

Academic Performance in Public Higher Education Institutions: A study on the effects of Teacher Commitment, Teaching Methodologies and Evaluation Methodologies in Students attending Nursing and Management courses.

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Abstract

The rapid development of science and technology as well as politic, social and economical dynamics which characterize post-modern societies, demand from educational systems a high quality education accessible to all. The main challenge of the XXI century in the educational field is not only to assure that students acquire a wide range of skills which are permanently updated, but also to guarantee the quality of those learning experiences. Consequently, the quality level in education is one of the major concerns of those government leaders, politicians, academics and researchers. This has also been a highly discussed subject in scientific meetings and it has been studied in many educational research programs in the many different countries of the western world.

Research results on education quality show a positive relation between student's academic performance and teaching quality. However, it is necessary to venture further; research on quality indicators is needed in order to understand how students recognize quality in teaching.

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In order to achieve this, we have developed an exploratory study involving students from different higher education institutions in Portugal. The data was collected using a questionnaire survey and the sample consists of students in different courses from higher education institutions in Alentejo (Portugal).

This work shows the analysis of what students in Nursing and Management courses at the University of Évora and Polytechnic Institute of Beja, recognize as teaching quality in three different domains: teacher commitment, teaching methodologies and evaluation methodologies. The aim of the analysis is to verify the influence of these variables on students' academic performance.

Keywords: teaching quality, teacher commitment, teaching methodologies, evaluation methodologies, academic performance

Teaching Quality

Improving the quality of education in schools has been a concern of European countries over the last years (Eurydice, 2004). Doherty (1997) suggests that the book *Education and Training for the Twenty-First Century* triggered a huge interest in the matters of “quality” in the educational field (formal). However, more recent researches based on new perspectives and also the involvement of a wider variety of stakeholders and international organisms in the matters of evaluation, measuring and assuring education quality (Bertolin, 2009) have breath new life into the topic of teaching quality, mainly in higher education. Amongst the new concerns of various players is the notion of the educational institutes' accountability to society (Broadfoot, 2000).

One of the aspects that seems to generate consensus about the topic “quality in higher education” is that quality is a complex notion, it is dynamic, historically established, multi-layered, multi-dimensional, multi-level, “unstable” (Sahney et al, 2004), it reflects distinctive perspectives of individuals and society (Papadopoulos, 1994) and it is open to change and evolution due to the arise of new information, new contexts and understandings about the nature of challenges in education (UNICEF, 2000: 5). Words such as competence, efficiency and equity often appear associated to or even as synonyms of teaching quality. In a document presented at the meeting of the International Working Group on Education Florence (Italy, June 2000) the UNICEF has

reminded us that, until recently, a great deal of the discussion about what is quality of education has been centered in the system's inputs such as the facilities, the teacher-student ratios and the curricular contents (UNICEF, 2000: 13) but also that, in more recent years the focus given to the educational *process* has grown. Studies have been conducted on the way teachers and administrators use the available means to provide significant learning experiences to their students (UNICEF, 2000: 13). On the other hand, there is also an increasing concern in establishing a relation between education quality and the *results* achieved by the educational process, especially for some stakeholders in the education/training systems. We are facing, therefore, a systemic notion of quality evaluation which forces us to look at the multiple dimensions of the educational phenomenon which involves multiple agents (or players), also considering that all the elements of an educational system can contribute to the quality of that very same system (Saraiva et al, 2006).

In this work, the relevance of the study about « teaching quality» is based on its relation with the matter of academic achievement and students' success in school. This is due to the fact that studies conducted in several countries show a strong positive relation between students' academic success and the teaching quality provided to them (Ethier, 1989; Newmann, Marks e Gamoran, 1995, Chua, 2004; Bonito e Trindade, 2008; Bonito et al, 2008; Pires, Fialho, Saragoça e Bonito, 2008). Considering that teacher performance is one of the most determinant factors in the quality of educational systems (Barber e Mourshed , 2007) and that it is also the element which has greater influence on student performance (Darling-Hammond, 2000), it is only fit to consider that the only way to improve school results consists in first improving the teaching process (Barber e Mourshed , 2007).

Our study considers that education quality can be evaluated by the many players involved in the educational processes. It is obvious that among them are students and as Morais et al (2006) states, “students' evaluation of the teaching process is acceptable and legit because their role, as front row players and beneficiaries of the learning process, gives them the right to participate, up to a point, in evaluating the teaching process (Felder e Brent, 2004). Following this train of thought, Murray (1984) goes even further when he considers that only students can judge if the teacher's comments on their exams are useful or not. The evaluation of teaching quality considering students' opinions is relevant, especially if one assumes that, like Fraser (1991) states,

sometimes students' views on a situation play a more determinant role in their behavior than the real situations which they experience.

Teacher commitment

The observation of real situations, the conducting of experiments and scientific research show us that teaching quality depends, up to a point, on teachers' commitment when performing the duties of their "trade". Several scientific reading material (for example (Crosswell, 2006; Huberman, 1997; Nias, 1981) refers that dedication, commitment and teacher compromise are considered as highly relevant elements to factor in the success and future of education.

Teacher commitment has an influence on class absence rates and, therefore, on students' performance as well as on their attitude towards school (Firestone, 1996; Graham, 1996; Louis, 1998; Tsui and Cheng, 1999). As a matter of fact, researches conducted in the U.S.A. and in the U.K. show that school development depends on teachers' commitment as well as on the teachers having a consistent professional development and it also depends on their combined work in the school and in partnership with other schools in order to achieve the common goal of improving teaching and learning quality and consequently increasing the performance levels (SICI, 2007: 8).

Teacher commitment is one of the traits of *Towards a new professionalism in teacher education* (Malm, 2009). In a Phd study, Leanne Crosswell (2006) supports that teachers' behavior is influenced by the commitment they assume in their professional lives and it manifests itself in several interdependent aspects: organization (university), students, career advancement, professional knowledge base, teacher involvement and also personal factors (such as values, beliefs and ideologies). In the empirical research which was conducted, the author found that *passion* is a crucial element in teacher commitment (Crosswell, 2006: 249) and it appears closely related to factors that are external to the teacher and to aspects derived from the perception the teacher has on himself as well as to the relation he establishes with the teaching process. Therefore, teacher commitment is inexorably connected to individual values and beliefs.

A high level of participation, commitment and compromise from teachers when performing the duties that are part of the mandate given to them by society (Teixeira, 2000) – compromise to students, to their career project, to their job, to the professional

knowledge base and to the school/institution where they work- is one of the terms required to make the participating process translate into school improvement (SICI, 2007: 35). These commitment and participation levels are surely variable during the year span of the job due to factors like student behavior, school environment, available support (administrative and other), working conditions, parents' and tutors' demands, national educational policies (Day, 2000; Tsui and Cheng, 1999) and, in a higher scale, the institution's type of management and leadership. In fact, it is the institutions job to provide means which can preserve the culture of school and the arise and maintenance of an organizational environment which favors the commitment of all teachers (and remaining players) (Torres, 2007; Sá, 1997; Nóvoa, 1999), thus allowing them to make the educational project compatible with their personal priorities, values, beliefs and opinions.

Even though the academic environment has a different impact on each student according to their individual experiences, it is believed that independently from each student's characteristics, some of the variables of the academic setting are relevant enough for the students (Upcraft e Schuh, 1996), thus influencing not only their academic results but also their views on the education institute they attend. These views are particularly important for the academic integration and socialization of first year students (Weidman, 1989; Torre, 1992). On this subject Chickering (*apud* Santos e Almeida, 2001: 206) points out the role played by elements like institutional objectives, size of the institution, interactions established between students and members of the University community, teaching practices and also the services and activities provided to students on a scholarship regime.

Teaching methodologies

In spite of the various meanings the word *quality* can assume, in what teaching quality is concerned, the importance given to material and human resources is a recurrent scenario and the most referred quality indicator is the way in which teaching and learning are developed.

Since certain types of pedagogical practices influence the results achieved by students, the organization of the teaching and learning process as well as the methods used together with the didactic resources, are considered valid and are factored in the analysis of school quality. The teaching means and methodologies can be highly varied,

ranging from the perspectives considered to be more traditional to the perspectives more focused on students. Several studies show that innovative methodologies along with group or pair work have a positive influence in academic performance. Such is the situation in a case study conducted by Huet and Tavares (2005) and developed in the area of teaching and learning Programming in the first year of the course at the Universities of Aveiro and Strathclyde (Glasgow, UK). An extensive research data confirms, as an example, the efficiency of cooperative learning. Contrary to what happens in conventional education, students exposed to the cooperative method tend to:

- 1- achieve better test scores;
- 2- be more persistent in continuing their studies;
- 3- develop better analytical, creative and critical skills;
- 4- have a higher comprehension of the study topics;
- 5- be more motivated towards learning;
- 6- relate better with their peers;
- 7- improve their positive attitudes towards studying;
- 8- show lower anxiety levels and higher self-esteem (Johnson *et al.* 1998; McKeachie 1999).

Evaluation methodologies

The research conducted so far shows the relevance which the role of evaluation may assume in the improvement of teaching and learning experiences (Figari & Achouche, 2001; Shepard, 2000, 2001; Stiggins, 2004).

It is important to point out that the notion of evaluation in the present scenario is not limited only to the part of giving marks. It is now an organized set of processes aiming at watching over and regulating every learning experience while verifying how the learning experience is conducted (Roldão, 2003). This new conceptualization is based on three fundamental principles: 1- the need to use several ways of evaluating as well as varied evaluation instruments which are suitable to the range and nature of the learning experiences being promoted; 2- the essentially educating and positive nature which focuses on the learning experiences' aspects that need to be improved and suggests ways of overcoming difficulties while appreciating the students' interests, skills and knowledge; 3- interpreting, considering, informing and deciding about the teaching and learning processes, having as a prime directive helping to promote or improve the students' learning experience.

These principles should be applied in three evaluation models: diagnostic, formative and summative. These have absolutely different, yet complementary,

objectives which lead to a new evaluation culture, assumed as a process which is suited to better learn and teach thus contributing to improve teaching quality and, consequently, the quality of the learning experiences and the quality of the education system in its whole (Fernandes, 2007).

Black & Wiliam (1998a; 1998b), in an article which reviewed reading material about formative evaluation practices, show the following conclusions: 1- the recurring practice of formative evaluation improves students' learning experiences substantially; 2- the students' who benefit the most from formative evaluations practices are those who have difficulties in learning; 3- the students' who attend classes where formative evaluation is predominant, achieve better results in external evaluation tests (e.g. exams) than the students who attend classes where summative evaluation is predominant.

However, in the plan of pedagogical practices, summative evaluation is the predominant one maybe because it has a higher social impact than the other models. This is because it is associated to decision making regarding students' academic progress or students' certification. As Pacheco (1996) points out "even though summative evaluation is a terminal stage of a process and even if this type of evaluation is an administrative and functional requirement of the system, formative evaluation is, however, the one which should be privileged so that a guided intervention to improve education quality is possible" (p.134).

Case Study

This work was developed for a research project financed by FCT and entitled "From Education Quality to Academic Performance: a Longitudinal Study about the Perspective of both High School and Higher Education Students. A Search for Effective Practices towards a Successful Academic Performance"⁹. This research project is being developed by a multidisciplinary team of faculty members who also work as researchers at the Education and Psychology Research Center of the University of Évora¹⁰.

The data collected from the closed questions survey is analyzed in this work. The survey consists of 33 items distributed by three domains: "Teacher Commitment"

⁹ In portuguese: "*Da Qualidade do Ensino ao Sucesso Académico: Um Estudo Longitudinal sobre a Perspectiva dos Estudantes dos Ensinos Secundário e Superior. Procura de Práticas Eficazes para um Rendimento Académico de Sucesso*"

¹⁰ In portuguese: *Centro de Investigação em Educação e Psicologia (CIEP) da Universidade de Évora*

(9), “Teaching Methodologies” (17) and “Evaluation Methodologies”. The goal is to assess the influence of these three variables as indicators of education quality in the academic performance of students in Nursing and Management courses in higher education institutions of the Alentejo region (Portugal).

Instruments and Procedures

During the data collection process, a decision was made to design and use a structured questionnaire, shaped as an opinion survey. We called it Questionnaire of Students’ Views on Teaching Quality¹¹. It is a self-report questionnaire consisting of 67 items in a four point answer format: *totally disagree, disagree, agree, and totally agree*.

The final version of the surveys was achieved by mutual agreement among the project researchers and it was later subjected to an external panel of specialists (external validation) who provided notes that allowed to clarify the language of the items and to improve the items’ design. The data collection stage took place between May and June of 2008 and the questionnaire was conducted in class, directly by the team of researchers after obtaining the necessary authorizations.

The Cronbach alpha calculation formula was used to validate the questionnaire’s reliability. The squares of the multiple correlation results for each item were also determined.

The use of the CART (Classification and Regression Trees by Breiman, Friedman, Olshen & Stone, 1984) algorithm is also proposed in this work as a non parametric regression method to predict the academic performance measured using a weighted average the course currently has (an estimate). CART regression trees are essentially used to explain and predict a certain attribute. This method, which is fairly used in multilayered studies, as the advantage of being successful in situations where explanatory variables are a mix of nominal, ordinal and continuous variables.

The data was analyzed using the *SPSS* computer software, version 17.0.

¹¹ In portuguese: *Questionário de Representações dos Estudantes sobre Qualidade do Ensino (REQUE)*.

Sample

In this article we considered the courses of Nursing and Management of the Universities of Évora and the Polytechnic Institute of Beja as the research field. The criterion was the fact that both courses are taught in both institutions. A sample of 256 students was studied out of the total student population for those courses. The 256 students were comprised by: 135 from the Nursing course (53%) and 121 students from the Management course (47%). These students were attending the 1st year of the 1st cycle of Graduate Studies.

About 71% of students interviewed are female, having an average of 21.8 years of age. The male students are, in average, a year older than their female colleagues. The value of 19 years of age was found for both genders, ranging from 18 to 49 years of age.

Results and Discussion

The higher Cronbach alpha number was found in the domain *Teaching Methodologies* ($\alpha = .839$), followed by the *Evaluation methodologies* domain ($\alpha = .640$) and the *Teacher Commitment* domain ($\alpha = .640$).

Considering the results of the *Teacher Commitment* domain (Table 1) it's clear that, contrary to the remaining categories, Management students show higher agreement results than their colleagues in 6 of 9 items used, although the difference between the average results is only relevant for item 6. The average results for the item *Teachers attend regularly* ($M^{\text{Management}} = 3.12$; $M^{\text{Nursing}} = 2.95$; $p = .031$) show very positive numbers which agree with the very high ones found for items numbered from 1 to 7. The items which contradicted this trend were items 8 (*Generally, teachers know the names of their students*) and 9 (*Students establish a personal relationship with the teachers*), with the respective average results of $M^{\text{Management}} = 2.42$ and $M^{\text{Nursing}} = 2.52$ and of $M^{\text{Management}} = 2.33$ e $M^{\text{Nursing}} = 2.27$. Students from both courses seem to agree that their teachers are committed ($M^{\text{Management}} = 2.94$ and $M^{\text{Nursing}} = 3.00$) and are readily available to clarify doubts ($M^{\text{Management}} = 3.26$ and $M^{\text{Nursing}} = 3.26$). They admit, nonetheless, that teachers do not know their name nor do they establish personal relationships with them. But students feel that, generally speaking, those kinds of relationships are adequate ($M^{\text{Management}} = 3.13$ and $M^{\text{Nursing}} = 3.01$).

In table 2, it is possible to observe that, for the domain *Teaching Methodologies*, the students from Nursing courses show higher agreement results in 15 of the 17 items.

Relevant differences were found in 7 items, which are: 15- *The theoretical part of classes is well articulated with the practical part* ($p = .009$); 19- *Practical activities showing what was learned are promoted in the course* ($p = .000$); 20- *Reasoning development activities are promoted in the course* ($p = .008$); 22- *Teachers promote students' critical thinking skills* ($p = .019$); 23- *Generally speaking, teachers relate the contents of one subject to those of other subjects* ($p = .000$); 24- *Teachers stimulate students' creativity* ($p = .003$); 25- *Teachers motivate students' to produce knowledge* ($p = .000$). In this domain, the items which revealed some dissatisfaction in students from both courses were: 10- *When teaching class topics, teachers use ideas and knowledge shown by the students* ($M^{\text{Management}} = 2.29$ and $M^{\text{Nursing}} = 2.37$) and 13- *Class pacing allows enough time for me to change my mind* ($M^{\text{Management}} = 2.27$ and $M^{\text{Nursing}} = 2.30$).

Even though the *Teaching Methodologies* domain was comprised by 17 items, only in two of them were found results inferior to 2.5. These items are: 10- *When teaching class topics, teachers use ideas and knowledge shown by the students* ($M^{\text{Management}} = 2.29$ and $M^{\text{Nursing}} = 2.37$) and 13- *Class pacing allows enough time for me to change my mind* ($M^{\text{Management}} = 2.27$ and $M^{\text{Nursing}} = 2.30$).

In the *Evaluation Methodologies* domain, (Table 3), all the average agreement results were higher in the Nursing course and relevant differences were found for items 30 (*Generally speaking, evaluation is fair*) ($p = .000$) and 31 (*Generally speaking, the evaluation procedures are negotiated with students*) ($p = .001$). This last item requires special attention because it presents the lowest scores found in this study ($M^{\text{Management}} = 1.85$ and $M^{\text{Nursing}} = 2.19$) and it is the only item in this domain where students show disagreement.

The students feel that the evaluation procedures are not previously negotiated ($M^{\text{Management}} = 1.85$ and $M^{\text{Nursing}} = 2.19$) even though they feel those procedures are adequate ($M^{\text{Management}} = 2.69$ and $M^{\text{Nursing}} = 2.80$) and revealed appropriately in due-time ($M^{\text{Management}} = 2.84$ and $M^{\text{Nursing}} = 2.99$). But there is a relevant difference in the way they perceive fairness in the evaluation process ($p = 0.00$). So, in a study for further analysis, already planned for a more advanced stage in this project, it will be important to know the types and ways of negotiating developed between teachers and students and also what the different methodologies used in the two courses are.

The analysis of the results found for the influence of each explanatory variable in **students' academic performance** (Picture 1) show that the variable *Teaching*

Methodologies is the one with greater relevance when predicting academic performance, followed by *Evaluation Methodologies* and, finally, *Teacher Commitment*.

Conclusion

We were able to conclude from the way students interpret and obtain *education quality* that the results seem to show, in general, a quite positive level of satisfaction. The existence of 33 items with average numbers superior to 2.5 (75%) supports that fact. Nursing students are, in general, more satisfied with the teaching quality they get (24 items out of 33, 72,7%) and when analyzing the 10 items where relevant differences were found ($p < .05$), we see that in 9 of those items, the average numbers are higher for the students in these courses.

We also conclude that these students, who are mature adults and have a long experience as students (at least 12 years of previous schooling), essentially value the way teachers lead them to learning the established set of contents as the most important domain of all three which were considered as influences in their academic performance. The fact that many students, especially those who have student worker status, are not able to attend classes and can choose the evaluation by exam regime (instead of undergoing the continuous evaluation process) may justify the minor relevance of *Teaching Methodologies*. On the other hand, results show that students do not have *Teacher Commitment* in high regard as a determining element in the teaching quality which is provided and consequently, as a determinant element of students' academic performance. These study's findings can be justified by the distance we believe still exists in established relationships between the interviewed students and their teachers as well as by the consequent lack of knowledge about how teachers conduct their work.

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Table 1*Responses from students in higher education regarding Teacher Commitment*

Items	Courses	N	Mean	Std. Deviation	t	Sig. (2-tailed)
1. Teachers, in general, are committed in teaching classes	Nursing	135	3.00	.457	,872	,384
	Management	119	2.94	.615		
2. In general, relations between students and teachers are adequate	Nursing	135	3.01	.553	-1,915	,057
	Management	121	3.13	.482		
3. Teachers encourage students' participation in class	Nursing	135	2.85	.652	-1,152	,251
	Management	121	2.94	.596		
4. In general, teachers are available to answer students' questions	Nursing	135	3.26	.598	-,069	,945
	Management	121	3.26	.602		
5. Teachers respect the opening hours for students	Nursing	135	2.61	.847	-1,887	,060
	Management	120	2.80	.774		
6. Teachers are assiduous	Nursing	133	2.95	.638	-2,169	,031
	Management	120	3.12	.537		
7. Teachers are punctual	Nursing	132	2.86	.607	-,979	,329
	Management	119	2.93	.634		
8. In general, teachers know their students' names	Nursing	134	2.52	.743	1,143	,254
	Management	120	2.42	.729		
9. In general, students establish personal relationships with teachers	Nursing	134	2.27	.777	-,686	,493
	Management	121	2.33	.650		

Table 2*Higher education students' answers regarding the Teaching Methodologies*

Items	Courses	N	Mean	Std. Deviation	t	Sig. (2-tailed)
10. When teaching class topics, teachers use ideas and knowledge shown by the students	Nursing	134	2.37	.763	,817	,415
	Management	119	2.29	.774		
11. The pace of classroom facilitates learning	Nursing	128	2.58	.671	,677	,499
	Management	117	2.52	.638		
12. Course teachers explain the subjects clearly	Nursing	135	2.88	.624	1,682	,094
	Management	119	2.75	.641		
13. Class pacing allows enough time for me to change my mind	Nursing	133	2.30	.807	,300	,764
	Management	118	2.27	.747		
14. In general, the teaching methodologies applied are suited to learning	Nursing	133	2.83	.657	1,756	,080
	Management	121	2.69	.620		
15. The theoretical component in classes is combined with the practical component	Nursing	132	2.99	.636	2,633	,009
	Management	114	2.78	.621		
16. In classes there are presented various theories and alternative models for explaining the same phenomenon	Nursing	133	2.57	.699	-,268	,789
	Management	121	2.60	.702		

17. In the classroom, the historical context of theories and models in study is made	Nursing	134	2.76	.727	1,210	,228
	Management	120	2.66	.615		
18. In the classroom, the students' reflective activity on matters is encouraged	Nursing	129	2.95	.577	,987	,325
	Management	115	2.87	.629		
19. Practical activities showing what was learned are promoted in the course	Nursing	135	3.01	.707	4,534	,000
	Management	120	2.62	.663		
20. Reasoning development activities are promoted in the course	Nursing	127	3.00	.577	2,693	,008
	Management	115	2.79	.628		
21. Teachers present in class the most recent knowledge of the topics discussed	Nursing	135	2.78	.769	-,545	,586
	Management	120	2.83	.589		
22. Teachers promote students' critical thinking skills	Nursing	135	2.95	.662	2,367	,019
	Management	121	2.75	.662		
23. Generally speaking, teachers relate the contents of one subject to those of other subjects	Nursing	135	2.92	.561	5,038	,000
	Management	120	2.53	.660		
24. Teachers stimulate students' creativity	Nursing	134	2.80	.713	3,030	,003
	Management	121	2.54	.659		
25. Teachers motivate students to produce knowledge	Nursing	132	3.09	.531	4,014	,000
	Management	115	2.79	.642		
26. Teachers encourage students' ability to create alternative solutions to problems	Nursing	132	2.73	.740	1,727	,085
	Management	120	2.58	.643		

Table 3

Higher education students' answers regarding Evaluation Methodologies

Items	Courses	N	Mean	Std. Deviation	t	Sig. (2-tailed)
27. The methods of evaluation are combined with the teaching methodologies	Nursing	135	2.69	.777	,567	,571
	Management	121	2.64	.695		
28. In general, students receive teacher's feedback on the their evaluation papers	Nursing	135	2.89	.769	1,422	,156
	Management	120	2.77	.576		
29. The assessment procedures are appropriate to the learning objectives	Nursing	133	2.80	.649	1,499	,135
	Management	121	2.69	.517		
30. Generally speaking, evaluation is fair	Nursing	119	2.89	.635	4,119	,000
	Management	115	2.55	.639		
31. Generally speaking, the evaluation procedures are negotiated with students	Nursing	135	2.19	.885	3,454	,001
	Management	121	1.85	.667		
32. The assessment system was disclosed in time	Nursing	134	2.99	.736	1,734	,084
	Management	121	2,84	.548		
33. The final classification includes, in a balanced manner, the different elements of evaluation	Nursing	135	2.77	.819	,194	,846
	Management	121	2.75	.674		

Figure 1. *Independent Variable Importance*

