

# Quality Measures for Libraries and Information Services.

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# Quality Measures for Academic Libraries and Information Services: Two Implementation Initiatives – Mixed-model CAF-BSC-AHP and PAQ-SIBi-USP

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## Abstract

The purpose of this article is to describe briefly two quality evaluation models for academic libraries: the Portuguese investigation proposes an action model to measure the performance of the libraries of the *Universidade do Porto* (UP). This tool is justified by the CAF – Common Assessment Framework (an auto-evaluation tool based on the European Foundation Quality Management Excellence Model), the Balanced Scorecard (BSC) and the Analytic Hierarchy Process (AHP); the PAQ – Quality of Products and Services Evaluation Program of the SIBi/USP, based on the Model SERVQUAL, is an assessment research implemented in the academic libraries of the *Universidade de São Paulo* (USP), in Brazil. The proposal has been presented as being viable and necessary for the management of the libraries of the SIBi/USP.

**Keywords:** Academic libraries, Quality, Performance indicator.

## 1 Introduction

Academic libraries' services have changed very fast in the last twenty years. Nowadays, electronic resources, networks and the World Wide Web represent a large parcel of the library services. Academic librarians must manage staff, information in several supports and technical activities to produce quality services.

It is very clear that librarians must use management tools to run academic libraries' services. Quality and performance assessment of libraries is very important to manage academic libraries and information services, because the evaluation process produces data that can help librarians to make decisions and to improve services.

During the last twenty years, researchers and librarians from all over the world have created performance indicators and methodologies for the traditional services. However, in the beginning of the 21st century, the projects and initiatives of quality assessment involve concepts and data from

communication and information technologies that have been changing libraries. Clearly, assessing quality is a multi-faceted process that focuses on the measurement of inputs, activities, outputs and outcomes [1].

The inputs are the investment sources of the libraries (for example: the money, the staff, the space, the collections and the installed information technologies). The activities are the services/resources of the library that change inputs into outputs, (for example: the technical treatment of the information, the licenses of the available databases). Outputs are the amount of work produced by the library. Its evaluation makes it easier to quantify the accomplished work. For example, outputs are the number of books circulated, the number of reference questions answered, the number of available terminals, the number of accessible data bases, the amount of printed material in the terminals of the library, the number of loans and so on. The "outcomes are the ways in which library users are changed as a result of their contact with the library's resources and programs" [2]. Poll affirms that "outcomes" are "the consequence, the visible or practical result or effect of an event or activity" [3]. Nowadays, this dimension is very relevant for the institutions. Governments and institutions need truly to know the results that they are obtaining with their investments.

Quality services means resources and services that satisfy the user's expectations [4]; so quality evaluation involves models and methodologies that give us useful quantitative and qualitative data.

In this context, the needs of the users and their perceptions, in relation to the services offered by libraries and documentation centers, have been awakening the interest of some professionals who work in the management area of academic community and staff. In fact, in the academic environment, it is considered that the lack of knowledge, in relation to these needs, could compromise teaching and research activities as well as the generation of new knowledge.

The implementation of a quality evaluation model is not an easy task. It is necessary to break certain concepts and inertia and stimulate team work. Cullen affirms that one of the purposes of the performance evaluation is to involve the different elements of the institution in the functional and

process analysis of the organization. So, a benefit of this procedure is the exchange of knowledge among all the participants and among similar organizations [5].

Evaluate products and services, in order to satisfy user's needs, implies complex attitudes, guided by a set of solutions that vary according to the context and to the specificity of each community. Dervin and Nilan [6] propose these solutions:

- Attendance improvement;
- Centralization of needs definition and information usage;
- Implementation and redesign of information systems, making it more flexible and interactive;
- Technology adoption in order to improve information systems;
- Guidelines description of information needs and usage;
- Demand for the system or sources approached;
- Service response to user needs;
- Offered services satisfaction/dissatisfaction;
- Focus on user priorities;
- Mapping the community profile; and,
- Interest, empathy and approach of staff members.

In order to implement solutions that result in ongoing improvements for users, it's necessary to change the systems' paradigm, currently focused on the organization and maintenance of documents, to an effective action of promoting the information usage. This new positioning requires the perfect harmony of teams, in order to offer more personalized services and tailor made to users. Thus, it's essential to invest in the human being as the propeller element of those changes, as they are in charge of leading, analysing, planning, developing and evaluating.

This paper is organized as follows: In the next section we discuss three relevant dimensions that we assumed as relevant to our study – user's satisfaction, staff's satisfaction and its impact on society. In the following section, we briefly describe the recent Portuguese and Brazilian initiatives, respectively:

- Mixed-method Common Assessment Framework, Balanced Scorecard and the Analytic Hierarchy Process (CAF-BSC-AHP); and,

- The PAQ – Quality of Products and Services Evaluation Program of the SIBi/USP

These two models are considerable skills to understand the quality and the performance of services and resources, to improve the management of the academic libraries and information services. Section 4 describes the significant correlations which were obtained from these two projects in

order to improve quality services. Finally, we present the conclusions.

## **2 Customer's satisfaction X Staff's satisfaction: impact on society**

Society is an extremely dynamic living being, which is always changing, independent of the speed and visibility imposed by recent technological advances. In fact, the human being is a mutant that must adapt itself all the time to new scenarios. It's not needed to be a history specialist to realize the deep and ongoing transformations that are happening in our society. The current society is featured as highly competitive, dynamic, agile, unstable, challenging and self-centered. In a civilization with such profile, a new source of motivation is required to be able to fulfill others' needs. Some skills and feelings must be cultivated in this customer's satisfaction search that is straight connected to staff's satisfaction. Indeed, a team highly satisfied with its work, conscious of its relevance and aware of its impact on society will certainly produce and offer high standard services. The first condition to achieve this organizational conscience is to feel good with yourself; an unhappy person can't make other persons happy. Then comes the concerns for the others; to practice gentle actions is a virtue to be cultivated. When someone reaches this level of conscience to itself, and reaches the dimension of the other, he is completely able to perform well his role, this is, to serve the users. An employee, that interiorized some basic premises, such as communicate in a positive way, taking hopeful and optimistic messages, in order to offer a high quality attendance, reached for sure the dimension of the other. To practice the "Yes" attitude, it seems that avoiding the negative behavior that makes problem-solving so difficult is the right positioning. Listening attentively to the other, putting ourselves on its place and understanding the importance of the customer's problems creates empathy.

Teaching that the customer is above everything is a correct attitude nowadays. Actually, to ensure that its needs will be fulfilled is an emblematic measure and to release from itself, to the point of sacrifice itself to achieve customer's satisfaction, in other words, being altruist, is a remarkable quality of services staff. Therefore, some adjectives and positioning must be cultivated in this continuous search for quality:

**Professionalism:** To be as prepared as possible to work or in other words, to have full domain of its role, matters. In case of a lack of knowledge, it's required that the librarian asks others for help, in order to offer a satisfactory answer to the customer.

**Guide people:** To take initiatives to give a useful and relevant answer and to show engagement with the other's problems, through visual contact, smile and by calling the customer by its own name, creates an atmosphere of courtesy and goodwill. Make sure that the customer feels well accommodated; don't make him feel like he is interrupting

**Trustworthiness:** Dedicate all the time needed to develop your work effectively and correctly. Show trustworthiness, do your duties the best way you can.

**Availability:** Solve customers' problems by suggesting relevant alternatives, be flexible with established rules when possible to solve or avoid problems. Be helpful, pay attention and make yourself available.

**Personalized treatment:** Try to learn the customers' preferences and expectations. Always consider the customers' point of view while offering information. Never underestimate the customer only because you are the information specialist.

**Respect to the customer:** Be gracious with everyone, independently of their appearance and other personal features. Avoid complaining to customers, since they are not responsible for your problems, but the opposite. Respect their time, be quick replying and respect their vital space.

The information professional that wishes to offer a high quality service must gather maximum knowledge and search: experience for the good performance on its duties, acquisition of new knowledge and abilities to operate information systems; the professional's improvement must be constant and the communication must be clear and objective.

The objective of any quality oriented system is to fulfill the existing blank between what the customer wants and what is effectively delivered. In fact, the people's quality is a crucial matter if we want to reach the desired quality level in order to satisfy the customer's needs. It's hard to imagine that a company can often reach the quality requirements of external world, without its goods and services being delivered by high-quality people. One of the problems in the quality management systems seems to be the lack of importance dedicated to the individual quality, those who are crucial for quality goods or services. The individual efforts and performances set the customer's perception over the quality of the service, what makes it practically a synonym of the individual quality. Thus, the best place to start the development of the quality within an organization is the performance and attitude of individuals directed to the quality.

The staff quality triggers a chain of successive refinements, in which these individuals are. As a matter of fact, organizations with high quality levels create superior quality products and services. The quality in all these areas leads to a culture, which affects the organization as a whole. A quality organization has satisfied customers and environments. Satisfied customers are translated into better financial results, and improvement of the corporate brand. A pride feeling in relation to the company's conquests creates a sense of well-fare and encourages the development of a creative environment, teamwork and a high level of staff quality. This way, a positive development cycle continues and grows stronger. In fact, The staff's quality can determine the future of an institution.

The most important management duty is to motivate the team – the most precious resource within the company – to give its best. Moreover, the management is responsible for inspiring each employee on the delivery of high standard personal quality. The employees must be convinced that it is not only the organization that will benefit if a good work is done. The benefits for the individuals will be even higher.

Brito and Vergueiro [7] explain that the fundamental changes experienced on the information area have always been related to people and not to technology. They still say: "In the future, the best organizations will be the ones that trigger the commitment and the ability of people to learn in very organization layers."(p.250). The authors also refer that the organization focus on people not on processes since people are the performers of every action; so, without them, processes wouldn't exist. Although everyone needs an extra charge of incentive to win challenges and courage to face the new, every new fact brings insecurity. Nowadays, professionals must learn new things everyday, what implies the disposition of facing challenges and exposing themselves without fears or limits.

Being information the basic element of our times, the professional that has the essence of the work on its element, must be motivated to learn forever, especially about virtual environment matters. Moreover, besides this availability to face the new, the information professional must have vocation and goodwill to intermediate the information gathering processes, sometimes acting as teacher and instructor of the subject.

There is a growing concern about the impact of libraries and information services outcomes on society. Melo [8] says that nowadays it is very important to the academic schools and their research centers to create science, in other words to produce knowledge that becomes innovation. When it is capable to generate new technologies, innovation leads to the appearance of more employment and to the development of a country. The described mechanism means a positive impact on the society provided by teaching and investigation institutions. In fact, the university libraries, as a parcel of the learning and investigation process, are an essential factor into this dynamic (p.89).

### 3 Recent Portuguese and Brazilian initiatives

#### 3.1 The Mixed-method CAF-BSC-AHP

The mixed-method CAF-BSC-AHP is a model to measure the contribution of the academic library to the institution where it belongs and to the society. The final output of this Portuguese model is a *global performance measure (D)*. To compute this global performance measure, the institution has to choose the set of criteria that should be taken into account in the performance evaluation and their relative weights. In addition, the institution needs to choose the set of performance indicators that should be used to measure each criterion and their relative importance in that measure [9].

The proposed set of criteria is based on the Common Assessment Framework (CAF) [10], Figure 1, and the Balanced Scorecard (BSC) [11,12].

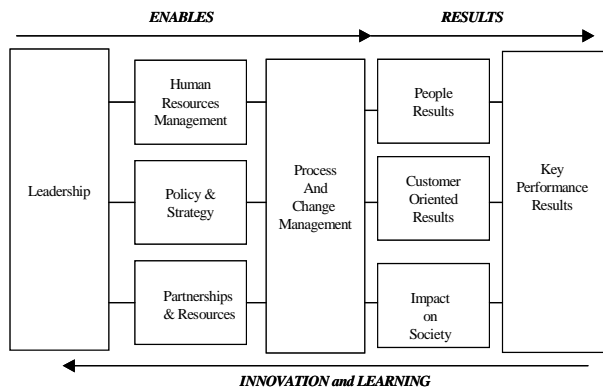


Figure 1 - The CAF model structure based in EFQM Excellence Model diagram [10]

The set of criteria includes enablers and results (as define in CAF). In addition, it assumes the four Balanced Scorecard dimensions: user perspective, internal process perspective, finance perspective and learning/growth perspective, Figure 2.

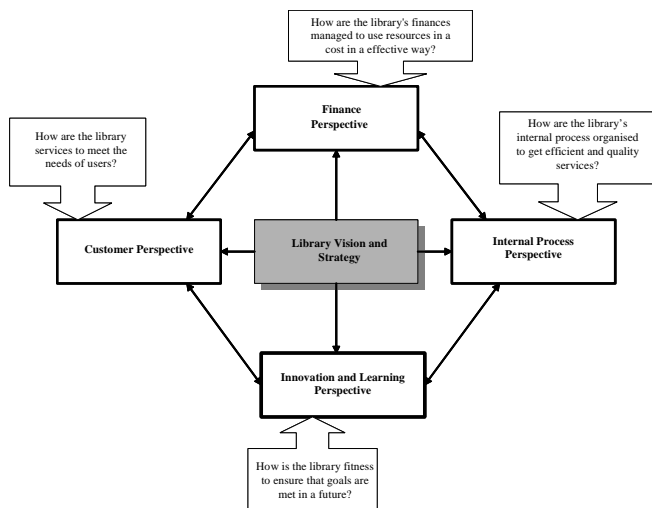


Figure 2 - Balanced Scorecard structure adapted to a library [9]

The recommended performance indicators are based on the ISO 11620:1998 [13], Adm1:2003 [14] and ISO 2789:2003 [15]. To determine the weights of each criterion or indicator, this initiative resorts to the Analytic Hierarchy Process (AHP) [16, 17], Figure 3.

The AHP helps us to determine the relative importance of each performance indicator (in each criterion measurement) and the relative importance of each criterion (in the global performance evaluation). Figure 4 represents the diagram of the Portuguese Initiative Mixed-method CAF-BSC-AHP.

In order to show how this model can be implemented, we conducted an inquiry to ten academic librarians (nine Portuguese and one Brazilian), from different universities (*Universidade Católica Portuguesa - Braga, Universidade do*

*Porto, Universidade Lusíada de Famalicão, Instituto Politécnico do Porto, Universidade Nova de Lisboa, Universidade do Algarve, Universidade da Madeira and Universidade dos Açores* from Portugal and *Universidade de São Paulo* from Brazil). These ten librarians performed pairwise comparisons between 23 performance indicators of each criterion, and pair wise comparisons between the 7 criteria (tables 1 and 2).

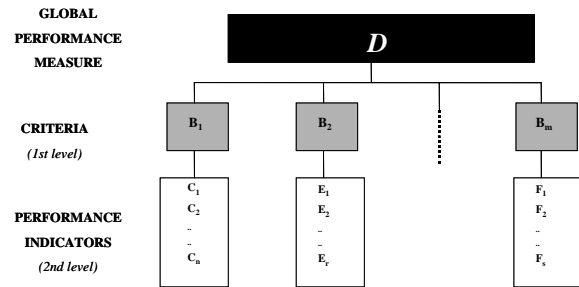


Figure 3 - Hierarchy Analyse of Global Performance Measure (D)

In other words, each librarian had to indicate, the relative importance of each criteria and each performance indicator, in his/her own pairwise comparison matrices. The opinions of the ten librarians were later on aggregated (for each pair wise comparison we computed the average of the ten librarian values). Using the aggregated pair wise comparison matrices, we finally computed the weights that reflect the group's opinion, using the AHP [9].

Our results indicate that there are four criteria which are considered particularly important in performance evaluation [9]:

- Customer perspective (weight 0.218) associated to the following indicators: library visits *per capita*, loans *per capita*, user's satisfaction and staff's satisfaction.
- Impact on society (weight 0.914) defined by the indicators: rate of the students' success, rate of professors and researchers' publications, rate of the library's staff participation in internal discussion groups, international professional meetings with senior librarians and the degree of compliance with environmental principles (for ex. The energy saving, the reduction of waste and packaging, the use of recycled materials).
- Leadership (weight 0.182) is formed by the indicators: the development and formulation of a vision and a mission for the library, the development of an organizational structure in accordance with its tasks and the promotion and training to improve the activities.
- Financial perspective (weight 0.161) based on the following indicators: cost per user (professor / student) and cost per library visit.

Process and change management (weight 0.1), strategy and planning (weight 0.076), and external partnerships and

resources (weight 0.069) are considered relatively less important. Nevertheless, without external partnerships we could not implement this model and we did it.

Enablers Criterion (Bm)	Performance Indicator
Leadership	The development and formulation of a vision and a mission (what are our goals) of the library
	The development of an organizational structure in accordance with the tasks of library
	The promotion and training to improve the activities
Strategy and planning	The systematic gathering information about the needs and expectations of the users
	The reorganization and improvement strategies and methods of library activities
	The development and applying methods to measure the library performance and benchmarking
External partnerships and resources	Number of monographs, e-books journal and e-journals
	Opening hours for a week
	The identification of strategic partners and the nature of the relationships
Process and change management	Median time of document acquisition
	Median time of document retrieval from Open Access Area
	To assess market penetration of electronic service

Table 1: Enablers criteria and associated performance indicators chose in the implementation of the Portuguese Initiative Mixed-method CAF-BSC-AHP

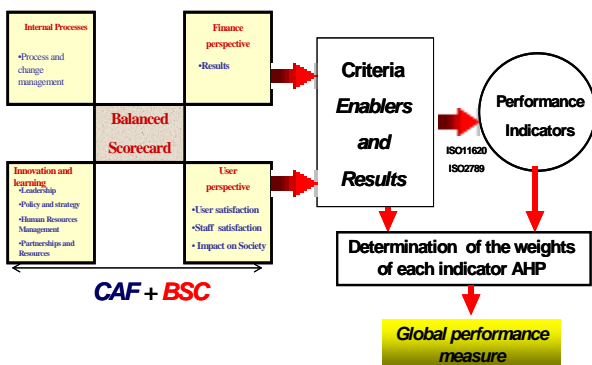


Figure 4: Diagram of Portuguese Initiative Mixed-method CAF-BSC-AHP

Results Criterion ( Bm)	Performance Indicator
Customer	Library visits <i>per capita</i>
	Loans <i>per capita</i>
	Overall user satisfaction
	Overall staff satisfaction
	Levels of absenteeism or sickness of staff
Impact on society	Rate of the students success
	Rate of professors and researchers publication
	Rate of the staff library participation in internal discussion groups, international professional meetings with senior librarians., etc.
	The degree of compliance with environmental principles (for ex. The energy saving, the reduction of waste and packaging, the use of recycled material)
	Cost per user (professor / student)
Finance	Cost per library visit

Table 2: Results criteria and associated performance indicators chose in the implementation of the Portuguese Initiative Mixed-method CAF-BSC-AHP

### 3.2 The PAQ – Quality of Products and Services Evaluation Program of the SIBi/USP

The PAQ *Programa de Avaliação da Qualidade dos Produtos e Serviços do SIBi/USP* (SIBi/USP - Quality Evaluation Program) – was developed from the realization of libraries staffs that evaluate products and services. To acknowledge users’ needs is a process that libraries must incorporate into their daily duties.

The PAQ started in 2000, from a study performed in 4 libraries belonging to the system, selected according to previous stated issues. The experimental phase used self-developed instruments and identified strengths and weaknesses and concluded by the urgency on the

implementation of an effective evaluation system from user's point of view.

In the first phase, started in 2002, the PAQ tried to formulate a set of instruments able to evaluate the quality of services and products offered by SIBi/ISP libraries, in order to promote the System action plan, considering the effective user's expectations. These were the main goals defined to the program:

- Develop its own research instrument and its measurement scale;
- Implement a pilot evaluation and present the results for future evaluation;
- Incorporate the evaluation as a managerial process at SIBi/USP [18].

The research sample was composed of internal and external library's users, with the identification of respective categories. Two instruments were used to data collection: web deployed questionnaires and interviews at the library.

The electronic questionnaires were elaborated according to the model's dimension SERVQUAL [18], totalizing five different instruments that evaluate the dimensions: responsiveness, empathy, assurance, reliability and tangibility.

After analyzing the research results, the data was converted into actions implemented in favor of the users, once they supported the SIBi/USP strategic planning, after 2003.

At the end of the first stage, it could be verified that the PAQ was confirmed as being an efficient and adequate system to capture user's opinion on the services offered by system's libraries.

The program success culminated with the effective evaluation process of libraries, what brought the proposal of a new phase of the program.

#### ***PAQ: Second phase***

Once defined as Evaluation Program, in other words, continuous action on the libraries, it started in 2004 the second phase of PAQ, with the objective of identifying the users' needs to information and resources at SIBi website – SIBiNet and contributing to the improvement of the relationship between users and this important resource of information retrieving.

Garcez e Rados [19] point that the need is a factor in which is noticed some privation, in other words, the need means the absence of something to the individual.

According to Maslow [20], the human basic needs are originated by physiologic and psychic factors. More needs come as basic and urgent needs are satisfied, electing others more elevated to follow.

The satisfaction of information needs is consolidated in the organizational experiences, in the investments in high technology, in groups of specialists, in modular production and in the production and transmission of information. In fact, information is crucial for the diminishing of uncertainties and for the decision making in a society of fast changes. Information also has quality factors, such as: integrity, update, precision and response time. Fortunately, the information not only relies on the processing and sophistication of hardware and software, but also requires intelligence or ability to add value to it. Information is, unquestionably, the basic input of current age, what brings the conclusion that the concerns in detect the truly of user's need for information.

For this stage of the program, it was selected the Technique of Critical Incident, as tool for data gathering. According to Caminada Netto et al. [21]: "A valid critical incident, that can define the customer needs, must fulfill two issues: specificity and ability to describe services provider in behavioral matters, or the product, service with peculiar adjectives."

The gathering enables us to detect that the SIBi/USP network website doesn't fulfill the information needs of the user's, and that its expectations points to the urgency of website system reformulation.

Beginning from the principle that the user must be the first person to audit system's design, once a system must be developed from the customer point of view, the rebuilding project of SIBiNet will be defined based on the user's opinion, since that this is what motivates the existence of the system.

## **4. Significant Correlations of the Projects**

In this study, significant correlations were obtained between these two projects in order to improve the customer's satisfaction, the staff's satisfaction and the performance of the library services.

It will become clear that dialogue among staff, the users of the academic library and external partners is extremely important in the assessment process. The choice of the indicators is the outcome of a participative performance evaluation process. These quality evaluation processes are, in other words, important tools to find new ways to motivate employers to stay with the organization that encourages growth.

In her Mastery [22], one of these paper writers observed that motivational staff factors are determining in the offering of services in tune with user's needs. The study that searched to know the motivational factors in a group of librarians in the development of cooperative tasks, of hygiene and motivational Herzberg's factors, concluded that the motivational factor recognition is directly linked with the user's satisfaction, and that the ability to find the desired

information in a quick and efficient way acts as a big incentive to the work of the professionals monitored. In fact, the recognition from the users is what guides the value of work performed and is shown as a strong agent for cooperation incentive. Other motivational agent, detected on the study and straight connected to the quality, is the feeling of plenty ness, detected on the speech of some librarians in terms of quality gains on the development of activities and also oriented to the user's attendance. In terms of social marketing, the quality of the service provided in terms of user's satisfaction is for the librarians of the group a reason for achievement. To know that your work is a facilitator in the reference search is shown as a motivation factor on the interviewed speech.

The several quality programs, so argued in the last years and implemented in several libraries, set user's satisfaction as the goal to be followed by the information professionals. So, the conscience of attending to worldwide accepted quality indicators creates motivation and wellness among information professionals.

It will only be achieved from the investment on human beings, while propeller element of most important changes and responsible for service providing to users. Still, in terms of performance indicators of information services, the opinion of users must orient the development of products directed to them, once the system is centered on the customer and it is specially developed to satisfy their needs and expectations.

#### 4 Conclusion

Libraries and documentation and information services must execute evaluation programs as management tools oriented to identify services requiring improvements, as new ones to be implemented. The credibility and respect that the information service has among the community can only be certified through the systems' auditor: the user.

An information system especially developed to the user, is the one that supplies quick and safe responses. So to the user what really matters is to obtain the information and to access documents immediately. The user wants to meet his objective with minimum efforts and maximum efficacy. So, identify the blanks of the system and capture the perception of characteristics, aspects, dimensions, objects, events, cause and effect to the user is a process to be definitely incorporated in the activities of the information services.

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#### References

- [1] Bertot, J. C. "Libraries and networked information services: issues and considerations in measurement", *Performance Measurement and Metrics*, **5** (1), pp. 11-19, (2004).
- [2] Herson, P. "Outcomes are key but not the whole story", *Journal of Academic Librarianship*, **28** (1/2), pp. 54-55 (2002).
- [3] Poll, R. "Impact measures for libraries and information services". Presentation. *8th International Bielefeld Conference - Academic Library and Information Services New Paradigms for the Digital Age*, Bielefeld, Germany, 7-9 February 2006. Available at: <[http://conference.ub.unibielefeld.de/2006/docs/presentations/poll\\_biconf06\\_final.ppt](http://conference.ub.unibielefeld.de/2006/docs/presentations/poll_biconf06_final.ppt)> (accessed March 02, 2006).
- [4] Parasuraman, A.; Zeithaml, V.A. and Berry, L.L. "A conceptual model of service quality and its implications for future research", *Journal of Marketing*, **9**, pp. 41-50 (1985).
- [5] Cullen, R. "Benchmarking: overview and context", In: *World Library and Information Congress: 69th IFLA General Conference and Council*, Berlin, Germany, 1- 9 August 2003. Available at: <<http://www.ifla.org/IV/ifla69/papers/015e-Cullen.pdf>> (accessed September 09, 2003).
- [6] Dervin, B.; Nilan, M. "Information needs and uses", *Annual Review of Information Science and Technology* (ARIST), New York, **21**, pp. 3-33 (1986).
- [7] Brito, G. F.; Vergueiro, W. "As Learning Organization e os profissionais de informação", *Perspectivas em Ciência da Informação*, **6** (20), pp. 249-260 (2001).
- [8] Melo L. B. *Avaliação do desempenho das bibliotecas da Universidade do Porto: modelo de actuação*. 151 p. Information Science Master's These – Universidade de Évora, Évora, 2005.
- [9] Melo L. B.; Pires C. "Performance evaluation of academic libraries", *The Library Quarterly* (submitted April 2006).



- [10] European Institute of Public Administration. *CAF - Common Assessment Framework*. Maastricht: EIPA, 2002. Available at:  
<[http://www.eipa.nl/CAF/pt/CAF2002pt/CAF\\_pt.htm](http://www.eipa.nl/CAF/pt/CAF2002pt/CAF_pt.htm)>  
(accessed February 28, 2004).
- [11] Kaplan R. S. and Norton, D. P. "The balanced scorecard - measures that drive performance", *Harvard Business Review*, **January/February**, pp. 71-79, (1992).
- [12] Kaplan R. S. and Norton, D. P. *Kaplan e Norton na prática*. Rio de Janeiro: Elsevier, 2004.
- [13] International Organization for Standardization. *ISO 11620 information and documentation - library performance indicators*. Genève: ISO, 1998.
- [14] International Organization for Standardization. *ISO 11620 information and documentation - library performance indicators: amendment 1: additional performance des bibliothèques*. Genève: ISO, 2003.
- [15] International Organization for Standardization. *ISO 2789 information and documentation - international library statistics*. Genève: ISO, 2003.
- [16] Saaty, Thomas L. *Fundamentals of Decision Making and Priority Theory with Analytic Hierarchy Process*. Pittsburgh: RWS, 2000.
- [17] Anderson, David R.; Sweeney, Dennis J. and Williams, Thomas A. *Quantitative methods for business*. Cincinnati, Ohio: South-Western College, 1998.
- [18] Sampaio, M. I. C. et al. "PAQ - Programa de avaliação da qualidade de produtos e serviços de informação: uma experiência no SIBi/USP". *Ciência da Informação*, Brasília, **33** (1) (2004). Available at:  
<<http://www.scielo.br/scielo>>. (accessed April 24, 2006).
- [19] Garcez, E. M. S.; Rados, G. J. V. "Necessidades e expectativas dos usuários na educação à distância: estudo preliminar junto ao Programa de Pós-Graduação em engenharia de Produção da Universidade Federal de Santa Catarina." *Ciência da Informação*, Brasília, **23** (1) pp.13-26 (2002).
- [20] Maslow, A. A. *Introdução à psicologia do ser*, Translation Álvaro Cabral. Rio de Janeiro: Eldorado 1968.
- [21] Caminada Netto, A.; Siqueira, M.; Rotondaro, R.; Formica, V. B. "Qualidade em serviços de informação: avaliação da satisfação dos clientes em educação continuada." In: *Simpósio de Engenharia de Produção, 10., Bauru, 2003. Anais...* Available at:  
<<http://www.simpep.feb.unesp.br/anais10/gestaoqualidp/rodutividade/arq19.PDF>>. (accessed October 08, 2005).
- [22] Sampaio, M. I. C. *Motivação no trabalho cooperativo: o caso da Rede Brasileira de Bibliotecas da Área de Psicologia – ReBAP*. 127 p. Information Science