

The impact of the lecturer experience on students' satisfaction

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ABSTRACT

Purpose – The paper is twofold aimed. We first examine the relationship between teaching experience and students' satisfaction. In a second stage we explore the mediating effect of research intensity in this relationship.

Design/methodology/approach – Data gathered in 2014 come from 229 different subjects offered at the Universitat Internacional de Catalunya, Barcelona (Spain). The reliability and validity of the students' satisfaction constructs is assessed using structural equation modelling (SEM). A couple of nested models are analysed in order to assess the mediation effect of research in the relationship between the lecturer experience and the student satisfaction attained.

Findings (Mandatory) – Results support the thesis that teaching experience is a determinant of student satisfaction, but on the other hand, the lecturer research acts as a negative mediator to explain satisfaction. Taking into account both effects, the total effect between experience and satisfaction is non-significant. There have been also found evidence that current incentive systems at universities are research-biased, negatively impacting on teaching quality, and consequently on student satisfaction.

Practical implications – The findings suggest that current incentive systems at universities are research-biased, negatively impacting on teaching quality, and consequently on student satisfaction

Originality/value – The paper contributes with the analysis of the decomposition of the total effect between experience and students' satisfaction in the direct effect and the mediated effect of research effort.

Keywords: higher education, teaching experience, research intensity, student satisfaction.

Paper type: Research paper.

INTRODUCTION

With the rise of the evaluative state, the assessment of university quality has become a meaningful topic amongst academics and policy makers. Indeed, both public and private bodies, as well as universities, are designing and implementing strategies to ensure a proper performance of higher education institutions in their daily activities.

Different types of evaluations are envisioned; however, those adopting a lecturer-centred approach are gaining popularity. Lecturers are in charge of teaching students but also of actively participating in research activities. This suggests that both teaching and research quality are in their hands (Bentley et al., 2013). Given this high responsibility that lecturers have acquired, university managers must ensure that lecturers are qualified and competent for their job. Teaching and research are the two categories of academic work for which faculty are usually evaluated. Different attempts and measuring systems are found in abundance, however, there is a fierce debate concerning the suitability of the proxies used to evaluate each type of activity.

Indeed, the relationship between teaching and research activities is a controversial issue in the field of higher education management (Halse et al., 2007; Robertson and Bond, 2005). Over the years, teaching and research functions have increasingly acquired separate identities, and nowadays there is a growing awareness that they have become separate activities of faculty work (Barnett, 2005; Jenkins and Zetter, 2003). However, when both activities are viewed from the standpoint of a learning process, they are expected to be mutually reinforcing (Becker and Kennedy, 2005; Brew, 2003; Burke and Rau, 2010).

Previous studies examining the trade-offs between teaching and research activities have reported different results (Durning and Jenkins, 2005), providing well justified arguments for a positive, negative and even a null effect. However, to the best of the authors' knowledge, literature is inconclusive regarding how students' satisfaction is determined by lecturers' performance in these two activities.

Students' choice is found to be highly influenced by teaching quality and university's prestige (which is related to research quality) (Gautier and Wauthy, 2007). Because students are one of the main customers of the higher education system (Woodall et al., 2014), in this study we examine how faculty members' prior teaching and research achievements are shaping students' satisfaction. We posit that prior teaching experience positively influences students' satisfaction. Nevertheless, we argue that this relationship is mediated by the research intensity of the lecturer. Aiming at explore these relationships we propose an exploratory analysis based on the specific case of the Universitat Internacional de Catalunya, a private university in Barcelona (Catalonia, Spain).

The remainder of the paper is organized as follows. We first review the literature on the potential trade-offs between teaching and research activities. The next section provides the theoretical framework and the development of the hypotheses. After this, we describe how constructs are operationalised and the methodological approach used. Results are reported in the next section. The discussion of the findings and concluding remarks are put forward in the last section.

TEACHING QUALITY VERSUS RESEARCH PERFORMANCE

Most higher education systems expect lecturers to excel at both teaching and research activities. Literature examining the tensions between the teaching and research role of lecturers is rich, although unclear. Figure 1 summarises the three main scenarios reported in the literature.

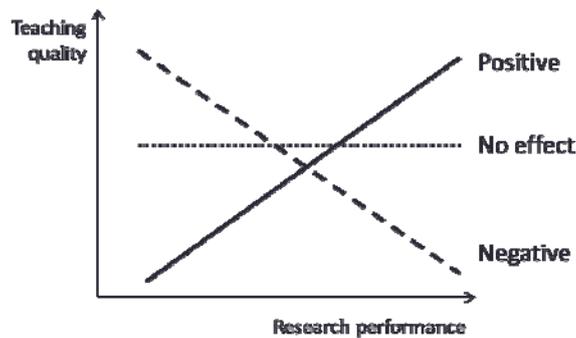


Figure 1 – Potential scenarios resulting from the teaching/research nexus paradigm.

A positive relationship is assumed if we look at the abilities underlying a good teaching and a successful research. Attitudes, values and competencies that lead to teaching excellence are also likely to lead to research quality (uz Zaman, 2004). Both teaching and research activities require the lecturer to be creative (e.g. imagination, originality, inventiveness), highly committed with his/her tasks (e.g. perseverance, dedication, hard work), possess critical analysis, and be good in disseminating and communicating knowledge (Hattie and Marsh, 1996). Reinforcing effects between teaching and research are thus accepted in both directions (Shin, 2011). On the one hand, research contributes to teaching because research-active lecturers are at the cutting-edge of their field, which translates in more accurate and up-to-date material that captures more easily students' attention (Marsh and Hattie, 2002). Likewise, presenting the researcher's own material adds a sense of authenticity that differs from presentations where teachers discuss the work of others with neither passion nor an active involvement (uz Zaman, 2004). On the other hand, there are also claims that research benefits from teaching. Preparation of teaching materials as well as students' suggestions at class may help identify gaps in the literature and detect new research directions (Coate et al., 2001). Also, sharing the results of one's research efforts with an appreciative audience provides priceless feedback that could be used to improve research outcomes. All in all, these studies indicate that there are a number of ways in which knowledge production and student learning can be brought together (Griffiths, 2004). Nevertheless, following Robertson (2007) to mutually reinforce, the teaching/research nexus needs to be expanded and include the phenomena of learning, knowledge and their inter-relation.

A second bunch of studies argue that teaching and research are conflicting activities, pointing to a negative relationship between them (Parker, 2008; Serow, 2000). A divergent reward system model is one of the main arguments supporting this thesis (Hattie and Marsh, 1996). Both teaching and research are time-consuming activities. As time is a scarce resource, faculty members tend to prioritize those activities that are going to report them a greater benefit, a benefit which is usually measured in terms of stability within the academia. Considering the weight given to research outputs in evaluation processes for tenure and promotion, young academics that need to carve out an academic career are more likely to reduce the time and effort spent on teaching in favour of research, as this long-distance race is conditioned, to a great extent, to their research capacity (Marsh and Hattie, 2002). Likewise, faculty members might also be tempted to spend their time in research activities in detriment to teaching ones because research may entail contracts with third parties, implying additional revenues. In this respect, teaching does not usually significantly contribute towards overall salary (uz Zaman, 2004).

Finally, teaching and research have been also considered as separate activities with little impact on each other (Noser et al., 1996; Ramsden and Moses, 1992). Authors supporting this premise claim that in some research centres where there is no teaching, high quality research is performed (Ramsden and Moses, 1992). This means that teaching and research could be considered independently. Another argument holds that these activities are different enterprises because they involve different tasks, which in turn, require different preparation and personality traits (Shin, 2011). While teaching concentrates in the transmission of knowledge,

research stresses the discovery of knowledge. An effective teacher may not be an effective researcher, and vice versa. As a result, one might expect a zero effect between these two activities.

There is another stream of literature that also might shed light on the topic: the role of conflict on this matter. The tension between the two roles is also mediated by some exogenous factors that are not captured in our database structure.

Theoretical framework and hypotheses development

Teaching experience

If a lecturer is committed with teaching excellence, his/her work will be highly valued by students (Xiao and Wilkins, 2015). The underlying rationale behind this argument is that irrespectively of the teaching experience, those lecturers who are good communicators, motivated and feel what they teach, are concerned with an effective student learning, consequently, they are interested in improving their teaching skills and can obtain high records in students' evaluations.

Although both youth (young lecturers) and maturity (senior faculty) can generate an interest for teaching, there is however a widespread consensus on the positive relationship between the years of teaching experience and teaching performance (Drule et al., 2014). While in the early career stages lecturers might be concentrated in defining the objectives and the content of the course, until the lecturer does not achieve teaching maturity, he/she will not really in-depth and experiment with different learning methods and fully engage students in their learning process.

Certainly, experience is the father of wisdom. Previous experience gives academics the tips and tricks on how to better attract students' attention, which consequently, increase their satisfaction with the course. Novel lecturers and doctoral students that have to perform teaching duties are thus in a disadvantaged position. Aiming at compensate this lack of experience they usually take formal courses on teacher training (Gibbs and Coffey, 2004).

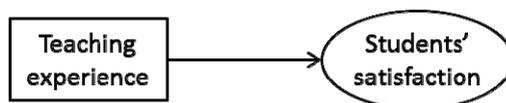
Previous studies examining the impact of teaching experience on student satisfaction is quite limited. For the purpose of this study the works of Prieto and Altmaier (1994) and Shannon et al. (1998) are remarkable. These authors examined the influence of previous teaching experience on graduate students at university and found that those lecturers with previous teaching experience rate more positively than those without such teaching experience. More recently, Madsen and Cassidy (2005) examined how different levels of teaching experience affect perceptions of teaching effectiveness and student learning, concluding that teaching experience do have an impact on the perception of teaching quality. Accordingly, we hypothesise:

Hypothesis 1: Prior teaching experience positively influences students' satisfaction.

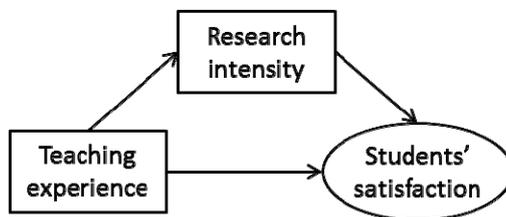
The mediating role of research intensity

Considering the teaching/research tensions described in the literature one may argue that because time is a scarce resource, lecturers might manage it according to their interests and needs (Gautier and Wauthy, 2007). It is thus reasonable to suggest that the relationship between teaching experience and students' satisfaction might be mediated by the commitment of the lecturer in performing research activities. A second hypothesis emerges:

Hypothesis 2: Research intensity mediates the relationship between teaching experience and students' satisfaction.



Model 1a. Total effect of teaching experience on student satisfaction.



Model 1b. Mediator effect of research intensity.

Figure 2 – The two models to be tested.

Stability

Furthermore, we put forward that the commitment to teaching and research activities experiment significant fluctuations throughout the academic life of an instructor. Curriculums are usually driven by research interests, therefore, during the first career stages, research will be occupying most of the time of a lecturer (Boardman and Ponomariov, 2007). This may lead to instructors less available for students and less concerned about their opinions and educational needs. These situations are undoubtedly perceived by students, increasing a sense of carelessness towards teaching that can generate dissatisfaction.

As a lecturer advances in the academic career, two main different behavioural paths are envisioned. The first pattern is followed by researchers aimed at building a solid research reputation. Herein, the pressure for producing and disseminating research outputs might have transformed into something vocational, but much more demanding as research projects tend to rapidly scale. The second pattern is shaped by obligations. Seniority within academia tends to involve holding academic posts that entail some degree of responsibility (i.e. head of the department, deputy head of faculty, dean, etc.). Regardless the pattern followed, in both cases teaching is relegated to a second place. However, we argue that because of the teaching experience they have gained over the years, they are able to compensate the limited time devoted to teaching activities, and consequently, obtain better results than young researchers in students' satisfaction surveys. Accordingly, our last hypothesis follows:

Hypothesis 3: There are significant differences between permanent staff and non-permanent staff in terms of the mediating effect of research intensity in the relationship between teaching experience and students' satisfaction.

METHODOLOGY

Sample

For the purposes of this study, 1077 different subjects offered at the Universitat Internacional de Catalunya (UIC) were considered. Data were collected during the first term of academic year 2014/15. After filtering in order to get records with the complete information required for our study, 229 valid subjects remained. Note that the unit of analysis is the subject, and for each subject we then gathered information about the corresponding lecturer. No bias gender was detected. Table 1 shows the main characteristics of the sample.

	Number	%
Gender		
Male	114	49.8 %
Female	115	50.2 %
Total	229	100.0 %
Main discipline		
Architecture	40	17.5 %
Health sciences	75	32.8%
Social and law sciences	25	10.9 %
Humanities	89	38.9 %
Total	229	100.0 %
Stability		
Organic staff	123	53.7 %
Functional staff	106	46.3 %
Total	229	100.0 %

Table 1 – Characteristics of the sample

Measures

Students' satisfaction

Student voice is now being heard more than ever. Students are the direct recipients of university teaching, becoming primary consumers of the higher education system. They have the most first-hand information concerning their instructors' teaching performance (uz Zaman, 2004), therefore asking them directly about their perceptions of teaching effectiveness is crucial.

A common practice for obtaining students' perceptions of lecturers consists in the use of surveys, where students are asked to fill in an evaluation sheet. Questions typically refer to those characteristics that have been found to describe what constitutes an effective teacher: whether the lecturer is knowledgeable about, demonstrates a strong interest in the subject, is organized and prepared for class, is able to assist with and encourage student learning, is dynamic in the classroom with effective presentation skills, or is fair and equitable in the evaluation of students. The reliability and internal validity of these instruments has been tested and there is a consensus among academics that data obtained through these instruments is consistent (Gravestock et al., 2008; Kulik, 2001) and essential for a comprehensive evaluation of university quality (Seldin, 2004; 2006).

At this point, it is remarkable to highlight that responses coming from students' surveys capture whether faculty members are interested and committed with their teaching activities regardless the academic position hold by the instructor. In fact, students are rarely aware of how the academic career and the promotion system work. Because of this characteristic, student satisfaction surveys are very attractive.

According to Pratt (1997) student satisfaction surveys have to consider three aspects of teaching: organization and planning (reading list, timing and workload), implementation and interaction (technical skills and class management) and results (learning outcomes and effectiveness). In this respect, UIC created a scale to fulfil these requirements. The questionnaire contains 10 items and employs a five-point Likert scale. It was validated in 2007 for two subjects from the two different campuses of the university. The 10 items are grouped in: (i) organization and planning, items 1-3; (ii) implementation and group interaction, items 4-9; and (iii) results, item 10. Table 2 contains the full scale.

Organisation and planning
1. The reading list and additional materials for the course contributed to improving my appreciation and understanding of the subject.
2. The course organisation and activities were well prepared and thoroughly explained by the lecturer.
3. The workload of this course was appropriate to set time for learning.
Implementation and interaction
4. The lecturer clearly presents and highlights the most important points of the course.
5. The students were encouraged by the lecturer to take part in the class discussions.
6. The lecturer properly answers students' questions and guides students in the development of the different tasks to be completed.
7. The lecturer uses didactic resources that facilitate the learning process.
8. The content of the exams and other assessed assignments matched the course content and the emphasis placed on each topic by the lecturer.
9. The lecturer showed a genuine interest in all of the students and was readily available to students outside of class time.
Results
10. The task performed by this lecturer has helped me to improve my knowledge, skills or attitudes.

Table 2 – Items included in the students' satisfaction survey

Control variables

There are, however, a number of additional factors shaping students' satisfaction that need to be controlled. First, we control for gender invariances. Second, we differentiate by knowledge field (Lindblom-Ylänne et al., 2006). Taking into account the academic offer at UIC, there are four main disciplines: architecture, health sciences, social and law sciences, and humanities. Third, we distinguish between undergraduate and master level (Coate et al., 2001; Noser et al., 1996).

Several are the voices that claim that despite the proliferation of students' satisfaction surveys, a combination of multiple sources can provide a more accurate, reliable and comprehensive picture of teaching than just one sole source (Berk, 2005). In this sense, evidences from the candidate and reports elaborated by peers constitute other ways of gathering valuable information (Seldin, 2006) that can help identifying areas of improvement which students are not yet able to perceive (uz Zaman, 2004). We thus introduce a four control variable, and examined whether the results of the internal teaching assessment performed by the university are consistent with students' opinions. At UIC the Department of Innovation and Educational Quality is in charge of perming this assessment. Evaluations range from unfavourable, favourable with conditions, favourable, or highly favourable. A combination of multiple evidences is used to determine the level of teaching quality: (i) a report elaborated by the head of the department; (ii) a self-assessment report, providing a reflective appraisal of how the instructor has designed and delivered the course (this report is usually complemented with examples of course materials and sample student assignments); and (iii) an in-class evaluation performed by another professor.

Teaching experience

Teaching experience has been measured through the number of years that a lecturer has been teaching at UIC. We acknowledge the limitation of using this metric as it does not capture previous teaching experience of the lecturer in other universities prior to joining UIC. Unfortunately, it was not possible to obtain this information, consequently, we only account for years of teaching experience at UIC.

Research intensity

Concerning research metrics, common indicators tend to use bibliometric data (Sarrico et al., 2010). Information of this type is widely available, including measures such as the number of papers published in scientific journals indexed in specific databases and citations counts. All these metrics are accepted to reflect both the quantity and quality of the research activity (Abramo et al., 2008). However, these variables are usually criticised because they can be influenced by self-citation and friend-citation practices (Toutkoushian et al., 2003) and are incomplete (Van Raan, 2005), representing an incomplete picture of the research dimension.

Recent studies suggest that a more convenient measure of research intensity would be that one including weighted composites of different research results (Turner, 2005). While some academics suggest that aggregate dimensions can be obviated for introducing biases (weights are not objective) and not being a substantive basis in the literature for making such judgments (Salerno, 2004), other authors argue that only composite indices can really reflect research quality (Tyagi et al., 2009).

Similar to composite indicators are the assessments performed by external agencies to academic staff. Quality assurance criteria and guidelines in the European Higher Education Area are sponsored by the European Association for Quality Assurance in Higher Education (ENQA) and include the assessment of academic staff. Although these procedures entail a holistic evaluation of academics' performance, they tend to be research-biased. Consequently, the assessment they provide is much more able to reflect research activities than teaching ones. In Catalonia, two external agencies are in charge of performing this assessment process: the Catalan University Quality Assurance Agency (AQU), acting at the regional level, and the National Agency for Quality Assessment and Accreditation of Spain (ANECA) covering the whole Spanish territory. When a Catalan university needs to replenish a vacant position, it takes in account whether the candidate holds any of the accreditations issued by either AQU or ANECA. Although both agencies are operating under the same European principles they use own standards and the names of the resulting categories (according to the level of achievement) are also diverse.

Table 3 summarises the main academic categories that exist in the Catalan higher education system. The category in the first row indicates that the lecturer is still in his/her initial stage so that his/her research outputs are reduced (in terms of publications, conferences, research projects, patents, etc.). On the contrary, last row represents a lecturer with a solid career, accordingly, research outputs are numerous and of great quality.

Coding	Category	Original name	Accreditation agency
1	Temporary lecturer	Profesor colaborador	ANECA
	Temporary lecturer	Professor col-laborador	AQU
2	PhD assistant lecturer	Profesor ayudante doctor	ANECA
	Tenure-track lecturer	Lector	AQU
3	PhD lecturer	Profesor contratado doctor	ANECA
	Teaching staff at private university	Profesor de universidad privada	ANECA
4	Senior lecturer	Profesor titular	ANECA
5	Tenured assistant professor	Professor agregat	AQU
6	Professor	Profesor catedrático	ANECA
7	Full professor	Catedràtic d'universitat	AQU

Table 3 – Categories within the Catalan higher education system, ordered according to their level of requirement.

Aiming at overcoming some of the drawbacks of the different metrics summarised above, for the purpose of this study research intensity has been operationalised through a 7-point scale, according to the category each lecturer is occupying.

Some criticism might arise using “research category” as a proxy of “research intensity”, due to the fact an accreditation is composed by some teaching outputs and research outputs (as well as other kind of indicators such as management responsibilities) at the same time. Nevertheless, the nature of these accreditations is such that the higher accreditations are more demanding in terms of research than the lower ones and it allows us the use this variable as a proxy of research intensity.

Stability

The type of contract, permanent or fixed-term, has also been shown to drive lecturers’ decisions on which activities to dedicate more time and efforts (Coate et al. 2001; Shin, 2011). At UIC, the academic career begins in a “functional” category (fixed-term contract). Internal promotion policies are tied to research achievements, therefore, as the lecturer attain higher research accreditations, he/she is given the opportunity to appoint for the “organic body” of academic staff (permanent contract). In addition to having a more stable relationship with the university, organic positions are better remunerated. Aiming at examining the effect of stability in our model, a variable capturing the type of contract (fixed-term or permanent) is used.

Method

The empirical application is divided in three main stages. The first one consists in assessing the psychometric features of the scale used to assess students’ satisfaction. The reliability and internal consistency of the two subscales of quality (organization and interaction) are thus analysed. In order to better understand the students’ satisfaction construct, we then next analyse potential differences in its dimensions attending to a series of factors that might divide the sample into different subgroups. Using the factors identified in the previous section as control variables, we perform several non-parametric tests. For dummy variables (i.e. gender, and study level), the Mann–Whitney U test was conducted. The null hypothesis is that the two samples come from the same population against an alternative hypothesis. For those variables with more than two categories, the equivalent test is the non-parametric Kruskal-Wallis test (i.e. knowledge area, and internal teaching assessment), which extends the Mann–Whitney U test to more than two groups.

In the second stage we analyse the relationship between teaching experience and student satisfaction. We also test the mediating effect of research intensity in the aforementioned relationship. For this purpose, we adopt the methodology suggested by Baron and Kenny (1986) and revised by Zhao et al. (2010), using structural equation modelling (SEM). According to Preacher and Hayes (2004) it is preferable to use SEM for assessing mediation because it offers a reasonable way to control for measurement error as well as some interesting alternative ways to explore the mediating effect.

Lastly, in the third stage we perform a multigroup analysis to test the existence of diverse behavioural paths due to the type of contract (fixed-term or permanent). This method is appropriate for testing whether both the factor structure and the factor loadings are invariant.

RESULTS

Psychometric features of the students’ satisfaction construct

A confirmatory factor analysis (CFA) was conducted with the three items of the “organization and planning” dimension and another CFA with the six items that measure “implementation and interaction”. CFAs were estimated by using the robust maximum likelihood method from the asymptotic variance–covariance matrix. Each CFA extracted only one factor, confirming the unidimensionality of both dimensions.

Validity of individual items were confirmed (0.781 - 0.963). The internal consistency of the two dimensions was analysed through the alpha of Cronbach and the composite reliability. Additionally, the convergent validity was probed with the average variance extracted (AVE) and with the high robustness of the loads, all significant at 0.05 level (see Table 4).

Organisation and planning				Implementation and interaction			
item	standardized load	t-value	r ²	item	standardized load	t-value	r ²
P1	0.890	-	0.792	P4	0.949	-	0.900
P2	0.908	14.854	0.824	P5	0.924	22.408	0.853
P3	0.900	14.205	0.810	P6	0.963	39.599	0.927
				P7	0,955	26.583	0.912
				P8	0,906	18.893	0.821
				P9	0.781	9.071	0.609
Alpha Cronbach	0.922			0.968			
CR	0.927			0.969			
AVE	0.809			0.837			
Fit indices	Identified model			Satorra-Bentler scaled $\chi^2 = 31.58$ (9 freedom degrees) p-value = 0.00024 Comparative Fit Index (CFI) = 0.944 RMSEA = 0.105			

CR: Composite Reliability

AVE: Average Variance Extracted

Table 4 – Loads of the two CFA and statistics for the reliability analysis.

Next step consisted in the analysis of a third CFA to assess the “student satisfaction” construct as a whole, that is, including the two aforementioned dimensions together with a third dimension composed by only one item that accounts for the “results” (item 10). The Satorra-Bentler scaled $\chi^2 = 81.80$ with 33 degrees of freedom (p-value = 0.00001), alongside with a CFI of 0.935 and a root mean-square error of approximation (RMSEA) = 0.081 vouched for the fit of the data.

It is worth mentioning that the correlations among the three dimensions are rather high, arising some concerns about the discriminant power of the three concepts. Nevertheless, we rely on these dimensions as their design is supported by the literature and because of the fit of the model which has been proved to be appropriate.

Factors shaping student satisfaction

In order to analyse differences in the distribution of the dimensions of the student satisfaction construct, four non-parametric tests were conducted. Results are displayed in Table 5, revealing that there are some factors, namely knowledge field and internal teaching assessment that point to significant differences. As for the former, the best results are achieved in the fields of health sciences (average value: 4.2864) and architecture (average value: 4.1430). Further studies should examine the use of different teaching methods to better understand these differences. Concerning the internal teaching assessment, results confirm that those lecturers that obtained a higher score in this internal assessment procedure are also obtaining better results in terms of students’ satisfaction records. No differences are found by study level or gender.

Non-parametric test for independent samples	Categories comparison	Test for independent samples	Dimension	Significance	Result
Gender	Women, Men	Mann–Whitney U test	Planning	0.896	No difference
			Interaction	0.814	
			Results	0.734	
Knowledge field	Architecture, Health Sciences, Social and Law Sciences, Humanities	Kruskall-Wallis test	Planning	0.001	Significant differences
			Interaction	0.003	
			Results	0.024	
Study level	Master, undergraduate	Mann–Whitney U test	Planning	0.202	No difference
			Interaction	0.191	
			Results	0.483	
Internal teaching assessment	Improvement is required, favourable, very favourable	Kruskall-Wallis test	Planning	0.003	Significant differences
			Interaction	0.015	
			Results	0.019	

Table 5 – Results of the tests performed in order to determine if the different variables have the same distribution among their categories.

Mediating effect of research intensity

In order to proceed with the analysis of the mediating effect, two SEM were conducted one for each of the models illustrated in Figure 1. Results are presented in Table 6.

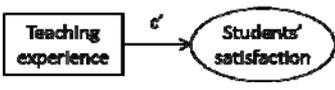
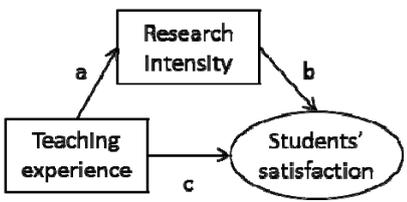
	SEM 1 (Model 1a)	SEM 2 (Model 1b)	
			
	Dependent variables		
Independent variables	Quality	Research	Quality
Experience	0.086 (1.449) c'	0.431 (6.745) a	0.210 (2.919) c
Research	-	-	-0.287 (-3.993) b
R ²	0.007	0.186	0.075
In the cells the standardized coefficients. The t-values appear in brackets.			
Fit indices			
Satorra-Bentler scaled χ^2 (fd)	110.42 (42)	131.48 (51)	
S-B scales χ^2 / freedom degrees	2.63	2.58	
Comparative fit index (CFI)	0.923	0.923	
Root mean-square error of approximation (RMSEA)	0.085	0.083	

Table 6 – Results of the two SEMs used to test the mediating effect of research intensity between teaching experience and student satisfaction.

By using a row of three regression analysis, Baron and Kenny (1986) established that three conditions must hold in order to establish mediation. Similar to Preacher and Hayes (2004) we express these conditions in terms of SEM as follows. Note that only two SEMs are needed: one for the total effect (c') and a second SEM for simultaneously assessing the direct effect (c) and the indirect effect ($a*b$). The first condition is that the independent variable (teaching experience) has to significantly predict the mediator (research intensity) in Model 1b (i.e., $a \neq 0$, Table 6). The second requirement states that the independent variable (teaching experience) must predict the dependent variable (students' satisfaction) in Model 1a (i.e., $c' \neq 0$, Table 6). Lastly, the third condition is that the mediator (research intensity) must significantly predict the dependent variable (students' satisfaction) (i.e., $b \neq 0$, Table 6) controlling for the independent variable (i.e., $c \neq 0$, Table 6) in Model 1b.

For the purpose of our study, the second condition is not satisfied since the coefficient is not significant (t -value = 1.449). However, Zhao et al., (2010) argue that this condition is not necessary. These authors demonstrate that there is only one requirement to establish mediation: the indirect effect $a*b$ should be significant. Preacher and Hayes (2004) also provide methodology for this case, based on the work of Sobel (1982). Relying on the empirical demonstrations provided by these authors we thus proceed with the analysis, and observe that the critical ratio for the indirect effect is $t = -3.412$, confirming the significance of the indirect effect and vouching for the subsequent analysis.

Based on the typologies of mediation characterised by Zhao et al. (2010), our case responds to that of a competitive mediation, as it accomplishes the following three conditions: (i) $a*b$ is significant, (ii) c is significant, and (iii) $a*b*c$ is not positive. Thus, both the mediating effect ($a*b$) and the direct effect (c) exist, however, they point to different directions. Particularly, the total effect of teaching experience on students' satisfaction ($c' = 0.086$, not significant) is explained through the direct effect ($c = 0.210$) and the indirect effect ($a*b = -0.124$). Both effects are statistically significant, therefore, giving support to hypothesis 1. This translates into saying that, as expected, teaching experience positively impacts students' satisfaction, reinforcing the argument that seniority gives lecturers the skills and techniques that allow them to better communicate and interact with students, resulting in higher satisfaction rates from students. In addition, our results confirm that seniority also leads to increased levels of research intensity, which negatively impact on students' satisfaction. There is therefore empirical evidence that research intensity mediates the relationship between teaching experience and students' satisfaction, validating hypothesis 2.

These findings bring to light a genuine dilemma for university managers. On the one hand, the reputation of a university is highly tied to research achievements, which are key determinants for obtaining a good positioning in popular rankings. Likewise, evaluation processes conducted by governmental bodies to validate the academic offer of universities (i.e. undergraduate, postgraduate, master and doctoral level) also mainly rely in the quality and quantity of the research outputs of the academic staff. In addition, the academic career and internal promotion policies are also research-biased. All in all, this situation brings research activities to the spotlight. Research is highly instilled by the university and the future of the university is subject to research. However, on the other hand, private universities (such as the case under analysis) need to stand out for the quality of their teaching, as for the most part, incomes come from students' tuition fees.

Testing the influence of contract type

A multigroup analysis of Model 1b to test invariance between the two categories of labour contract type (fixed-term and permanent) is performed. The sample of academics with a temporary contract is of 123 and 106 for those enjoying of a permanent relationship with the university. The model is estimated using the robust maximum likelihood method from the asymptotic variance-covariance matrix. Five constraints were established accounting for the invariance of the structural paths of the model. It is important to remark that the parameter between the "organisation and planning" dimension and the second order factor of the

students' satisfaction construct is fixed to a constant in order to fix the scale; consequently, it cannot be imposed as a restriction.

The fit indices are satisfactory: χ^2 Satorra-Bentler was 205.92, with 107 degrees of freedom, χ^2/df was 1.92, which was below the acceptable limit of 5, RMSEA was 0.090 and the CFI was 0.913. To locate parameters that are non-invariant across groups, we looked for probability values associated with the incremental univariate χ^2 values that are < 0.05 . A review of these values reveals that all parameters operate equivalently across fixed-term and permanent staff, excepting the parameter that links the research intensity with students' satisfaction. Table 7 reports both the standardized and non-standardized paths. The non-standardized have been constrained to be equal.

	Standardized Paths		Non standardized paths (t-value)	Univariate increment	
	Functional subsample	Organic subsample		χ^2	Probability
Research intensity → Students' satisfaction	-0.181	-0.354	-0.089 (-3.927)*	4.620	0.032
Teaching experience → Teaching quality	-0.011	-0.022	-0.002 (-0.294)	1.556	0.212
Teaching experience → Research intensity	-0.042	-0.043	-0.019 (-0.978)	1.465	0.226
Students' satisfaction → Results	0.942	0.895	1.163 (16.903)*	0.547	0.460
Students' satisfaction → Implementation and interaction	0.993	1.000	1.214 (15.098)*	0.010	0.919

(*) Significant at 5% level

Table 7 – Paths for each group in the multigroup analysis and univariate increment analysis

Hypothesis 3 is partially accepted as the only difference between fixed-term and permanent staff is the path between research intensity and students' satisfaction. This path is statistically significant and more negative for permanent staff. This result suggests that apparently, academics that have reached a high level of research activity are however abandoning their teaching responsibilities. Several are the factors that might explain this behaviour. First, the higher the research level an academic attain, the higher the likelihood to get involved in more demanding research projects. Second, reaching a permanent position in the university entails less uncertainty and thus, job security, leading to a potential "relaxation" situation. This statement particularly holds in terms of teaching tasks. As academics consolidate their careers, promotion to superior positions are mainly determined by research achievements, providing a clear inducement for lecturers to render careless to teaching in favour of research. Incentives for conducting high quality teaching are only subject to the willingness of the lecturer to improve his/her teaching skills.

DISCUSSION

Herein we have analysed the relationship between teaching experience and students' satisfaction and the mediation effect of research intensity. However, we note the explanatory power of the model is moderated,

attending to the r^2 of the dependent variables. Based on our results, we can conclude that, for the sample considered, the research effort is strongly “competing” with teaching commitment. From the standpoint of a university that strives to survive in a competitive and global environment, the research mission is essential. Therefore, the production of high quality research outcomes is a clear objective in its strategic planning. Nevertheless, from the students’ lens, high quality teaching is paramount to ensure a positive word-of-mouth and generate brand awareness. As tuition fees are important for sustain the economic viability of private universities, the teaching mission is another objective that needs to be accomplished. How to appropriately balance teaching and research is still the key of success. Unfortunately there is no magic recipe for how to do it.

In terms of policy implications, we argue that promotion incentives are central to the teaching/research nexus debate. It is well documented that research has outranked teaching in the university’s faculty reward system (Parker, 2008). Indeed, reward structures (including tenure, promotion and faculty salaries) are clearly favouring research activities over teaching ones (Fairweather, 2005). Many academics attributed this to the impact of university rankings which had prompted universities to accentuate the importance of research (Taylor, 2007). Additionally, research outcomes are much easier to be quantified and compared than teaching ones.

Incentives are clearly affected by the career stage of the lecturer (Baldwin et al., 2005). Academics in a weaker contractual position would have stronger incentives to conduct research in order to create reputational signals that are expected to increase their probability to be appointed by universities. To the contrary, full professors have less exogenous incentives to make visible their research, being their only motivation endogenously determined by their own interest in strengthening their curriculum vitae. Moreover, when looking at the specific weight that promotion assessments give to the teaching dimension of academic quality, we can observe that it tends to be underscored. Indeed, maintaining a minimum standard in student satisfaction surveys is enough. Consequently, instructors that are in their initial stages would not have such a strong incentive to deliver good lectures as they do have for conducting quality research.

All in all, this situation leads us to conclude that current accreditation systems are not obtaining the expected results in terms of teaching quality. While teaching and research activities should be complementing and enriching each other, empirical evidence suggests that students perceive disadvantages from staff involvement in research activities. In this respect, previous studies indicate that those academics whose research efforts are in areas strongly related with their teaching may be favoured in comparison to their counterparts who can more difficultly incorporate knowledge into their classroom practice (Shin, 2011). In view of that, we argue that more emphasis should be put in trying to align teaching workload with research interests of lecturers. We acknowledge that in some disciplines and depending on the academic offer of the university this task might not be an easy one. Nevertheless, given the pressure to which academics are subjected to, it seems reasonable to try to facilitate their tasks by narrowing the gap between teaching duties and research interests. This way, it would be possible to obtain economies of scale, so that the efforts spent performing teaching activities are also useful in terms of research, and vice versa.

Concluding remarks

Universities are expected to be centres for high quality education and hubs of research and innovation. Therefore, examining how students’ satisfaction is shaped by the profile of the lecturer (teaching or research-oriented) is of great interest. In view of that, this paper contributes to the existing literature that investigates the trade-offs between teaching and research activities, responding to the call of previous studies to in-depth in this particular matter. Particularly, our study examines the relationship between teaching experience and students’ satisfaction, and the mediating effect of research intensity in this association. In addition, we explore the potential dissimilarities in this relationship due to academic status (permanent staff and non-permanent staff).

High quality teaching and high levels of research intensity are both desirable outcomes. For sure, universities would like their lecturers to excel in both dimensions, nevertheless, very little is known about how to effectively accomplish with this ideal. We encourage future studies to examine which mechanisms or incentives schemes could be articulated in order to motivate lecturers to equally engage in both teaching and research activities.

Probably the main limitation of this study relates to the specific analysis of a Catalan private university and the reduced sample considered. Future studies should be conducted with bigger samples and in other universities with a similar regulatory framework. Another limitation deals with the measures selected to capture teaching experience and research intensity. Although it was possible to create valid and reliable measures that consider viewpoints from different stakeholders, university quality is a broad term that, while in theoretical models seems to be relatively easy to be measured, its practical operationalization is constrained by the feasibility of obtaining appropriate data.

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