

Quality Management in Higher Education.Using SERVPERF to assess services quality

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STRUCTURED ABSTRACT

Purpose: The implementation of comprehensive quality management systems in higher education institutions (HEIs) implies the need to consider not only its main mission processes but also support processes, including those providing internal services to students and teaching staff. This paper intends to illustrate how the SERVPERF instrument can contribute to HEIs quality management.

Design/methodology/approach: An empirical case was carried out to illustrate the potential of the SERVPERF instrument for the quality management of HEIs. A specific-designed questionnaire based on the SERVPERF instrument was used to collect data on students and teaching staff perceptions of post-service performance of three different support services of a selected HEI. An interview was later conducted to the institution's director to gain a richer understanding of the results obtained and pertinence of the study.

Findings: –Overall, students and teaching staff have a positive view of the services provided. Still, improvement actions were proposed to address the critical aspects identified. The SERVPERF instrument was an adequate tool to collect data on the services' performance and address the need for support processes quality management.

Practical implications: The research highlights the potentialities of the SERVPERF instrument in supporting managerial decisions addressing the quality of HEIs support processes.

Originality/value - The design and implementation of quality management systems in HEI has been mainly focused in the teaching and learning process, dismissing support processes. The paper sheds

some light on the potentiality of service quality instruments in improving these processes. It also contributes to the validation of the SERVPERF instrument in the higher education context.

Keywords: Quality Management Systems; Service Quality; SERVPERF; Higher Education Institutions.

Paper type: Research paper

INTRODUCTION

Different reforms have affected the public sector over the last decades. Of special relevance for higher education are the Bologna process (1999) and the Lisbon agenda (2000), which in line with the inspiration brought by new public management led national governments in Europe to explore new modes of governing higher education. These new modes include an increase in institutions autonomy, which has been counterbalanced by accountability demands, namely regarding their quality and the quality of their main processes, particularly teaching and learning. As such, external and internal quality assurance mechanisms have been developed in Europe since the mid-80s and are now a reality in all European countries (Amaral and Rosa, 2010; Rosa et al., 2019).

Regarding internal quality assurance, universities all over Europe have been developing and implementing their own systems, under the assumption that the responsibility for quality assurance lies ultimately with them (Cardoso et al., 2017). The Bologna Declaration has had a significant influence regarding internal QM systems design and implementation in European HEI in the last two decades. Following the declaration, many national evaluation and accreditation agencies prepared and adopted guidelines for institutions to set up their systems, especially in the cases where institutional audits of internal QM systems are in place. Furthermore, these guidelines have been inspired in most of the countries by another relevant European development, which was the draft of the European Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). In their Part 1, the ESG refer the need for HEIs to have QM systems in place, while providing guidelines for their implementation in line with the preconized standards for “quality assurance related to learning and teaching in higher education, including the learning environment and relevant links to research and innovation” (ESG, 2015: 7).

Similarly to what has been occurring in most European countries, in Portugal the European references on internal QM systems, namely the ESG Part 1, were translated into the QA legal framework and specific references defined by the national QA agency (A3ES). Institutions are expected to develop a quality policy closer to quality enhancement and the adequate procedures for its pursuit, a quality

culture and a strategy for continuous improvement (Rosa and Sarrico, 2012), which should materialize in an internal QM system, in line with the ESG and the applicable legal requirements (Santos, 2011).

Both the ESG (2015) and the A3ES Reference Framework for Internal Quality Assurance Systems in Portuguese Higher Education (A3ES, 2016) assume HEIs as organizations built around the three nuclear processes of their institutional mission: teaching and learning, research, and relation with society. Guidelines are then established for the adequate management of the quality of these processes, with a special relevance being given to the teaching and learning one, especially in the ESG (Manatos et al., 2017). Besides the nuclear processes, the two frameworks also address support ones, mainly in relation to the processes which support teaching and learning. In particular, ESG 1.6 and Reference 10 of the A3ES Framework state, respectively:

ESG1.6 - Learning resources and student support: Institutions should have appropriate funding for learning and teaching activities and ensure that adequate and readily accessible learning resources and student support are provided. (ESG, 2015)

Reference 10 – Material resources and services: The institution adopts mechanisms which enable it to plan, manage and enhance services and material resources with a view to appropriate development of student learning and other scientific and pedagogic activities. (A3ES, 2016)

The guidelines provided in both standards call for the need of institutions not only providing a series of resources and services to support teaching and learning (e.g. libraries, study facilities, IT infrastructure, human support), but also having in place mechanisms for the collection and analysis of information on their maintenance, management and suitability. Furthermore, institutions should establish procedures to regulate and guarantee the corresponding decision-making around services and resources (A3ES, 2016). And their internal quality management systems should ensure that all resources are fit for purpose, accessible, and that students are informed about the services available to them (ESG, 2015).

Although the ESG and the A3ES Framework establish guidelines to help universities develop their internal quality management systems, each university should design and implement them according to its institutional mission and culture (ESG, 2015; Rosa and Amaral, 2014; Santos, 2011). Institutions are then free to decide on the best mechanisms and instruments to use to manage the quality of their processes, both nuclear and support ones.

Support processes include several services provided to students, teaching and non-teaching staff with the main goal of assisting the teaching and learning, research, and relation with the society processes (Manatos et al., 2017). Although these are not key organizational processes, they still need to be

considered within the HEIs QM system, since they provide and maintain resources for all other processes (this is evidenced by their consideration under the ESG and A3ES Framework). Furthermore, the importance of considering administrative aspects in the assessment of quality in HEIs, as a complement of the core academic issues, has lately been emphasized (Mahmoud and Khalifa, 2015). The question is then how to adequately manage the quality of support processes and what methodologies or tools can a HEI use to continuously monitor and improve their quality.

The fact that these support processes are mainly related with the provision of services to HEIs internal stakeholders calls for the possibility of using instruments specifically designed to measure services quality, such as SERVQUAL, SERVPERF or HEdPERF. The literature shows that these instruments have already been used in the educational context, namely in HEIs, helping to identify service areas that need improvement (Kawshalya, 2016; Galeeva, 2016). In particular, and as presented in the next section of this paper, the SERVPERF instrument has been mainly used to assess the quality of educational services based on students' perceptions.

However, and at least to the best of our knowledge, the use of these instruments has never been equated in the scope of the implementation of internal QM systems within HEIs, which is the purpose underlying the present study. In fact, our assumption is that the use of such instruments can indeed contribute to gather information on support services quality and as such assist managerial decisions addressing the quality of HEIs support processes. Under this context, this paper intends to illustrate how the SERVPERF instrument can contribute to HEIs quality management, by providing relevant information on users' perceptions of the quality of support services. This is of utmost interest not only for HEIs government bodies, namely those in charge of their quality management systems, but also for research on this area. So far, the literature on the design and implementation of quality management systems in HEI has been mainly focused on the teaching and learning process, dismissing support processes. This paper contributes to enlighten the need for research on quality management in higher education to also consider these processes, including the potentiality of using service quality instruments for their adequate improvement.

The paper proceeds as follows. In the next section the SERVQUAL, the SERVPERF and the HEdPERF instruments are briefly discussed, including their benefits and limitations, and their use in higher education analyzed. Then an empirical case is presented to illustrate the SERVPERF instrument relevance to measure the quality of three different services provided by an HEI (library; academic services; and reprography) according to students and teaching staff perceptions of their performance. The results of this case are then discussed to test the potential of the SERVPERF as an

instrument to manage and improve the quality of HEIs support processes. The paper concludes with a summary of the most relevant lessons learned and with some final remarks.

SERVPERF IN THE HIGHER EDUCATION CONTEXT

Research on service quality has started with the so-called Nordic school. Within this school, Gronroos's (1984) distinction between technical and functional service quality dimensions – representing the “what” and “how” of service delivery – has attracted substantial attention.

Among the models typically used to evaluate services quality, the mostly widely used in Higher Education are the SERVQUAL, the SERVPERF and the HEdPERF instruments (Kawshalya, 2016). The first two are claimed to be generic and have been applied to different services, whereas the latter was specifically developed to the HEIs context.

The SERVQUAL instrument was proposed by Parasuraman, Berry and Zeithaml in the eighties (Parasuraman, Zeithaml and Berry, 1988) and is based on the assumption that consumers use their expectations to assess service quality by comparing them with the perceptions of the service received. If expectations are met (or exceeded), service quality is regarded as positive and that ultimately leads to satisfaction. Therefore, the disconfirmation paradigm provides the main foundation for SERVQUAL. According to this model, service quality comprises 22 items, grouped in five key dimensions:

- Tangibles: physical facilities, equipment, and appearance of personnel.
- Reliability: ability to perform the promised service dependability and accurately.
- Responsiveness: willingness to help and provide prompt service.
- Assurance: knowledge and courtesy of employees and their ability to convey trust and confidence.
- Empathy: caring, individualized attention that a firm provides to its customers.

Due to some of the criticism (e.g. Cronin and Taylor, 1992; Teas, 1993; Buttle, 1996) raised about the disconfirmation model and the SERVQUAL instrument properties of dimensionality, applicability and validity, Cronin and Taylor (1992) argued that service quality is better understood as a consequence of performance rather than as comparison between expectations and perceptions. Moreover, according to the authors, perceived service quality can predict customer satisfaction, and satisfaction plays a stronger role in future purchase intentions than service quality. Thus, the SERVPERF model is based on the perception paradigm. It uses the same 22 items and 5 dimensions of the SERVQUAL questionnaire for measuring the delivery of the service provided.

The HEdPERF model, proposed by Firdhaus Abdullah in 2005, is based on the previous, but was specifically developed to the Higher Education context, from a student's perspective. In the modified version of the scale, Abdullah(2006) suggests five evaluation criteria (dimensions): non-academic aspects, academic aspects, reputation, access and program issues.

As stressed by Galeeva (2016), using these kind of instruments to measure service quality in HEIs is quite appealing since they potentially help to identify service areas that need improvement, without requiring any prerequisites for implementation.

In line with the authors who suggest that performance-based measures explain more of the variance in an overall measure of service quality, are more reliable and allow for better discriminant validity (e.g. Cronin and Taylor, 1992), the SERVPERF instrument is used in the current paper. Despite the appeal of HEdPERF, this model was discarded because it is more complex (it implies collecting data on 41 items –13 items adapted from SERVPERF, and 28 items generated from literature review) and lacks wider acceptance, affecting its reliability and generalization (Law, 2013; Danjuma *et al.*, 2018). Furthermore, it involves dimensions that are not totally suitable to support services (e.g. program issues), which are the focus of this research.

In order to have a better understanding of the use of the SERVPERF instrument in the higher education context, a systematic analysis of the literature using it in the higher education context was conducted. Thirty papers were identified using the EBSCO Discovery Service, having ["SERVPERF" AND ("higher education" OR "universities")] in the title, abstract or key words. Only papers published in English in peer-review journals were considered. Conference Proceedings, Working Papers and Dissertations were excluded from the sample. The results were cross-checked by searching the Emerald and Scopus databases. By screening the abstracts, three papers were excluded: one because it was not published in English and two because HE students were used in the samples, but measurement of service quality was not applied to university activities and services. Next, the abstracts and complementary information for the final 27 papers (see Table A in appendix) were once again read in order to collect information on the nature of the research (conceptual vs. empirical), instruments used (SERVPERF only or in combination with other questionnaires) and countries, institutions and services used in the empirical studies. When such information was not delivered in the abstract or was not totally clear the full text was used (in particular, the research design/methods section).

As depicted in Figure 1, selected papers cover the 2005-2019 timespan, with the number of papers published yearly varying from 1 to 4. Even if the absolute number of studies using the SERVPERF

instrument remains relatively small, from 2015 onwards the number of publications on the matter has clearly increased.

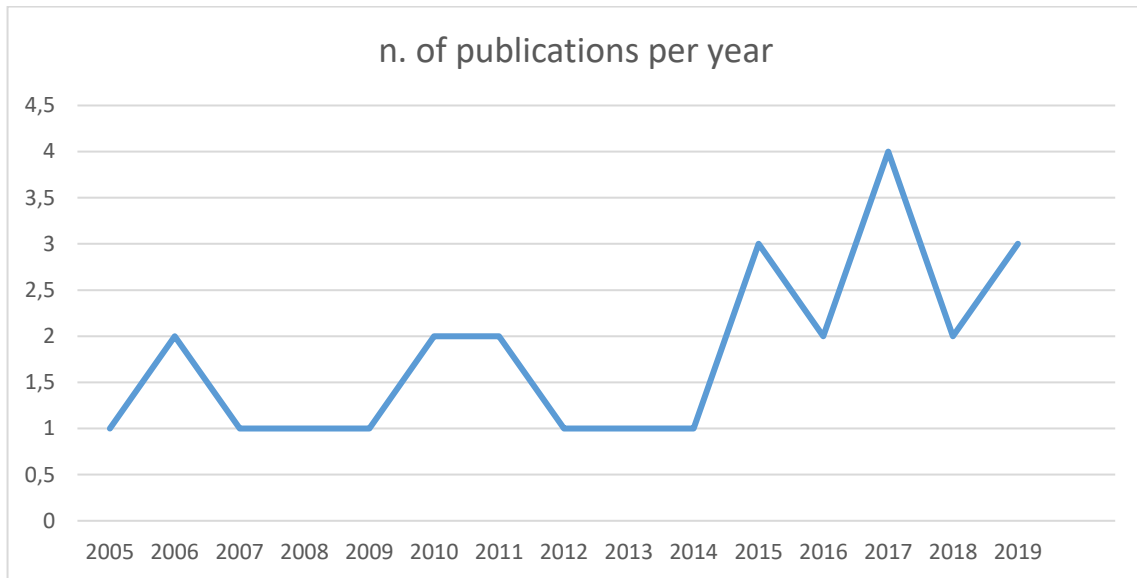


Figure 1. SERVPERF studies in HE over time

Except for two literature reviews, the remaining papers are empirical. The geographical coverage is quite broad (see Table 1), with an emphasis on Asian countries.

Table 1. SERVPERF studies in HE: countries

Country	N. of studies
Bangladesh	1
China	1
Croatia	1
India	2
Iran	1
Iraq	1
Malaysia	5
Nigeria	1
Pakistan	2
Portugal	1
Romania	1
Russia	1
South Africa	2
Syria	1
Taiwan	1
Turkey	2
Zambia	1

Table 2 shows the journals where the identified studies have been published. Research is scattered among 21 journals, although the “Quality Assurance in Education” journal emerges as a main source of SERVPERF studies in higher education.

Table 2. SERVPERF studies in HE - Journals

Journal	Education Journal	Nº of papers
Quality Assurance in Education	Yes	5
Procedia - Social and Behavioral Sciences	No	3
Annals of Library & Information Studies	No	1
Asian Journal of University Education	Yes	1
Congent – Business and Management	No	1
Dirasat, Educational Sciences	Yes	1
Education and Training	Yes	1
Expert Journal of Business and Management	No	1
Global Management Journal for Academic and Corporate Studies	No	1
Indian Journal of Pharmaceutical Education & Research	Yes	1
Interdisciplinary Management Research	No	1
International Journal of Research & Method in Education	Yes	1
International Journal of Social Sciences & Educational Studies	Yes	1
Journal of Education and Training Studies	Yes	1
Journal of Management and Business Administration	No	1
Library Management	No	1
Malaysian Journal of Library & Information Science	No	1
Marketing Intelligence & Planning	No	1
Quality Management Journal	No	1
TQM Journal	No	1
Turkish Online Journal of Distance Education	Yes	1

As shown in Table 3, studies have been covering both public and private institutions. A considerable number of papers (9) have focused on a single case study. Interestingly, 11 out of the 27 papers have simultaneously applied more than one service quality instrument (SERVPERF and SERVQUAL – 5 papers; SERVPERF and HEdPERF – 5 papers; SERVPERF, SERVQUAL and HEdPERF - 1). For the most cases, the instruments have been applied at the institutional level with the main purpose of assessing service quality of educational services based on students’ perceptions. Three papers have used the SERVPERF scale to measure the quality of the service provided by libraries, but only one (Demir, 2017) has considered other kinds of support services, namely student affairs, accounting, academic departments, dean of students, and cafeteria. Moreover, all the papers have administered questionnaires to students, without considering other stakeholders.

Table 3. Summary of the empirical papers using the SERVPERF instrument

Paper	Context	Instrument	Methods used	Participants
Abdullah, F. (2005)	Public and Private HEIs	HEdPERF + SERVPERF	questionnaire	Students
Abdullah, F. (2006a)	Public and Private HEIs	HEdPERF + SERVPERF	questionnaire	Students
Abdullah, F. (2006b)	Public and Private HEIs	HEdPERF + SERVPERF	questionnaire	Students
Azar (2012)	1 private HEI	SERVQUAL + SERVPERF	questionnaires + focus group	Students
Bayraktaroglu, G. and Atrek, B. (2010)	1 HEI	SERVQUAL + SERVPERF	questionnaire	Students
Brochado, A. (2009)	1 public HEI	HEdPERF + SERVQUAL + SERVPERF	questionnaires + focus group (experts)	Students
Demir, A. (2017)	1 HEI	SERVPERF	questionnaires + workshops	Students
Galeeva, R. B. (2016)	n.s.	SERVQUAL	questionnaires	Students
Hamid, F. S. and Yip, N. (2019)	Public and Private HEIs	SERVPERF	questionnaires	Students
Hassan, N. and Jafri, M. H. (2017)	10 private HEIs	SERVQUAL + SERVPERF	questionnaires	Students
Hossain, M. J., Islam, A. and Saadi, M. S. (2014)	Libraries of 4 private HEIs	SERVPERF	questionnaires	Users
Johari, R. and Zainab, A. N. (2007)	Libraries of private HEIs	SERVPERF	questionnaires	Students
Law, D. C. (2013)	n.s.	HEdPERF + SERVPERF	questionnaires	Students
Legčević, J. (2010)	8 HEIs	HEdPERF + SERVPERF	questionnaires	Students
Mahmoud, A. B. and Khalifa, B. (2015)	Public and Private HEIs	SERVPERF	questionnaires	Students
Mandal, K. and Gupta, H. (2019)	6 private HEIs	SERVQUAL + SERVPERF	questionnaires	Students
Manea, N. P. and Iatagan, M. (2015)	1 Public HEI	SERVPERF	questionnaires	Students
Mwiya, B. et al. (2019)	1 Public HEI	SERVPERF	questionnaires	Students

Nejati, Mehran and Nejati, Mostafa (2008)	A library of 1 public HEI	SERVPERF	questionnaires	Users
Oluwunmi, A., Durodola, O. and Ajayi, C. (2016)	Libraries of 4 private HEIs	SERVPERF	questionnaires	Students
Rajab, A. et al. (2011)	1 HEI	SERVPERF	questionnaires	Students
Rodrigues, L. L. R. et al. (2011)	1 HEI	SERVQUAL + SERVPERF	questionnaires	Students
Soni, S. and Govender, K. (2017)	1 HEI	SERVPERF	questionnaires	Students
Soni, S. and Govender, K. (2018)	2 HEIs	SERVPERF	questionnaires	Students
Wu, Y.-C., Hsieh, L.-F. and Lu, J.-J. (2015)	3 HEIs (distance learning)	None	questionnaires	Students

EMPIRICAL CASE

In this section the empirical case used to test the potential of the SERVPERF as an instrument to manage and improve the quality of HEIs support processes is described. The section starts with an account of the methodology followed for the application of the SERVPERF to measure the quality of three support services in one Portuguese HEI. Then the main findings obtained from this instrument application are presented.

Empirical Case Methodology

To test the potential of the SERVPERF instrument to assess the quality of support services of HEIs, a Technological and Management School of a Portuguese polytechnic was used. The School offers 15 bachelor's degrees and 13 technical courses, having more than 2000 students enrolled. Among the various support services provided, three were selected – academic services, reprography, and library – as they are the most used by both students and teaching staff. It follows a brief description of the three services selected for this study.

Academic Services

Placed in the first floor of the Administrative Building, these services occupy 4 rooms. Six people work in the academic services, each one with its own computer. Opening hours are from 9.00 to 12.00 and from 14.00 to 16.30, except on Tuesdays when the service is open from 9.00 to 20.00 without interruption. Students and teaching staff can also use the telephone

or the email to send their requests to the academic services. These services are in charge of students records and communicate with students and applicants with the support of the academic portal.

Reprography

It is located in the ground floor and has two rooms: the main room (which includes a waiting area and the attendance area) and a storage room. At the counter, there are two computers: one for the students/teachers to make their requests and one other to the reprography staff member who is attending. Printing requests can equally be made using the net and collected later. The service has only one staff member at full time. Among other services, the reprography prints examination papers and for the distribution of supplies for the rooms and laboratories. Opening hours are from 9.00 to 12.30 and from 14.00 to 17.30, every weekday.

Library

It occupies rooms in the 4 floors of the Administrative Building. It assists the academic community in teaching and research tasks, by providing books, papers, and other resources, both physically and online. It also promotes training courses and organizes cultural events. It includes rooms for reading, working in groups and offices for the staff. Four people work in the documentation center, each one with his/her own computer. There are 5 computers for students use. Library is open Monday to Thursday from 9.00 to 20.00 and on Fridays from 9.00 to 18.00.

The research design is summarized in Figure 2.

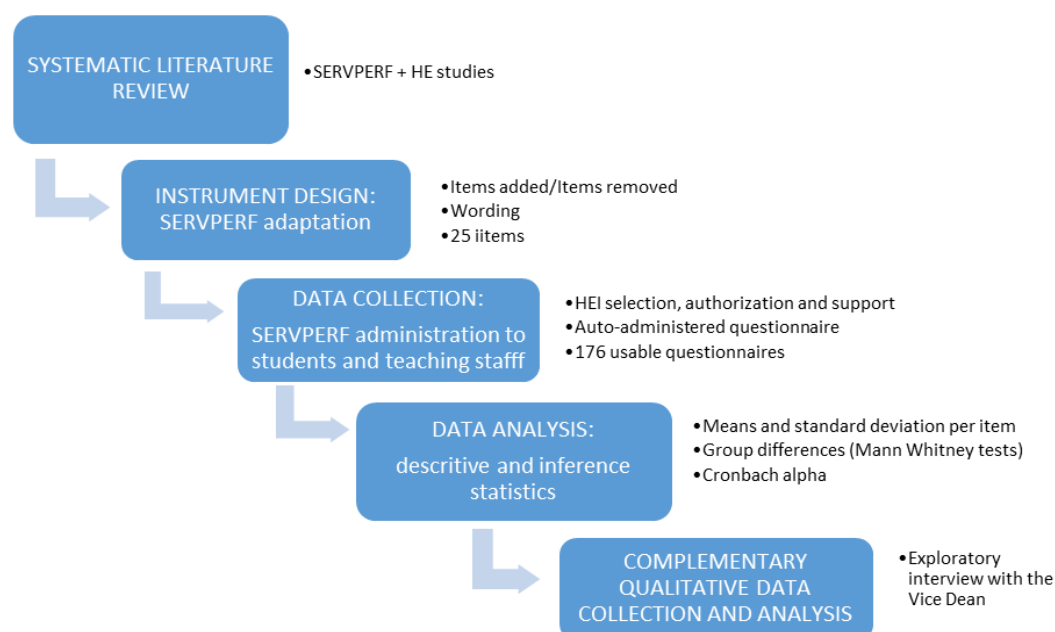


Figure 2. Research design outlook

Data was collected by means of a questionnaire survey applied online to all the students and teaching staff being part of the School in the academic year 2018/19 (the questionnaire was available for data collection between June and August 2019). 176 usable successfully completed questionnaires were received (139 from students and 37 from teaching staff), corresponding to an overall response rate of 7% (the population comprised 2306 students and 191 teachers and the questionnaire was sent to all of them).

The source for the questionnaire was the SERVPERF instrument with the items wording adapted to the specific context of the support services of a HEI. Twenty-five items were used to cover the five proposed dimensions (see Tables B to F in the appendix – the tables contain all the items included in the questionnaire grouped according to the SERVPERF five dimensions). Table 3 illustrates the main changes introduced. Items were measured on 7-points Likert scale. The use of a 7-points Likert scale was thought to be the most adequate to potentially generate some variability between user groups and among items. At the end of the questionnaire, there was also an open question to give room for comments and suggestions.

Table 3. SERVPERF adaptation

Dimension	Items changed
Tangibles	Accessibility to disabled people (Added) Internal signs (Added)
Reliability	Services delivered with error-free records (Deleted)
Responsiveness	Functioning of the IT system (Added) Procedures explained to the user (Added)

Collected data were analyzed using the Excel and SPSS software. Descriptive statistics and non-parametric Mann Whitney tests were used to statistically treat the data. The tests were meant to uncover differences in the perceptions of students and teaching staff regarding all the items in analysis.

Internal consistency was analyzed using the Alpha-Cronbach. As recommended in the literature, the indexes for all dimensions were well above 0.8 (see Table 4).

Table 4. Internal consistency assessment

Dimension	N. of items	Service	Cronbach alpha
Tangibles	6	Academic Service	0.893
		Reprography	0.854
		Library	0.897
Reliability	4	Academic Service	0.930
		Reprography	0.915
		Library	0.913
Responsiveness	6	Academic Service	0.925
		Reprography	0.923
		Library	0.925
Assurance	4	Academic Service	0.956
		Reprography	0.956
		Library	0.955
Empathy	5	Academic Service	0.933
		Reprography	0.934
		Library	0.951

Following the questionnaire administration and data analysis, an exploratory semi-structured interview was conducted with one of the school vice-deans on the 5th of November 2019. The aim was to improve the knowledge regarding the results obtained from the questionnaires, analyzing the possibilities of defining improvement actions for the assessed services and discussing the potential use of the SERVPERF instrument to support the quality management of the support processes characterizing these services. More specifically, an interview guideline was developed with the following questions:

- i. How far do you think the assessment of the degree of satisfaction of students and teaching staff with the three support services will improve these services provision?
- ii. Can you anticipate the main results obtained from the analysis of the data collected (answers of students and teaching staff to the questionnaire)?
- iii. Would you like to comment on the results obtained? Was it expectable to have differences in perceptions among students and teaching staff?
- iv. Considering the results obtained, which improvement actions can the school activate to improve the worst perceived aspects identified by the respondents?

Empirical Case Main Findings

This subsection presents the main findings obtained from the analysis of the questionnaires, looking at the perceptions of students and teaching staff on the three different services and according to the five dimensions of the SERVPERF instrument. Such perceptions were later discussed with the

director of the school and his views on the matter are also reported. Table 5 summarizes the key results (in the appendix detailed information is given for each questionnaire item composing the SERVPERF questionnaire: means, standard deviations and results of the non-parametric tests, considering the answers of students and teaching staff for the three services under analysis).

Globally, all the dimensions got average scores between 4 and 5, which means that overall students and teaching staff are satisfied with the services being provided to them (even if not very satisfied). The dimensions of *Reliability* and *Assurance* were the ones showing a better performance according to the respondents' perceptions about the three services. On the contrary, the *Tangibles* was the dimension considered to have a lower performance. These results are consistent across the two groups under analysis, considering the three services as whole. Interestingly though there is a significant statistical difference between students and teaching staff perceptions for each one of the SERVPERF dimensions in analysis, considering again the services as a whole. The mean scores obtained are higher for teaching staff than for students, which allows concluding that globally the teaching staff is more satisfied with the services provided by the HEI than the students.

Table 5 – Mean, standard deviation and results of the Mann-Whitney test for students and teaching staff perceptions of each service according to the SERVPERF dimensions.

Dimension	Service	Students		Teaching staff		MW test (p)
		Mean	SD	Mean	SD	
Tangibles	Academic Services	4,48	1,37	5,04	1,46	0,004
	Reprography	4,28	1,40	4,58	1,46	0,056
	Library	4,48	1,40	5,26	1,27	0,000
	Global	4,41	1,39	4,96	1,51	0,012
Reliability	Academic Services	4,75	1,33	5,72	1,16	0,000
	Reprography	4,90	1,27	5,82	1,09	0,000
	Library	4,82	1,29	5,80	1,10	0,000
	Global	4,82	1,30	5,78	1,11	0,000
Responsiveness	Academic Services	4,56	1,34	5,47	1,38	0,000
	Reprography	4,67	1,31	5,54	1,34	0,000
	Library	4,66	1,31	5,59	1,31	0,000
	Global	4,63	1,32	5,53	1,34	0,000
Assurance	Academic Services	4,69	1,30	5,72	1,19	0,000
	Reprography	4,76	1,28	5,78	1,08	0,000
	Library	4,77	1,25	5,85	0,96	0,000
	Global	4,74	1,28	5,79	1,08	0,000
Empathy	Academic Services	4,53	1,34	5,49	1,24	0,000
	Reprography	4,54	1,34	5,56	1,15	0,000
	Library	4,59	1,32	5,72	1,01	0,000
	Global	4,55	1,33	5,59	1,14	0,000

Considering each service separately, the results highlight that for the students the highest performance occurs in the *Reliability* dimension for all services. As for the teaching staff the highest performant dimensions are *Reliability* and *Assurance* for the academic services, *Assurance* for the library and *Reliability* for the Reprography.

Tangibles is the dimension getting the lowest perceptions of satisfaction regarding the services performance, both for teaching staff and students. The reprography is the service regarded as the one having the lowest performance in this dimension (it was the only service/dimension for which the mean score of the teaching staff answers was below 5). The Mann-Whitney tests confirm that for all services teaching staff is more satisfied than students for all dimensions in analysis, except for the *Tangibles* of the reprography where no statistical significant difference has been identified between the answers of the two groups.

Tables 6 and 7 highlight the items that got the highest and lowest scores for each of the groups analyzed. For both groups, the worst perceived items mainly relate to different aspects of the *Tangibles* dimension, while the strongest points are scattered among the various dimensions, even if *Reliability* gets most of the positive highlights. Interestingly, students tend to concentrate their best and worst perceived items in the reprography, while the teaching staff points strengths and weaknesses in other areas: the academic services in terms of the worst perceived items and the library in the top perceived ones.

Students are especially critical of the attractiveness of furniture and technological equipment in the three services; they also perceive different aspects of the reprography (facilities' pleasantness; opening hours; facilities internal signals) as not being so good. As for the teaching staff the worst perceived items also correspond to the physical characteristics and equipment of the different services, mainly the reprography, but also the academic services. Furthermore, the teaching staff perceives the informatic system of both the reprography and the academic services as not being sufficiently operational.

As for the best perceived items, other quality dimensions emerge, namely the reliability and the responsiveness in the views of both students and the teaching staff. Students mainly appreciate the verbal and oral language used by reprography and library employees and tend to emphasize different aspects of the reprography service, related mainly with their employees and with the service being delivered on-time and errors-free. Teaching staff also highlights the reprography employee's behavior, but in this case specific aspects of the library also emerge, again related with the way the employees interact with them.

Table 6 – Top best and worst perceived items (students’ perceptions)

Bottom 5			Top 5		
Item	Service	Mean	Item	Service	Mean
The school support services’ materials (technological equipment and furniture) are visually appealing. (Tangibles)	Reprography	3,92	The school support services’ employees use simple and clear oral and written language in their interaction with users. (Responsiveness)	Library	4,97
The school support services’ physical facilities are visually appealing. (Tangibles)	Reprography	4,01	The school support services are provided at the time they were promised, which are reasonable. (Reliability)	Reprography	4,94
The school support services’ materials (technological equipment and furniture) are visually appealing. (Tangibles)	Academic Services	4,06	The school support services are provided correctly and error-free. (Reliability)	Reprography	4,92
The school support services’ facilities have adequate internal signs. (Tangibles)	Reprography	4,09	The school support services’ employees are sympathetic and reassuring to users. (Reliability)	Reprography	4,91
The school support services opening hours are convenient to users. (Empathy)	Reprography	4,26	The school support services’ employees use simple and clear oral and written language in their interaction with users. (Responsiveness)	Reprography	4,91
The school support services’ materials (technological equipment and furniture) are visually appealing. (Tangibles)	Library	4,26	The school support services’ employees give individual attention to users. (Empathy)	Reprography	4,91

Table 7 – Top 5 best and worst perceived items (teaching staff perceptions)

Bottom 5			Top 5		
Item	Service	Mean	Item	Service	Mean
The school support services' materials (technological equipment and furniture) are visually appealing. (Tangibles)	Reprography	3,81	The school support services' employees are sympathetic and reassuring to users. (Reliability)	Reprography	5,95
The school support services' physical facilities are visually appealing. (Tangibles)	Reprography	4,05	The school support services' employees are sympathetic and reassuring to users. (Reliability)	Academic Services	5,92
The school support services have up-to-date equipment. (Tangibles)	Academic Services	4,38	The school support services are provided at the time they were promised, which are reasonable. (Reliability)	Reprography	5,92
The school support services' materials (technological equipment and furniture) are visually appealing. (Tangibles)	Academic Services	4,43	The school support services' employees use simple and clear oral and written language in their interaction with users. (Responsiveness)	Library	5,92
The school support services' IT system is operational. (Responsiveness)	Academic Services	4,46	The school support services' employees' behavior is polite. (Assurance)	Library	5,92
The school support services' IT system is operational. (Responsiveness)	Reprography	4,59	The school support services' employees give personal attention to users. (Empathy)	Library	5,92
The school support services' facilities have adequate internal signs. (Tangibles)	Reprography	4,59			

The interview with the school vice-dean occurred after the SERVPERF data has been collected and analyzed. As previously mentioned, the purpose was to better understand the results obtained from the questionnaires and to discuss the relevance of the use of this particular instrument to assess students and teaching staff satisfaction with the services and, based on that assessment, better manage their quality.

The results obtained from the answers to the questionnaire matched to a great extent the school's vice-dean perspective. He anticipated positive results from the study in terms of overall satisfaction

level, as well as the existence of differences between the perceptions of students and teaching staff regarding the three services. Differences would arise mainly because teaching staff has been working in the school for several years and, as such, knows better the services staff with whom has an empathic relationship. The differences detected between services, mainly regarding the *tangibles* dimension, were also foreseen due to their physical location which differs considerably in terms of spaces occupied.

Regarding the worst perceived items, the vice-dean assumed his will to address them and improve the situation. Some aspects were already being addressed, such as the informatic system, while others, such as the opening hours of the reprography services, depend on the possibility of hiring more staff which is a decision that cannot be solely taken by the school leadership. He also regrets not being able to allocate the reprography to a more pleasant space, but unfortunately the school does not have any other physical spaces available to install this service. In the future, and if there are additional funding available, the vice-dean intends to overcome the deficiencies pointed out in the services both by students and teaching staff, as well as address other aspects of these services, in order to improve the satisfaction level of its users.

The vice-dean found the use of the SERVPERF instrument pertinent and relevant, and raised his willing to use the same questionnaire in the future to monitor the users' satisfaction with these services and to validate improvement actions implemented to solve the causes behind the worst perceived items. He also argued that the study could be useful for other higher education institutions, as they could have "a more concrete idea of how certain services are perceived by those using them, namely students and teaching staff".

The findings obtained with the SERVPERF application and the interview with the school vice-dean led to a set of recommendations meant to improve the support services quality and the degree of satisfaction of their users:

- a review of accessibility and signaling aspects;
- identification of the needs for new equipment for the reprography and reformulation of its allocation within the available facility;
- if additional funding is available, hiring of new staff; if not, exploring other alternatives to have more staff allocated to some services (e.g. internships; students association support; new ways of welcoming new students);
- extension of opening hours;
- improvement of the service's response capacity during peak service periods;

- development of a specific survey to find out what are the main weaknesses of the informatic system;
- check, in a systematic way, the collection of information from the users' suggestion boxes, ensuring a careful analysis of their complaints/suggestions and assess whether there are concrete measures aimed at improving users' satisfaction;
- periodically apply short questionnaires to assess users' satisfaction in order to verify if improvement actions implemented in the services are being effective.

LESSONS LEARNED AND CONCLUDING REMARKS

The purpose of this paper was to illustrate how the SERVPERF instrument can contribute to HEIs quality management, by providing relevant information on users' perceptions of the quality of support services. The results of the empirical case clearly corroborate this contribution.

Firstly, it was possible to adapt the instrument for the school context and to make it clear and simple enough to be able to collect a significant number of answers from both students and teaching staff. In fact, the adhesion of both groups to the survey denotes to a certain extent their willingness to give their perceptions on the analyzed services and to contribute to their quality improvement. In a time where students' voice should be given a significant attention in the scope of HEIs quality management systems, this instrument may indeed be a good option to take this group's views into account when managing the quality of support processes, ensuring that all resources are fit for purpose and accessible, as foreseen in the ESG (2015).

Secondly, the results obtained through the application of the SERVPERF instrument allowed to identify some of the weakest aspects of the services assessed and to propose a set of recommendations to improve them. Furthermore, these aspects matched the perspectives of the school vice-dean, which to a certain extent confirms the validity of the instrument as a mechanism capable of collecting relevant and pertinent data for decision-making about the quality of support services. As such, this instrument provides the opportunity for HEIs to respond to both ESG (2015) and A3ES References since it is a mechanism for the collection and analysis of information on the maintenance, management, and suitability of services. Besides, the data collected with the application of SERVPERF contributes to guarantee the corresponding decision-making around services and resources (A3ES, 2016).

Overall, and in the same line of previous studies (e.g. Brochado, 2009; Azar and Khan, 2012; Law, 2013; Hamid and Yip, 2019), it was possible to conclude that the SERVPERF is adequate to measure

the perceived quality of an HEI support services, which is one more contribution to further validate the SERVPERF instrument in the higher education context. Moreover, and even more pertinent, is the fact that the data collected through such an instrument can indeed boost decision making around support services and, as such, contribute to the implementation of more effective quality management systems in HEIs.

Additionally, the current study has also highlighted the importance of comparing students and teaching staff perceptions in order to have a sounder identification of strengths and improvement areas. As shown in the literature review, the simultaneous consideration of more than one stakeholder when measuring service quality in HE is an originality of our research.

The study has however some limitations the authors acknowledge, namely the fact that it is based on a sole HEI. Also, the results obtained from the assessment of the three support services' quality have only been discussed with one of the school's vice-deans. In the future, it would be good to extend the study to other HEIs in Portugal, to be able to further validate the potential of the SERVPERF instrument as a useful tool for the quality management of these organizations' support processes. This validation would imply the discussion of the results of each HEIs to its several decision-making bodies, particularly with those in charge of the institutions' quality management systems.

Furthermore, it is fair to say that despite the proved usefulness of the used SERVPERF instrument in the higher education context, in the future it would be interesting to think about the possibilities of improving the instrument itself, by including a scale of importance for the items/dimensions in analysis. This improvement could further help decision makers in their tasks, by allowing them to put their improvement efforts in the service aspects more important for students and teaching staff.

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APPENDIX

Table A – SERVPERF studies in HE

List of papers selected for analysis
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Table B – Perception analysis by service quality item
(SERVPERF Instrument) – Tangibles

Item	Tangibles	Service	Students		Teaching staff		Test MW (p)
			Mean	SD	Mean	SD	
1.1.	The school support services have up-to-date equipment.	Academic Services	4,31	1,23	4,38	1,48	0,730
		Reprography	4,37	1,19	4,70	1,41	0,175
		Library	4,33	1,21	4,70	1,13	0,067
1.2.	The school support services’ physical facilities are visually appealing.	Academic Services	4,53	1,22	4,86	1,44	0,068
		Reprography	4,01	1,34	4,05	1,65	0,864
		Library	4,63	1,35	5,32	1,20	0,004
1.3.	The school support services’ facilities have adequate internal signs.	Academic Services	4,51	1,35	5,43	1,24	0,000
		Reprography	4,09	1,41	4,59	1,54	0,076
		Library	4,29	1,47	5,41	1,19	0,000
1.4.	The school support services are accessible to disabled people.	Academic Services	4,65	1,46	5,51	1,45	0,001
		Reprography	4,58	1,50	5,08	1,80	0,042
		Library	4,55	1,50	5,41	1,59	0,001
1.5.	The school support services’ materials (technological equipment and furniture) are visually appealing.	Academic Services	4,06	1,46	4,43	1,42	0,317
		Reprography	3,92	1,41	3,81	1,66	0,639
		Library	4,26	1,49	5,03	1,24	0,008
1.6.	The school support services’ employees are well dressed and appear neat.	Academic Services	4,78	1,35	5,62	1,26	0,000
		Reprography	4,72	1,36	5,22	1,70	0,013
		Library	4,82	1,30	5,68	1,08	0,000

Table C – Perception analysis by service quality item
(SERVPERF Instrument) – Reliability

Item	Reliability	Service	Students		Teaching staff		MW test (p)
			Mean	SD	Mean	SD	
2.1.	The school support services are provided as planned.	Academic Services	4,83	1,35	5,54	1,19	0,003
		Reprography	4,83	1,27	5,57	1,24	0,002
		Library	4,81	1,27	5,62	1,14	0,001
2.2.	The school support services' employees are sympathetic and reassuring to users.	Academic Services	4,70	1,41	5,92	1,16	0,000
		Reprography	4,91	1,27	5,95	1,08	0,000
		Library	4,80	1,41	5,89	1,17	0,000
2.3.	The school support services are provided correctly and error-free.	Academic Services	4,79	1,25	5,62	1,21	0,000
		Reprography	4,92	1,17	5,84	1,07	0,000
		Library	4,85	1,22	5,84	1,07	0,000
2.4.	The school support services are provided at the time they were promised, which are reasonable.	Academic Services	4,68	1,33	5,78	1,08	0,000
		Reprography	4,94	1,37	5,92	0,95	0,000
		Library	4,81	1,29	5,86	1,03	0,000

Table D – Perception analysis by service quality item
(SERVPERF Instrument) – Responsiveness

Item	Responsiveness	Service	Students		Teaching Staff		MW test (p)
			Mean	SD	Mean	SD	
3.1.	The school support services' employees use simple and clear oral and written language in their interaction with users.	Academic Services	4,86	1,17	5,86	1,13	0,000
		Reprography	4,91	1,22	5,86	1,18	0,000
		Library	4,97	1,22	5,92	1,09	0,000
3.2.	The school support services' employees explain the procedures to the users.	Academic Services	4,59	1,34	5,76	1,26	0,000
		Reprography	4,69	1,36	5,76	1,12	0,000
		Library	4,70	1,27	5,78	1,11	0,000
3.3.	The school support services' employees provide prompt services to the users.	Academic Services	4,60	1,26	5,70	1,13	0,000
		Reprography	4,73	1,27	5,81	1,10	0,000
		Library	4,71	1,23	5,81	1,13	0,000
3.4.	The school support services' employees are always willing to help students.	Academic Services	4,60	1,39	5,84	1,09	0,000
		Reprography	4,78	1,30	5,89	0,99	0,000
		Library	4,65	1,41	5,89	0,99	0,000
3.5.	The school support services' employees are never too busy to respond to users requests promptly.	Academic Services	4,34	1,39	5,22	1,29	0,001
		Reprography	4,46	1,30	5,30	1,27	0,000
		Library	4,53	1,35	5,43	1,19	0,000
3.6.	The school support services' IT system is operational.	Academic Services	4,37	1,42	4,46	1,76	0,622
		Reprography	4,43	1,35	4,59	1,80	0,313
		Library	4,37	1,33	4,68	1,81	0,109

Table E – Perception analysis by service quality item
(SERVPERF Instrument) – Assurance

Item	Assurance	Service	Students		Teaching Staff		MW Test (p)
			Mean	SD	Mean	SD	
4.1.	The school support services' employees' behavior is adequate.	Academic Services	4,75	1,29	5,84	1,19	0,000
		Reprography	4,80	1,24	5,89	1,05	0,000
		Library	4,82	1,22	5,89	0,97	0,000
4.2.	The school support services' employees transmit a feeling of safeness in their transactions with users.	Academic Services	4,61	1,34	5,73	1,15	0,000
		Reprography	4,72	1,28	5,76	1,04	0,000
		Library	4,69	1,27	5,84	0,96	0,000
4.3.	The school support services' employees' behavior is polite.	Academic Services	4,65	1,28	5,78	1,16	0,000
		Reprography	4,75	1,30	5,86	1,03	0,000
		Library	4,72	1,25	5,92	0,89	0,000
4.4.	The school support services' employees' have the knowledge to give adequate answers to users' requests.	Academic Services	4,73	1,31	5,54	1,30	0,000
		Reprography	4,78	1,31	5,62	1,21	0,000
		Library	4,85	1,26	5,76	1,06	0,000

Table F – Perception analysis by service quality item
(SERVPERF Instrument) – Empathy

Item	Empathy	Serviço	Students		Teaching Staff		MW Test (p)
			Mean	SD	Mean	SD	
5.1.	The school support services' employees give individual attention to users.	Academic Services	4,73	1,35	5,76	1,16	0,000
		Reprography	4,91	1,34	5,76	1,12	0,000
		Library	4,69	1,31	5,86	0,92	0,000
5.2.	The school support services opening hours are convenient to users.	Academic Services	4,30	1,42	4,97	1,28	0,006
		Reprography	4,26	1,43	5,05	1,18	0,001
		Library	4,45	1,41	5,59	0,90	0,000
5.3.	The school support services' employees give personal attention to users.	Academic Services	4,61	1,32	5,78	1,15	0,000
		Reprography	4,63	1,30	5,86	1,00	0,000
		Library	4,64	1,28	5,92	0,98	0,000
5.4.	The school support services' employees have users' best interests at heart	Academic Services	4,42	1,25	5,43	1,21	0,000
		Reprography	4,49	1,28	5,54	1,12	0,000
		Library	4,50	1,28	5,57	1,09	0,000
5.5.	The school support services' employees understand users' specific needs.	Academic Services	4,58	1,33	5,51	1,28	0,000
		Reprography	4,61	1,29	5,59	1,19	0,000
		Library	4,65	1,33	5,65	1,14	0,000