport in the bus modality comes to analyze the satisfactions regarding the quality offered in the urban public transport sectors in the Metropolitana de Belém-MDB based on the vision of users and managers. Throughout the work, a review of the concepts of quality is made in various aspects such as: evolution, services, transport services, consumer behavior, quality processes, among others. Regarding the methodological aspect, two field surveys were carried out that showed the satisfaction rates of users and managers, where in the users' view unacceptable levels were described, which when compared to the general average obtained 54.81% of dissatisfaction and contrasting with the index in the view of the managers that was with 66.74% of satisfaction. In defining the construction of the models of the various existing GAPs, they were based on 27 variables that reflect the most intrinsic aspects of quality within the scope of urban public transport. Therefore, as final results, two general global models were created through the technique called Principal Components-PCA analysis, which were demonstrated through the scores obtained at the levels of perceived quality, both by the population and by the managers. In this way, the results can serve as management, control and planning tools for actions that refer to public transport, which, without a doubt, can contribute to improving the quality of transport services offered to the MDB population.

Keywords: Public transport, buses, quality, principal components analysis

INTRODUCTION

The urban transport development model adopted in Brazil follows North American molds, the policy was based on an unbridled search for gasoline consumption from the 50s of the last century, in the Vargas era, through the National Road Plan that accentuated the preponderance of the road modal over the others (NAZARÉ, 2001). On the other hand, the culture of car use in society is intrinsic, which is linked to an image of status and power.

The option for this policy marked the paths of urban growth in the country, guided by the transformations of urban spaces and a growing fleet of vehicles, which cause all kinds of impacts on the routine of the population (SPECHT, BRANDLI & SILVA, 2009). These impacts refer to an accelerated and unbridled urban growth that is in line with an incipient planning and management of public passenger transport systems, instability of legislation, preference in investment for individual transport tending to diseconomies, decreased quality of life and latent environmental liabilities in the concerning the transport scenario (CNT, 2006).

In the Amazon, urban treatment becomes fundamental for environmental and transport policy, as the process of regional urbanization leads to challenges regarding the sustainability of transport, however, the environment is not an aggregator element in the variable of urban planning and ordering of public actions in city spaces controlled by government officials.

Data from the National Association of Public Transport (ANTP) show that in more than five thousand Brazilian municipalities there are several daily trips, using various means of transport, among which we can highlight: bicycle, motorcycle, private car and public transport, the latter being representes **28,9%** of the total displacements with almost 60 million trips a day. This means that for every ten trips/day, three correspond to the public transport mode. Still on this type of displacement, it can be noted that **25%** of Brazilian municipalities have the collective bus service. See **table 1** below.

Main Mode [1]	travel days	%
On foot [2]	89.000.000	43,6
Bicycle	15.000.000	7,4
motorcycle [3]	2.000.000	1,0
Públic (4)	**59.000.000**	**28,9**
Self (5)	39.000.000	19,1
Total	204.000.000	100

1. Classified according to the single mode or, in the case of more than one mode, the "heavier" mode (railway to foot mode)).

2. Only trips over 500 meters long.

3. Motorbike for personal (non-commercial) use only.

4. Includes taxi.

Table 1 - Urban and metropolitan transport of people in Brazil, Modal division 2012.

Source: ANTP Estimate (2012), Based on origin-destination data from several cities, information on public transport and data on vehicle fleet and population.

Metropolitana de Belém - MDB, in the State of Pará, with 2,046,843 inhabitants, according to estimates by the Brazilian Institute of Geography and Statistics - IBGE in 2007, divided into five municipalities, is the integration with the largest population in the State. With an average annual growth rate of 2.5% per year, most municipalities have high rates of urbanization, such as the capital of Pará, Belém, (99.35%), Ananindeua (99.76%) and Marituba (87, 16%). At the same time, the urban space of Belém becomes vertical and expands towards the surrounding municipalities (VASCONCELOS, ROCHA & LADISLAU et al, 2009). See table 2 below, which shows the degree of urbanization of the MDB from the 1970s onwards.

The Superintendence of Urban Mobility -SEMOB, the body that manages the transport of the largest city in the MDB, carried out in February (2019) a survey of turnstile readings[1], carried out in 20 bus companies in the MDB, where he found that on average there were 772,556 tickets/day and 5,407,892 tickets/week. This large

volume of travel, locomotion and the low quality of services offered, shows the effect of urban mobility in a large agglomeration such as MDB, which needs specific strategic planning molded into a quality transport model to address the problem.

Another important fact is the decrease in the use of buses and the tendency to use other modes of transport, which, in some way, are a concern, such as alternative transport, not yet authorized, which are causing even greater impacts on quality of life. of urban transport users in this region (BRASIL apud TOBIAS, 2009).

Therefore, in view of the aforementioned assumptions, the hypothesis of the growing need to improve the quality of urban transport services must be considered, if it is influenced by the absence of public policies regarding actions by both the public and private sectors in the transport area. public.

This study aims to analyze the quality models of urban public transport in bus modes in the MDB, seeking the views of users and managers, described in the field research.

1. Survey carried out to obtain data on transported passengers and ticket costs.

MUNICIPALITIES	Year					
	1970	1980	1991	1996	2000	2007
Ananindeua[1]	12,98%	10,40%	84,00%	88,02%	99,76%	99,76%
Belém[1]	95,18%	88,33%	68,22%	74,43%	99,35%	99,35%
Benevides	25,30%	29,84%	12,21%	10,37%	58,83%	53,83%
Marituba	-	-	-	-	87,18%	87,16%
Santa Bárbara do Pará	-	-	-	28,79%	35,23%	30,76%

(1) Preparation and calculation of SEPOF/DIEPI/GEDE.

Table 2 - Urbanization rate of the municipalities that make up the MDB (1970 - 2007).

Source: Brazilian Institute of Geography and Statistics – IBGE (1970,1980,1991,2000,2007).

This research will make use of the intention of proposing alternatives to improve the quality of life of the public transport user in the MDB.

GOALS

General

To evaluate the satisfaction of the quality offered in the Urban Public Transport System-bus in the users' view and managers through quality models in Metropolitan of Belém-Pará-Brazil.

Specific

✓ Identify the different types of transport quality services in the view of different authors;

✓ Carry out a survey through on-site research with the various MDB bus users and managers;

✓ Evaluate the various quality GAP's through modeling, in the view of MDB's bus users and managers;

✓ Propose alternatives to improve the quality of public transport.

METHODOLOGICAL PROCEDURE

The objects of the study are the users and managers of urban public transport-bus in 5 five municipalities of the MDB (Belém, Ananindeua, Marituba, Benevides, Santa Barbara).

The study orientation followed five methodological steps such as;

✓ The first step consisted of a bibliographic review in secondary sources such as quality authors, master's theses, doctorate, magazines, newspapers, internet, where the theoretical foundations of the quality process were presented in the view of transport services and the theory of behavior. of user. As for government agencies such as: SEMOB, Department of Traffic of the State of Pará-DETRAN, Brazilian Institute of Geography and Statistics-IBGE, National Department of Traffic-DENATRAN, and among others, structural aspects of the MDB and its indicators of transpose

✓ In the second stage, we opted for the primary survey with MDB bus users and managers, where questionnaires were applied with types of closed questions, also called fixed alternative. In this case, the interviewee had to choose one of the alternatives proposed by the research team. It is important to highlight that the interviewees were chosen randomly and spontaneously.

✓ In the third phase, the codification, treatment, and condensation of the information were carried out, where the STATISTIC PACKCAGE FOR SOCIAL SCIENCE Software - SPSSR - 22.0 was chosen, due to the safety in the construction of the database and the speed of the results.

✓ In the fourth phase of the study, after the systematization of the results, the methodology of Principal Components Analysis-PCA of the variables involved in the process was chosen, to identify the various relationships of the proposed models. The vast majority of current professional mathematical or statistical software have packages for working with ACP incorporated in their set. In this job did option:

- By the use of SPSS 22.0 and MINITAB 5.0 and STATISTIC 6.0

✓ In the last phase, the result of the study and its contributions to improving the quality of transport in the MDB were addressed.

LITERARY REVIEW

QUALITY IN SERVICES AS A PREPODERING FACTOR

For (JURAN, 1995) about the concept of performance, quality shows some peculiarities, such as quick response to customer calls, effectiveness when it comes to advertising campaigns, uniformity in production processes and an information system suited to the needs of the market. Therefore, these characteristics are fundamental to the product's performance in terms of product satisfaction, that is, they compete with each other in the market. With all this market competition, the main focus must be on product performance with equal or superior quality to the competition. In the characteristic referring to dissatisfaction with the product, quality is reported in situations such as late deliveries, loss of contracts, rework and scrap at firms, wrong invoices and changes in the structure of engineering projects. However, the combination of all these problems results in dissatisfaction with the product, causing returns, rework and dissatisfaction. To then expose a simple definition for quality, which is fitness for use.[2]

The example in Figure 1 is the summarized version of what happens in a large company. It is important to highlight that some customers are internal and belong to the same company, that suppliers and others are external. Thus, the existence of a deficiency represents a threat to the future of sales and, consequently, can generate higher costs.

The products and services offered in the market today are certainly different from what was presented in other decades. This can be seen by the demand of buyers, as satisfactory quality is required to meet the needs and desires of end customers. However, an important fact is that buyers recognize that the price paid represents only the initial cost of the product, with the life cycle cost of the product being the biggest concern in high priced markets. Actions related to services constitute an increasingly comprehensive area from the point of view of total quality control programs, being used abundantly in companies. Historically, the main characteristic of service-related activities was the tendency to remain dependent on skills, attitudes, training of people and the focus on applications to quality controls (FEIGENBAUM, 1994).
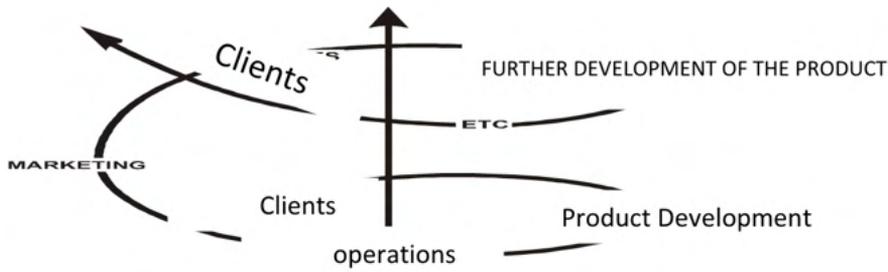
2. "This definition should be expanded soon, because there are many uses and users, so a convenient way to show some of the many uses and users is through the "Quality Progress Spiral". The spiral shows a typical sequence of activities employed to bring a product to market. In large companies there are departments responsible for these activities. As a result, each department carries out a process of the operation, produces a producprojects t and provides it to otherdepartments or customers". (JURAN, 1995, p.6).

Figure 1 - spiral of quality progress.

Source: JURAN, 1995.

Provider	Products (Goods and services)	Clients
Client	Information of needs	Development of product
Product development	Projects of product	Operations
Operations	Goods and services	Marketing
Marketing	Goods and services	Clients

FRAME 1- Relationships evidenced through the spiral.

Source JURAN, 1995.

The reason for satisfaction in relation to the purchase of a product or service is given in the characteristics of the purchased good and dissatisfaction begins with the non-conformities of the products and is a decisive point for the satisfaction or not of the customers. However, most products or services that are not salable face competition, as they sometimes offer a better service (JURAN, 1993).

With regard to customers, most of them formulate their needs in relation to the goods they want to buy, and their real needs are the services that such goods can offer. It is important to decipher customer needs. For this, it is understood that there must be communication with customers.[3] In this scenario, the main processes for discovering customer needs can be translated into the phrase: be a customer first, that is, put yourself in their shoes, communicate with the customer, research the usefulness of products (JURAN, 1995) .

The definitions of the characteristics of intangibility and heterogeneity demonstrate that in the evaluation of the quality of services with regard to customers, they are largely subjective. As a result, it is very difficult to measure. This leads to the realization that services cannot be stored. Services are produced so that consumption is immediate, that is, the practice of continuous quality control is prohibited (RUBISTEIN, 2004).

In the definitions of service organizations, a system that seeks to improve quality is important for any organization that launches a product or is involved with a service, or with research, wants to improve the quality

3. "Communicating with customers is the most widely used process for discovering customer needs. It is adaptable to many types of supplier-customer relationships" (JURAN, 1995, p.52).

of the service offered by its workforce, simultaneously, increase your productivity and lower your costs. Therefore, the incompetence of a service organization can raise consumer prices and lower their quality of life (DEMING, 1990).

Transport activities can be defined as services, in view of some characteristics that are peculiar to them, such as: intangibility – the result of transport services is not the production of tangible good, but the generation of benefits to users transported in the time-space component. The heterogeneity characteristic is declared as long as the trips differ in time, origin, destination, route and the inseparability that points out that the services must be consumed at the time of production, that is, there is no stock for the services produced (LIMA Jr apud RUBISTEIN, 2004).

LIMA JÚNIOR & ZEITHAML et al apud TOBIAS, 2009, mention some aspects focused on the quality of transport services such as:

a) The quality of services is more difficult to measure by customers than the quality of products, due to the characteristics of intangibility, that is, the inseparability between production and consumption. In this sense, the service is produced instantly;
b) The perception trend of service quality stems from comparisons to consumer expectations and service performance;
c) The service quality assessment product must express the service result and the service delivery process flow;
d) In the denotation of quality control, it reports the operational variables, with an indication for the production of services;
e) It emphasizes the quality perceived by the customer, denoting the service production processes: focus on customer expectations, service specification, operation and communication. So, the

transport sector differs from other sectors in lines, such as the identification of consumers in the process, minimization of the effects of external variables on the quality of service. (PARASURAMAN et al apud TOBIAS, 2009); Targeting the human capital of the process in the face of customer interactions with the service:highlights that the evaluation of the services provided is decisive at the moment when the client uses.

A point to consider is that when thinking about quality in transport service, transport is an event of transporting service, and therefore has different characteristics from products. Therefore, the concept of transport quality is linked to business marketing (TOBIAS, 2009).

Properly applied service quality can emerge as a highly influential force and become a competitive advantage and decisively influence the users' eyes, filling gaps that will contribute to the satisfaction of their needs and desires as customers. This tends to happen if services are seen as strategic actions of organizations (RODRIGUES, 2006).

MULTIVARIATE ANALYSIS MODELS

For (MINGOTI apud RAMOS 2010) the Principal Component Analysis technique was initiated by Karl Pearson in 1901 and is based on Hotelling's 1933 article. The main factor is based on explaining the variance and covariance structure of a random vector, composed of p-random variables, based on the premise of creating linear combinations of the original variables. Therefore, these linear combinations are commonly called principal components and there is no correlation between the variables.

Second (ALVIM, CARVALHO et al 2007) PCA summarizes information from a large number of variables into a reduced number of new variables, called factors or components.

Such factors will be orthogonal, which will imply statistical independence between them and will be obtained via linear transformations. Therefore, each factor (or component) will be formed by the linear combination of the original variables. The PCA explores the total variance existing in the set of variables under study, seeking to explain as much as possible of the variance found in the original data that uses a reduced number of components.

MODELING IN THE USER'S VIEW OF PUBLIC TRANSPORTATION IN MDB

In this phase of the study, 27 variables referring to the opinion of users in the field research were first used, from the most diverse views. However, tests were performed in the MINITAB 5.0 software with all variables involved simultaneously. The preliminary result showed that several distinct groups were created from there, showing the preference of some categories. Initially, a statistical technique was applied that stimulates the similarity between the variables involved called 'WARD DEDOGRAM'. In it, it was possible to observe the junction of some preference groups in the user's view. (see figure 2).

General Global Assessment of Transport Quality Index in the view of MDB's public transport users

Thus, from the groups formed, a general global evaluation model was generated in the view of the publictransport managements of MDB.

$$\hat{Y}_{uGlobalGeral} = 1,49 \times \hat{Y}_{GE1} - 0,50 \times \hat{Y}_{GE2}$$
$$- 0,43 \times \hat{Y}_{GE3} - 0,38 \times \hat{Y}_{GE4} - 0,44 \times \hat{Y}_{GE5}$$

The variable that represents **the group 1 is** the most significant variable for the first component in relation to the model presented.

MODELING IN THE VISION OF PUBLIC TRANSPORT MANAGERS AT MDB

The same methodology adopted with the users of public transport was applied with the managers of the System, using questionnaires with the 27 variables referring to the opinion of the quality of the services provided. Therefore, according to the previous study, the groups were created based on the similarity of the variables, showing the preference of some categories, the statistical technique was applied that stimulates the similarity between the variables involved called WARD DENDGRAM, in which it was possible to observe the junction of some preference groups in the view of MDB's public transport managers. (see figure 3).

General Global Assessment Index of the quality of transportes in the view of m DBManagers

Then, from the groups formed, a general global evaluation model was generated in the view of the managers of the public transportof MDB.

$$\hat{Y}_{AGlobalGeral} =$$
$$- 0,77 \times \hat{Y}_{GE1} - 0,71 \times \hat{Y}_{GE2} +$$
$$0,05 \times \hat{Y}_{GE3} + 0,56 \times \hat{Y}_{GE4}$$
$$- 0,57 \times \hat{Y}_{GE5} - 1,12 \times \hat{Y}_{GE6}$$

The variable that represents the **group 3** is the most significant variable for the first component in relation to the model presented.

DISCUSSION AND CONCLUSION

The search for a new model of management and regulation of public urban public transport services cannot be based solely on the vision of the government and the companies operating the transport
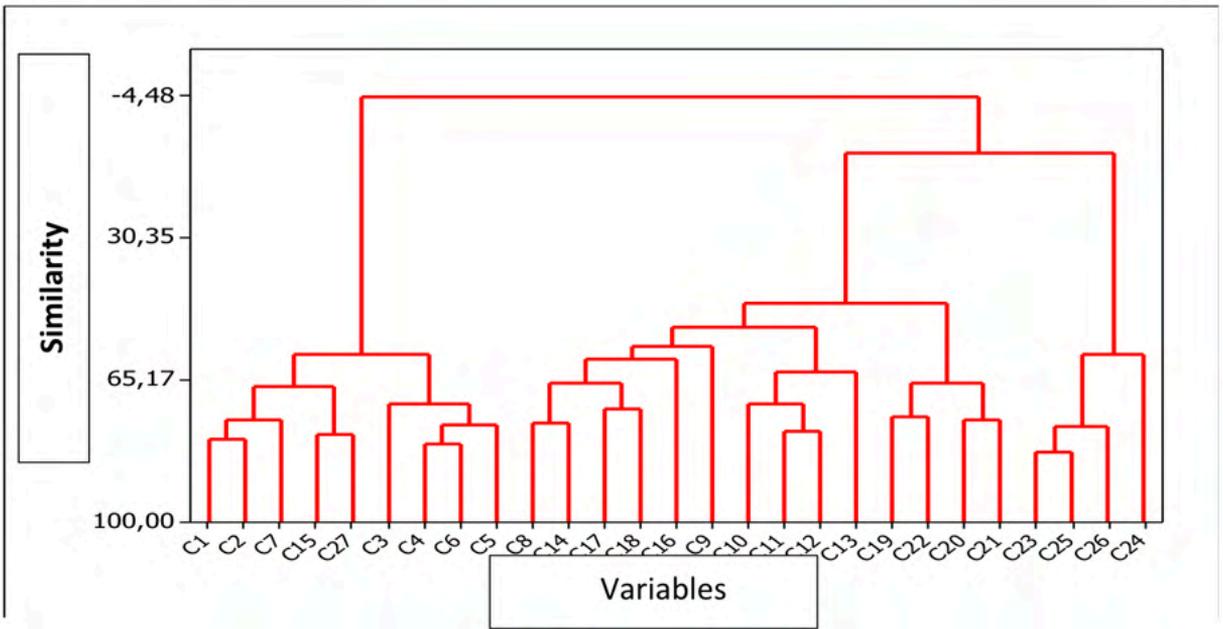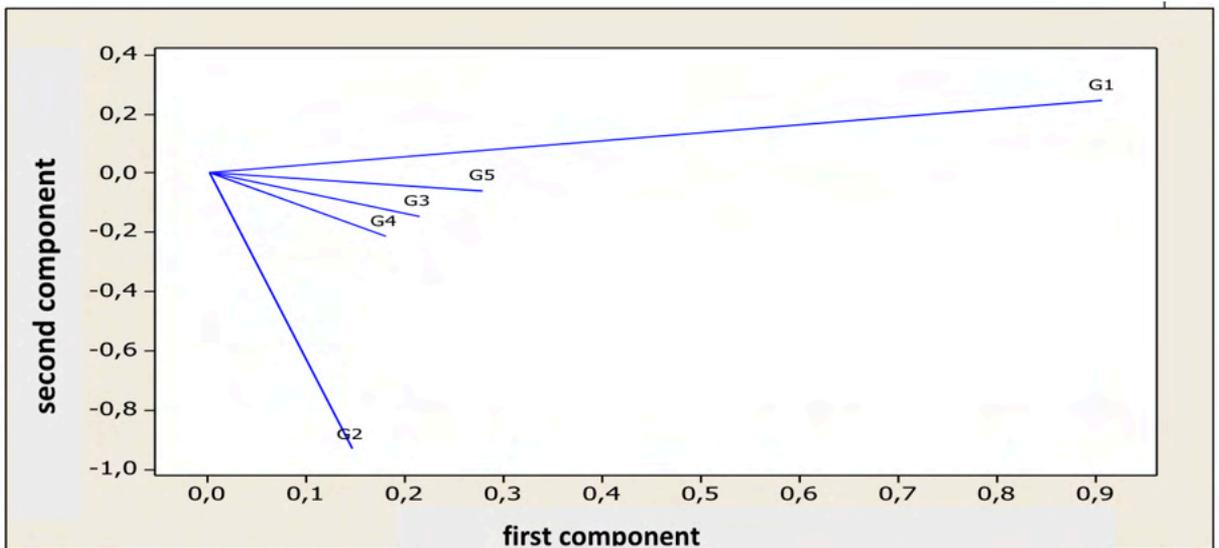
Figure 2: Dendrogram of the quality of public transport from the user's point of view.

Graph 1 - Showing the 1st 2nd and 2nd component of the overall-user global model.
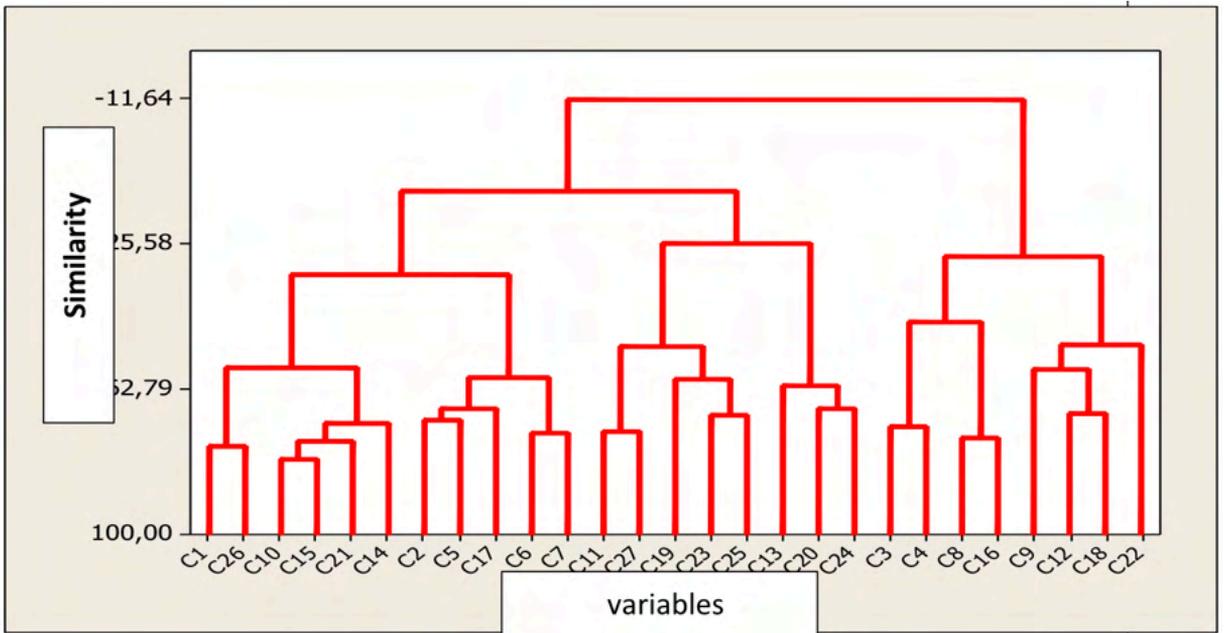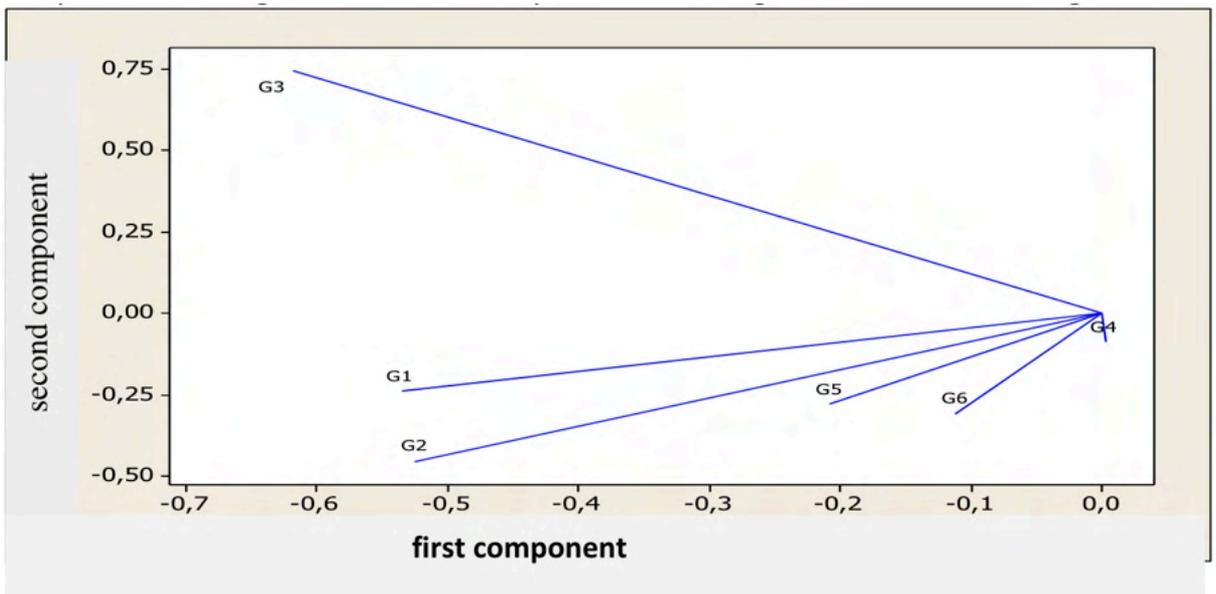
Figure 3: General dendogram of the quality of public transport in the view of managers.

Graph 2 - Showing the 1ª and 2ª components of the general model - managers.

system. In this context, the role of organized civil society is of vital importance, given that, historically in Brazil, urban social movements have always made a difference in relation to the rights of the population. This may be one of the ways to improve the quality of services offered in public transport. Some alternatives may lie in the adoption of participatory planning and management actions, with active users and inspecting public transport services. This participation can range from simple consultations with communities to participation in budget decisions and participatory city councils (GOMID, 2003).

Another fundamental point refers to the urban transport policy with a focus on social inclusion, which must be based on people's mobility conditions, not on the car fleet as a vector of mobility, that is, on the equipment itself. In this context, it must be taken into account that the public transport service must create conditions for the user to enjoy it and choose it. A choice based on quality and that also generates quality of life, avoiding common problems in large urban centers, such as traffic accidents, air pollution and congestion and traffic jams, caused, in many cases, by the intense use of private cars (GOMID, 2003).

Based on the objectives established for the present study, it is possible to evaluate, from the results obtained:

Users of urban public transport are not satisfied with the quality of services offered, both by public and private authorities. The general average of dissatisfaction with terrible or bad indicators reached a level of 54.81%, while acceptance was 38.83%. Such indicators are worrying, considering that they point to a failure in the provision of these services and to the need for intervention actions based on planned actions.

Regarding the view of public transport managers, the services offered are within acceptable levels of quality. Among the managers interviewed, 66.74% said that the quality of service is at an acceptable level and 27.58% is unsatisfactory. The data demonstrate conflicting points of view between them and the users: while most users (54.81%) disapprove of the services, most managers believe that they are good (66.74%). What can be concluded that the services are being provided without hearing the opinion of those who enjoy the services, which can subsidize public transport planning and management actions.

Regarding the results of the applied technique of Principal Component Analysis. It was possible to create global general models in the user and managers view. First, two were generated **General Dendrograms** in the view of users and managers, where 5 groups of users and 6 groups of managers were formed, related to several variables with similarities that presented explanatory variance above 70%. From then on, the models were created through the scores obtained by the applied ACP technique. Through the scores it was possible to know and reach, in summary, the following conclusions:
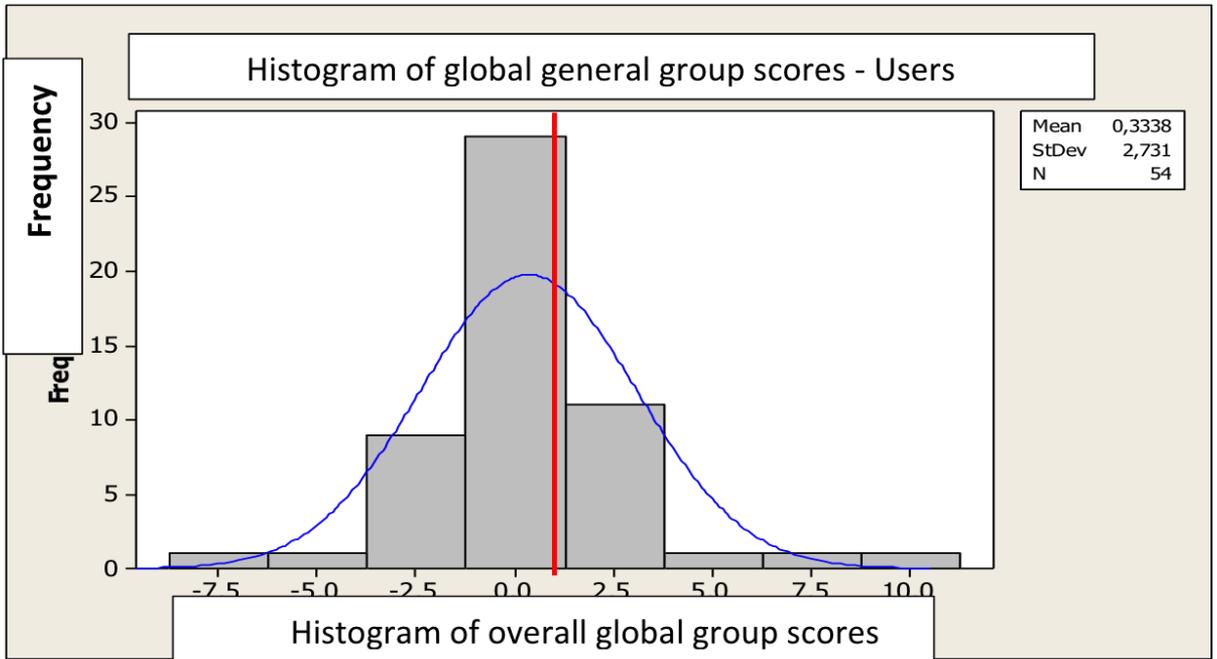
In the view of the public transport user;

- A model was created from the groups formed **global and general** of quality in the eyes of **MDB users**.

$$\widehat{Y}_{uGlobalgeneral}$$

$$= 1,49 \times \widehat{Y}_{GE1} - 0,50 \times \widehat{Y}_{GE2} - 0,43 \times \widehat{Y}_{GE3} - 0,38 \times \widehat{Y}_{GE4}$$
$$- 0,44 \times \widehat{Y}_{GE5}$$

From this model, it can be said that the most significant variable are those composed by the EG1 group

The graph below reveals the summary of the quality scores against the overall global model in the users' view, showing that the data is mostly concentrated in the rejection zone. Therefore, for them the situation is not satisfactory.

Graph 3 - Histogram of the scores of the global general groups - users.
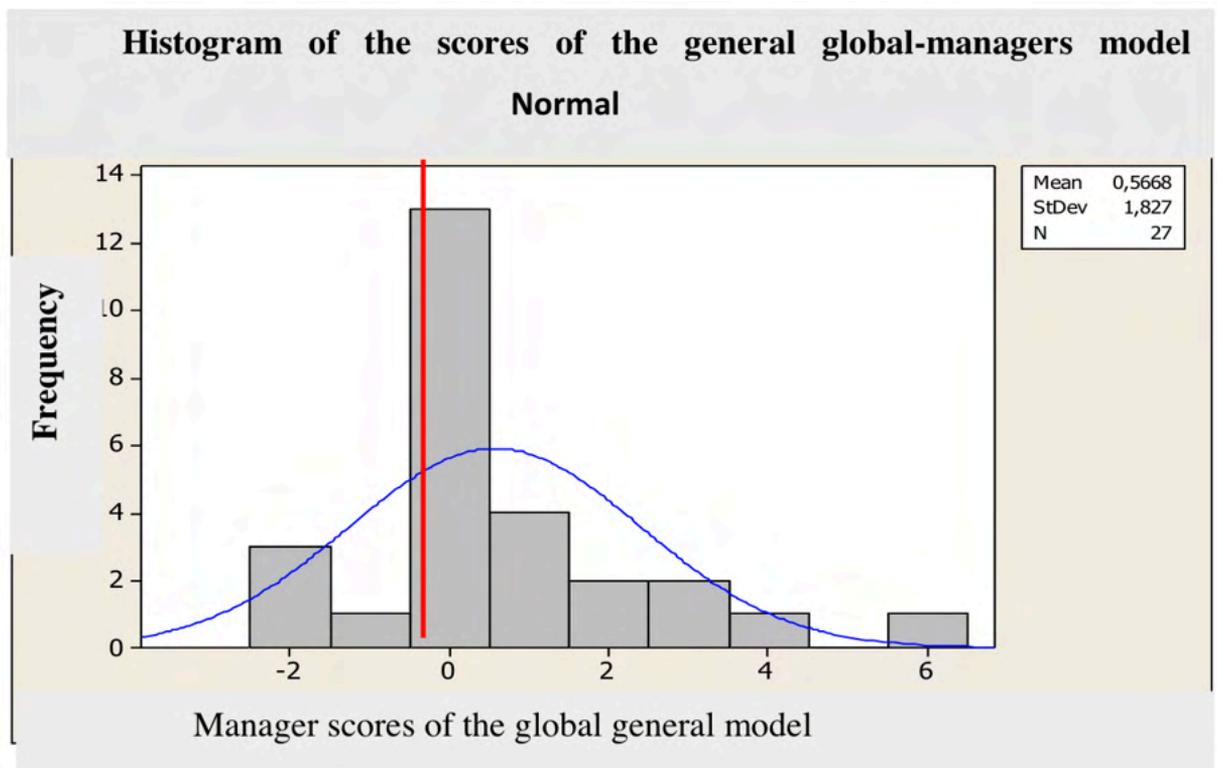
Graph 4 - Histogram of global general model scores - managers.

From the point of view of public transport managers;

- the global and general model of quality was created from the groups formed in the eyes of the **managers in the MDB**.

$$\hat{Y}_{AGlobalGeral} =$$
$$-0{,}77 \times \hat{Y}_{GE1} - 0{,}71 \times \hat{Y}_{GE2} + 0{,}05 \times \hat{Y}_{GE3}$$
$$+ 0{,}56 \times \hat{Y}_{GE4} - 0{,}57 \times \hat{Y}_{GE5} - 1{,}12 \times \hat{Y}_{GE6}$$

From this model, it can be said that the most significant variable are those composed by the EG6 group.

The graph reveals the summary of the quality scores in relation to the overall general model in the managers' view, which shows that most data are concentrated in the positive acceptance zone. Therefore, for them the situation is good, contrary to the user's view.

RESULTS, SUGGESTIONS AND PERSPECTIVES FROM THE STUDY

From the point of view of improving the results presented, it is possible to point out some contributions, suggestions and improvements to reach a more satisfactory indicator as:

a) Politically enable the redistribution of space and circulation of pedestrians, cyclists and public transport passengers;

b) Preventive maintenance plan - (PMP) (From an information system coupled to the SEMOB inspection system with the operating companies).

c) Construction of a management and monitoring system for the public transport services offered from the geoprocessing of data and creation of an integrated database.

d) Consolidate training strategies for managers and system operators covering the following areas: behavioral, human and technological;

e) The models proposed in this study may serve as a basis for planning, control and management actions in the public and private sectors;

f) Stimulate campaigns in relation to the reach of civil society, on the awareness of sustainable urban transport;

g) In conjunction with the public sector, encourage actions that combat violence in collectives and bus stops. This would have a very important impact on the end-user satisfaction level;

h) The consolidation of a new model of management and regulation of public services of urban collective transport, cannot have an emphasis only on the public power and the operators of the system, but it has to couple the desires and aspirations of the organized civil society in these scenarios;

i) From the moment that the provision of public services is the responsibility of the private sector, it is conditional on the public sector to regulate activities to achieve the interests of society as a whole;

j) The creation of an accessible public transport model that allows efficient quality and guarantees the population's accessibility to the entire urban space should directly impact the quality of the services offered;

k) The construction of urban transport information systems can greatly improve the quality of the services offered, for the identification of bottlenecks that exist in areas that deserve action, in the identification of projects, in the planning and in the formulation of new control indicators;

l) Reformulation of the tariff model used. In the current model, operators are remunerated according to the total cost of the operation. If the cost goes up, the

fares tend to go up, so the model leads to a vicious circle, as the number of passengers transported falls, the fare increases.

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ATTACHMENTS

Some questions that were asked and survey results >

The following question was asked for MDB public transport users.

Code	Variables	Evaluation	
		Good, Great, Regular	**bad, terrible**
C1	Bus Frequency	38,70%	54,30%
C2	Time interval between one bus and another	41,20%	52,20%
C3	Congestion and congestion	32,50%	60,80%
C4	travel on board	42,30%	52,70%
C5	Vehicle capacity	26,80%	64,90%
C6	Trips Accomplished	43,10%	47,30%
C7	Waiting time at bus stops	34,30%	61%
C8	Thefts and robberies on buses	20%	75,30%
C9	Thefts and robberies at bus stops	19,20%	75,60%
C10	Driver drives the buses	28,80%	68,10%
C11	Vehicle Conservation Status	36,90%	58,40%
C12	State of Conservation of the Roads	42,90%	53,20%
C13	Traffic accidents involving buses	31,70%	57,90%
C14	Treatment given to the elderly, disabled and pregnant women	41,80%	54,50%
C15	Comfort on the buses	43,60%	52,70%
C16	Heat inside the buses	12,50%	82,90%
C17	Access to Information	58,20%	37,90%
C18	Listening to Radio, TVs and DVs	62,90%	29,40%
C19	Internal and external cleaning of buses	36,40%	58,70%
C20	Distance from bus stops	68,30%	28,10%
C21	Treatment given to the user in general	56,10%	40,80%
C22	Ticket price	56,60%	39,70%
C23	Relationship CTBEL	36,10%	51,40%
C24	Access to the Information System	24,70%	70,40%
C25	SETRANSBEL relationship	36,40%	49,10%
C26	Situation 0800, ombudsman, complaints	31,40%	51,70%
C27	Line quantity in the neighborhoods	44,90%	50,90%
	GENERAL AVERAGE	**38,83%**	**54,81%**

Table 3 - How would you rate the current situation of the services offered on MDB buses in relation to the past?

Source: Field Research.

Table 5 below shows that, in the managers' view, the quality offered is at an acceptable level, very different from the managers' opinion, since the general average of acceptance was 66.7%. The following question was asked to MDB's public transport managers.

Códe	Variables	Evaluation	
		Good, Great, Regular	bad, terrible
C1	Bus Frequency	85,10%	14,90%
C2	Time interval between one bus and another	78,70%	17,00%
C3	Congestion and congestion	6,40%	91,50%
C4	travel on board	48,90%	48,90%
C5	Vehicle capacity	70,20%	27,70%
C6	Trips Accomplished	83,00%	10,60%
C7	Waiting time at bus stops	68,10%	25,5%
C8	Thefts and robberies on buses	46,8%	53,20%
C9	Thefts and robberies at bus stops	23,40%	61,70%
C10	Driver drives the buses	85,10%	14,90%
C11	Vehicle Conservation Status	93,60%	4,30%
C12	State of Conservation of the Roads	61,70%	36,20%
C13	Traffic accidents involving buses	59,60%	27,70%
C14	Treatment given to the elderly, disabled and pregnant women	85,10%	12,80%
C15	Comfort on the buses	91,50%	8,50%
C16	hot inside the buses	38,30%	55,30%
C17	Access to Information	83,00%	17,00%
C18	Listening to Radio, TVs and DVs	34,00%	48,90%
C19	Internal and external cleaning of buses	83,00%	6,40%
C20	Distance from bus stops	68,10%	12,80%
C21	Treatment given to the user in general	83,00%	17,00%
C22	Ticket price	40,40%	55,30%
C23	Relationship CTBEL	91,50%	4,30%
C24	Access to the Information System	51,10%	38,30%
C25	SETRANSBEL relationship	78,70%	10,60%
C26	Situation 0800, ombudsman, complaints	87,20%	6,40%
C27	Line quantity in the neighborhoods	76,60%	17,00%
GENERAL AVERAGE		**66,74%**	**27,58%**

Table 4 - How would you rate the current situation of the services offered on MDB buses in relation to the past?

Source: Field research.