LINKING EDUCATIONAL RESEARCH TO INSTITUTIONAL MEASURES OF QUALITY ENHANCEMENT: A PORTUGUESE PROJECT

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Abstract

At the University of Aveiro (UA), an institutional initiative is taking place for assessing and monitoring the quality of teaching and learning in Higher Education. The Quality Assurance System (QAS) of the teaching and learning process at the UA emerges as extremely important, not only to regulate the teaching and learning process, following the quality assurance orientations at a national and international level, but also to reflect and share teaching practices that enhance the whole academic experience, both from the students, the teachers, and researchers' perspective. The authors explore the design of the model and a research study that aims to integrate the perspectives of students and teachers, through the

analysis of quantitative and qualitative data - gathered in the evaluation model, so that: (i) intervention strategies/activities can be conceptualised for coping with the identified problems; (ii) a set of guidelines can be designed for the improvement of the evaluation model and associated instruments, and (iii) the QAS model and its results can be discussed with academia in terms of strengths and weaknesses aiming to engage them in the process of monitoring. This study is an effort to conciliate the educational research carried out by members of the Laboratory for the Evaluation of Educational Quality and the institutional framework for quality assurance.

Keywords: quality assurance systems, evaluation and monitoring, teaching and learning

1. Introduction

Scientific research in education brings a strong input for the enhancement of the increasingly complex and performance-driven education system [1]. In this case in particular, the authors believe that research-based evidence can foster the Quality Assurance System of Teaching and Learning (QAS-TL) by enriching the understanding of the data collection, the (re)design of the evaluation model, and the engagement/commitment of academia with the overall process. With this objective in mind, a 'partnership' was established between the Rectorate of the University of Aveiro in Portugal, more specifically with the Vice-Rector for Quality Assurance and a group of researchers from the Laboratory for the Evaluation of Educational Research. The main objective of the study is to analyse the qualitative and quantitative data gathered through the QAS, to foster the engagement of students and teachers in the process, and to create/disseminate knowledge that can be useful for the discussion of evaluation and monitoring processes in Higher Education, and the achievement of quality standards in teaching and learning. This papers is divided in five sections: (i) study purpose, (ii) setting the scene – the design of the QAS-TL, (iii) methodology, (iv) results, and (v) final considerations.

2. Study purpose

Since the signature of the Bologna Declaration in 1999, certain issues, such as the quality of teaching, learning, assessment and research are acquiring a bigger relevance at Higher Education (HE) settings in Europe in general, and in Portugal in particular. Quality assurance agencies across Europe are concerned with the process of monitoring and evaluation (M&E) in HE in what comes to performance indicators and accountability [2] and to the regulation of the overall process. The tree major concerns of the systemic M&E process, as pointed out by Scheerens, Glas & Thomas [3] reflect the previous concerns: (i) to formally regulate desired levels of quality of educational outcomes and provisions; (ii) to hold educational service providers accountable, and (iii) to support on-going improvement in education. The QAS-TL designed and implemented at the University of Aveiro has in mind these three concerns that we assume as three interconnected dimensions, representing an effort to conciliate quality assurance with quality enhancement.

The study presented in this paper is going to focus its attention on the last dimension, the one associated with quality enhancement. We believe that the M&E process has the ultimate goal of improving the education provided and of engaging academia in such a way that interventions and changes can be proposed to enhance teaching and learning, thus solving the identified problems and, above all, improving the students' learning experience [4, 5].

The study hereby described follows the assumption that 'learning from evaluation is central in the concept of formative evaluation' [3, p.3] and that we can all learn with each other [6] in the process of (re)construction our teaching and learning experiences. The study ultimate goal is to

promote the quality of teaching and learning at the University of Aveiro, by increasing the level of engagement/commitment of teachers and students and to contribute to the reflection on the efficiency of the QAS-TL. This paper presents the preliminary results regarding the analysis of qualitative data aiming to integrate the perspectives of students and teachers (through the analysis of open reports) so we can understand if the identified problems and cases of good practice are correlated with the views of teachers and students, and if the improvement plans (developed by teachers) are in line with the identified problems.

These first outputs will be correlated (in a second phase of the study) with quantitative data from students' questionnaires so we can discuss the results with academia and proceed with (i) clarifying some aspects of the model (in terms of strengths and weaknesses), (ii) defining a set of guidelines for the improvement of the model and its associated instruments and (iii) conceptualising strategies/activities for coping with the identified problems. This process will occur over the next three years so that the stability and persistence of the identified aspects can be monitored, as for example the problematic situations pointed out by teachers and students throughout the time.

Quality Assurance Systems that do not follow these guidelines and mind-set can easily become obsolete, since they will just produce 'empty' judgments and values that will serve no other purpose than accountability. The outcomes of properly developed monitoring and evaluation systems are therefore essential for the development of an understanding of the educational system set in place, both from a bottom-up and from a top-down perspective.

3. Setting the scene

The University of Aveiro (UA) was founded in 1973 and became a Portuguese Public Foundation in 2009.Its structure includes fifteen departments, two autonomous sections and four polytechnic schools, each dedicated to different academic domains. The educational offer includes post-secondary, graduate and postgraduate programs. The UA is concerned with the labour market demands and focuses on teaching, learning and research. At the UA, nowadays, there are about 14.500 enrolled students, and 1.500 teachers and researchers.

Since 1997 that the UA managing structure includes a Vice-Rector responsible for the internal quality assurance and, in 1999, the Office of Quality, Evaluation and Procedures (GAQAP – 'Gabinete de Qualidade, Avaliação e Procedimentos') was created. The mission and specific objectives are to promote and assure quality, continuously evaluating and defining the standards of procedures and their practical implementation in accordance with the European and Portuguese guidelines for quality assurance.

The QAS is perceived in 4 levels (Figure 1) with a connection to the teachers' assessment model. The teachers' assessment exercise will take place in the next academic year. The QAS-TL, explored in this paper, refers to the bottom level – the curriculum unit level. An evaluation model is now being designed to evaluate the quality of the Courses – Course level. Since each of these dimensions cannot be individually understood, the ultimate goal is to articulate each dimension with the information collected from the teachers' assessment of teaching and research quality system – a model that is being conceptualized by the Rectorate and ready for testing in the next academic year.
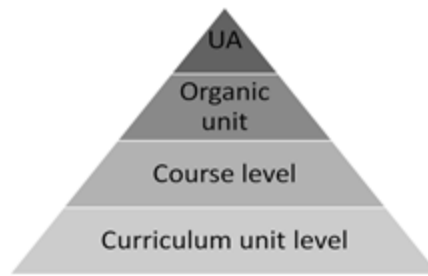
Figure 1. Quality Assurance System at different levels

3.1. Design of the QAS-TL

The QAS-TL was designed in 2008 by a team of four teachers and three technical staff coordinated by the Vice-Rector, and applied for the first time, as a pilot study, in the same year. The experience of other Quality Assurance Systems was taken into account, namely the one from the Instituto Superior Técnico (IST - the School of Engineering of the Technical University of Lisbon, Portugal).

The QAS-TL involves four phases: (i) Diagnosis; (ii) Improvement; (iii) Quality Assurance, and (iv) Supervision. All the actors involved in the teaching and learning process should be heard: students, teachers, Course coordinators, and student representatives of each program.

The first phase – Diagnosis – begins with the evaluation of Curricular Units (CUs) and takes place in a period of 3 weeks. In order to develop a more complete diagnosis, the results take into account information gathered in three moments. Firstly, all students answer an online survey at the end of each semester.

Secondly, student representatives and program coordinators meet with the objective of discussing the weak and strong points, and identify good practice examples, in each program. Thereafter, if the group identifies 'problematic situations', they must write a report that obeys a pre-defined structured.

Finally, other statistical information available through the students' individual and institutional platform (PACO) is also taken into consideration (mainly performance indicators).

In the second phase – Improvement – all teachers involved in each CU are asked to write an online report, in which the fundaments of their teaching and learning practice strategy are described. If they wish to do so, teachers can also write a self-evaluation report of their teaching practice. The whole 'Improvement' phase takes place in 4 weeks.

The coordinating teachers of the different CUs are then asked to write a summary report, based on the diagnosis phase and on the teachers' individual reports, aiming to produce a global analysis of the situation. In the cases identified as 'problematic situations', the coordinating teacher of the CU is requested to develop an Improvement Plan (IP). This plan needs to include corrective actions and to identify the necessary resources to put them in practice. Finally, this IP

has to be analysed by the Program Commission that writes another report, in which adjustments to the final version of the IPs may be suggested.

The third phase – Quality Assurance – involves the analysis of all CUs reports in a given Department by a nominated Analysis Commission, which includes teachers and students. The Commission must produce a global report that should contain an executive summary, the general trends of the Department, based on the analysis of the reports produced by the coordinating teachers of the CUs. This phase runs in three weeks.

The same document should also consolidate the IPs addressing the 'problematic situations', the cases of teaching good practices, and the resources and adjustments needed to implement the 'Improvement Plan'. This report is then submitted to the Department Head for approval.

Finally, the fourth phase – Supervision – is carried out by the Pedagogical Commission, whose members should act as mediators in the process. Also, this Commission should analyse and disseminate the results. This process is transversal to the other three phases.

4.   Methodology

The data presented in this paper is part of the major study described earlier, in the introductory sections and already discussed in the 'Fifth European Quality Assurance Forum' [7]. The objective is to analyse students' and coordinating teachers' reports (qualitative data gathered in phase one and two of the QAS-TL) aiming to answer the following research questions:

1. What are the weak and strong points referred by students and teachers regarding the teaching and learning process taking place in the curricular units?
2. Do teachers, in their reports, corroborate the main problems referred by students?
3. Are the improvement plans, proposed by teachers in phase two of the QAS-TL, addressing the weak points referred by students?
4. What are the convergence and divergence points?

For conducting this study a representative sample (random selection n=320) of the total number of Curricular Units (CUs) of the first and second cycle of the UA's post-Bologna programs was selected. This sample has a confidence level of 95% (5% maximum error).

The chosen CUs were clustered by fields of knowledge (engineering, natural and exact sciences, health sciences, social and human sciences, arts and humanities), by number of registered students (large, medium and small) and by failure rates (large, medium and small). These clusters will help to understand the data findings and frame the identified problematic situations.

The data analysis is being carried out using the NVivo 9 software for qualitative data analysis, and in this first stage the results will follow a descriptive analysis with crosstabs between teachers' and students' data coding.

5.   Results

In this section, we present the first approach to the categories trees regarding the dimensions "weak points" and "strong points", as referred by the students and coordinating teachers' reports. This first version of the categories' trees was developed and validated by the four researcher

engaged in the study as a result of the analysis of 78 reports (42 for the students and 36 for the teachers), out of a sample of 320. The analysis follows an open coding strategy, in which the categories emerge from the data itself. The categories and associated categories are continuous updated, refined and validated.

Figure 2 represents the dimension 'strong points'. This dimension is associated with the students' point of view in what regards the strong points of teaching and learning of a specific CU.   The category to which more references are attributed is the 'teaching, learning & assessment' category. This category refers to the description of teaching, learning and assessment strategies that contribute to the improvement of the student learning process, ranging from the way in which contents are explained to the teachers' ability to motivate the students, the support materials made available or the relevance of the proposed activities. There is also a high number of 'no answers' to the dimension of the strong points (24 CUs in a total of 42) which means that half of the students' reports (one per Course and CUs) do not mention any strong points.
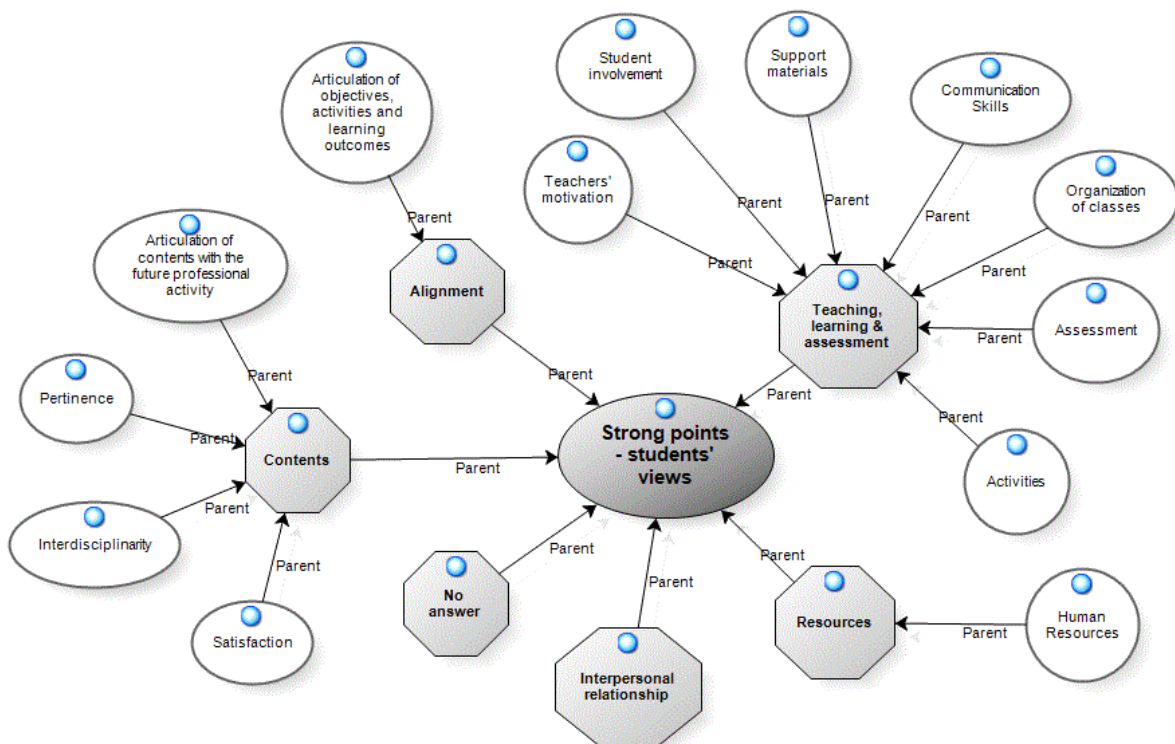

Figure 2. Tree for the categories and sub-categories of the dimension 'strong points' – student views.

From the coordinating teachers point of view (Figure 3) we can conclude that the strongest categories relates to the curriculum alignment and assessment. Teachers attribute the success in their UCs to factors associated to the teaching, learning and assessment, which is in line with the strongest category 'teaching, learning & assessment' referred by students.
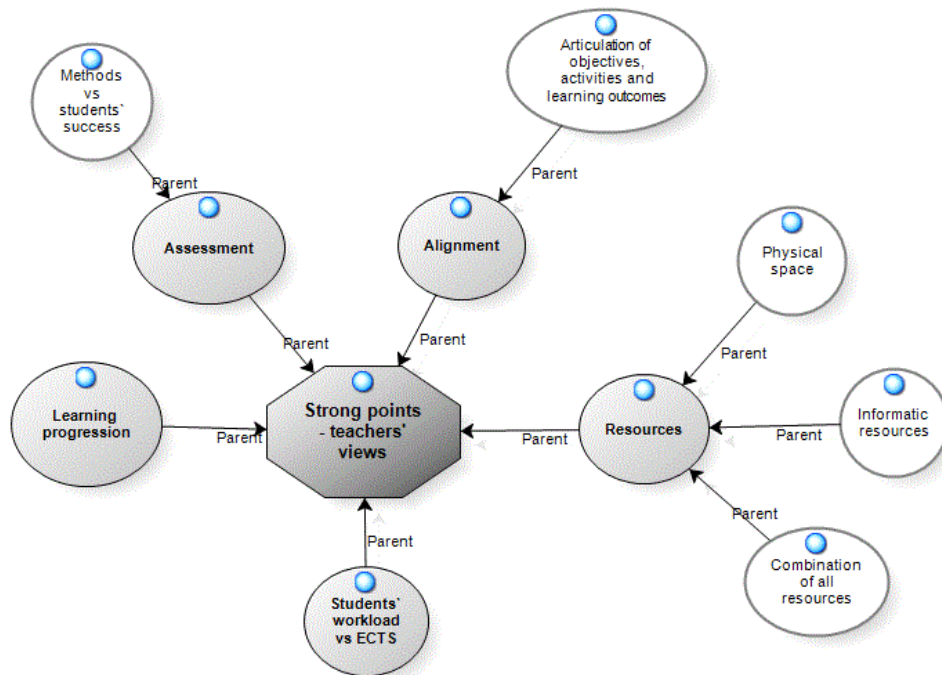
Figure 3. Tree for the categories and sub-categories of the dimension 'strong points' – coordinating teachers' views.

Figure 4 represents the categories and sub-categories that emerge from the weak points of the students' reports. This dimension is more complex than the previous one, because students point out more weaknesses and go deeper in their justifications. The strongest categories are 'alignment' and 'teaching, learning & assessment'. We briefly present these two categories descriptions:

- 'Alignment' refers to the description of misalignments between CUs objectives, assessment activities and T&L activities, and also between the different components of the course (T, TP and Labs).
- 'Teaching, learning & assessment' refers to the description of less adequate T&L and assessment strategies, including difficulties in the ability to communicate within the classroom context. The 'assessment' sub-category refers to the description of assessment schemes and activities viewed as inadequate by the students, ranging from constructive misalignment to the assessment criteria or the associated logistics.

In the alignment category, students refer some problems in the alignment of the curriculum ('constructive alignment'), articulation of contents in the classes, misalignment between the T and TP components, misalignment between proposed exercises and objectives, and misalignment between the exercises proposed within the classroom context and those used for assessment purposes.

For the 'teaching, learning & assessment' category students point out as problematic situations the assessment (criteria, exam structure, overlapping of assessment activities and type), the teacher support and feedback, the student-teacher communication, among others. The 'no answers' category was lower compared to the strong points: 11 entrances.
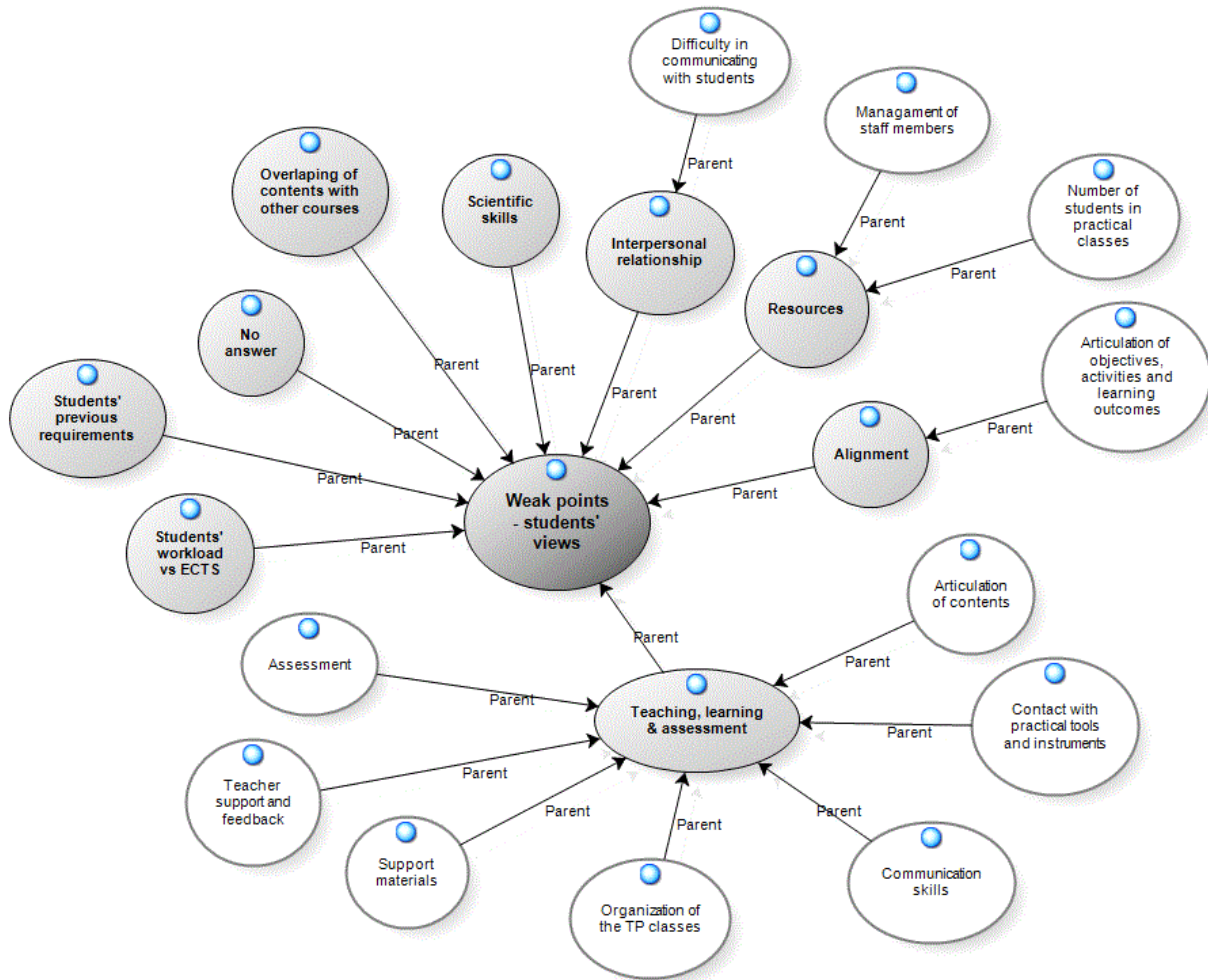

Figure 4. Tree for the categories and sub-categories of the dimension 'weak points' – student views.

Figure 5 represent teachers' views of the weak points. The strongest categories are associated with the students and the resources. Teachers attribute the level of students' failure rates to their lack of interest, study habits, previous knowledge requirements and students' workload. The number of students in class associated to the category 'resources' is often referred as a problematic issue.
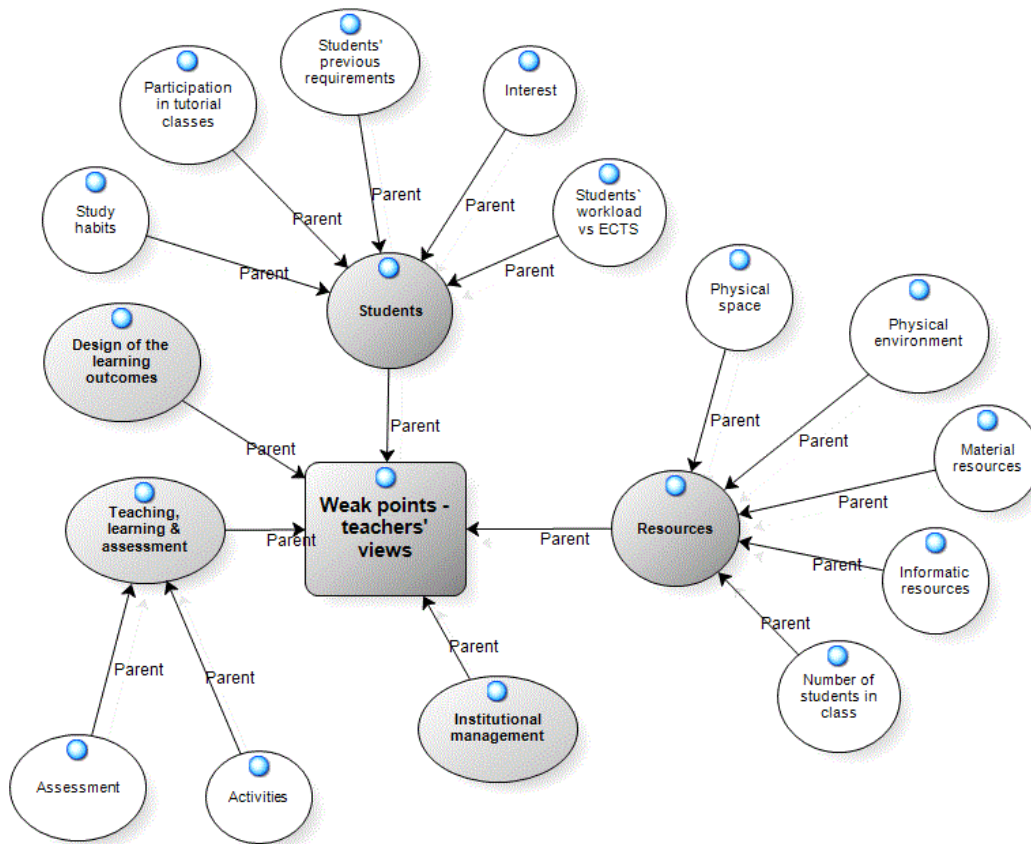
Figure 5. Tree for the categories and sub-categories of the dimension 'weak points' –
coordinating teachers' views.

6.   Final considerations

In a preliminary overview of the data analysis, students tend to concentrate on the weaknesses of the delivery they are exposed to, pointing out what they perceive as aspects which are in need of improvement. The fact that half of the students' reports do not mention strong points may need further investigation.

Coordinating teachers, on the other hand, tend to focus on the strong points of their delivery, pointing out their efforts to promote meaningful T&L and assessment activities. The relative coincidence of views between teachers and students as to what are the strong points of the deliveries is also worth mentioning. As for the weak points, teachers show a tendency to justify the less positive results in their CUs to the available resources and program organization, and to the overall students' attitude and lack of preparation, thus reflecting a somewhat expectable trend.

Exploring the common grounds in the two perspectives hereby discussed, as well as the contrasting aspects coming out of the analysis, will be the obvious focus of the forthcoming investigation, in an attempt to identify aspects in need of direct action and thus foster the improvement of the quality of the teaching and learning processes at the UA.

On the long run, over the next 3 years, this research project will also investigate the evolution (in terms of persistence) of the most significant factors, as identified by both teachers and students, with the purpose of designing intervention strategies aimed at promoting the students' academic success. One of the intervention strategies to take place in October/September 2011 will be the organisation of seminars (i) to discuss some of the data findings, (ii) to explain to Course coordinators and students' representatives the concepts inherent to each question of the reports and, (iii) to discuss how the understanding of the questions and quality of the answers (e.g. detail, clarity in the explanation of the situations) are important for the data analyses. These two latter aspects are essential for creating a committed and engaged academic community in the evaluation process, helping the university to understand the needs, cases of good practice, and problematic situations. Also, the assessment exercise allows the identification of CUs that are considered cases of good practice and that can be used as examples to other CUs from different departments. This 'microscopic' analysis can work as case-studies allowing the institution to suggest top-down strategies/guidelines to improve the teaching and learning process and consequently the students' academic success.

When addressing the arguments presented in this study, one becomes aware of the fact that it is inevitable to evaluate the quality of teaching and learning and to proceed to well-structured and supported quality assurance systems, properly grounded on theory and practice:

> *Evaluation is no stranger to higher education. (…) it is an essential component in the advancement of scientific knowledge (…) is an integral part of the dynamic of higher education and its regulation. It is both summative and decision-oriented and formative and development-oriented* [8, pp.291-292].

In a globalized world, in which mass HE has been replacing the former somewhat elitist systems, the need to guarantee the quality of the provided education and to continuously improve the institutional responses to the learning needs of the changing student population becomes central. Within the European context, the Bologna Process has been setting the scene for major developments regarding quality assurance and accreditation (in a dialectic relationship in which a proper balance is sometimes hard to find).

Hopefully, the project hereby presented will also serve as the basis for future collaborations with other Higher Education institutions, both from Portugal and elsewhere.

Acknowledgement

References

[1] National Research Council (2002): Scientific Research in Education. Commitee on Scientific Principles for Education Research, Shavelson R.J. and Towne L. (Eds.). Center for Education

Division of Behavioural and Social Sciences and Education. Washington, DC: National Academy Press.

[2] Van Vught F., & Westerheijden D.F. (1994): Towards a general model of quality assessment in higher education. Higher Education, 28, pp. 355-371.

[3] Scheerens J., Glas C., & Thomas SM. (2003): Educational Evaluation, Assessment and Monitoring: a Systemic Approach, Swets & Zeitlinger.

[4] Oliver B., Tucker B., Gupta R., & Yeo S. (2008). eVALUate: An evaluation instrument for measuring students' perceptions of their engagement and learning outcomes. Assessment & Evaluation in Higher Education, Vol.33, No 6, pp. 619-630.

[5] Machado dos Santos S. (2009): Análise comparativa dos processos europeus para a avaliação e certificação de sistemas internos de garantia de qualidade. Working document.https://dspace.ist.utl.pt/bitstream/2295/641151/1/Estudo_sigq_v1.0.pdf, accessed on 05 April 2010.

[6] Holmes B., Tangney B., Fitzgibbon A., Savage T., & Mehan S. (2001): *Communal Constructivism: students constructing learning for as well as with others*, in Price J., Willis D., Davis N.E. and Willis J. (Eds.) "Proceedings of the 12th International Conference of the Society for Information Technology and Teacher Education (SITE 2001)", pp. 3114-3119, 5-10 March, Orlando.

[7] Huet I., Rafael J., Costa N., & Oliveira J. (2010): Quality Assurance System to monitor the teaching and learning process at the University of Aveiro (Portugal), "Fifth European Quality Assurance Forum". France, Lyon, 18-20 November. Online:
http://www.eua.be/Libraries/EQAF_2010/WGSII_5_Papers_Huet_et_al.sflb.ashx.

[8] Henkel M. (1998): Evaluation in Higher Education: Conceptual and epistemological foundations. European Journal of Education, Vol. 33, No. 3, pp. 285-297.