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Bundled or unbundled? A multi-text corpus-assisted discourse analysis of the relationship between teaching and research in UK universities

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Abstract

Creating and disseminating knowledge through research and teaching has long been regarded as the hallmark of the modern university. However, new university business models have called into question the 'bundling' of teaching and research, and sustained research on the relationship between teaching and research has found little evidence of an insoluble connection between the two activities. In this article, we explore the relationship between teaching and research from the perspective of universities' institutional discourse. We use corpus-assisted discourse analysis to examine the relationship between research and teaching as presented in two sets of institutional texts currently influential in UK Higher Education: Research Excellence Framework environment statements and Teaching Excellence Framework provider submissions (a total of 2143 documents and 12,492,071 words). Our findings show that, while universities emphasise the value of research to their teaching, they do not always emphasise (or sometimes even decry) the influence of

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teaching on their research. We empirically evidence that, according to what universities themselves write in institutional texts, teaching and research are not always in a mutually beneficial entanglement, but often rather a one-way relationship in which research expertise and institutional prestige are used to bolster claims of teaching excellence. This has implications for the communication of both the vision and the purpose of a university in regulatory exercises and wider policy, but also speaks to the broader idea and practice of being a university in the twenty-first century.

KEYWORDS

corpus-assisted discourse analysis, higher education, research-teaching nexus, unbundled university

Key insights**What is the main issue that the paper addresses?**

This paper investigates how universities describe the relationship between teaching and research in national research and teaching evaluation exercises. While much previous work exists that tries to evidence the relationship between research and teaching, our study is the first to approach this question via a discourse analysis of institutional responses to the Research Excellence Framework (REF) and Teaching Excellence Framework (TEF).

What are the main insights that the paper provides?

Through analysis of more than 12 million words and 2000 documents we evidence that research is described as a positive in the context of teaching; however, teaching is often presented as a barrier to research excellence. This has implications for policy and the future idea of a university.

INTRODUCTION

An influential conceptualisation of the idea of the ‘university’ is that it is an institution that conducts both research and teaching (Humboldt, 1810). In business, the term ‘(un)bundling’ is used to describe a process whereby separate products are created and sold together in order to increase efficiency and profit (Wang, 1975), and a number of authors have described the relationship between the research and teaching missions of the university in terms of how the university essentially ‘bundles’ together research and teaching ‘products’ because

they are complementary in commercial terms (Craig, 2015; McCowan, 2017; Swinnerton et al., 2018). Another important topic in this area is the conceptual connection between the teaching and research activities of the university. Rather than distinct activities, research and teaching are said to be connected together in a 'nexus' – the 'research–teaching nexus' – because the nature and content of university teaching are essentially derived from research (Griffiths, 2004; Robertson, 2007; Tight, 2016).

A large body of empirical research exists on the relationship between research and teaching in the contemporary university. Some studies have reported that there is indeed a close positive relationship between research and teaching (Henkel, 2004; Neumann, 1994; van der Rijst & Visser-Wijnveen, 2011). However, many of these studies are of a small scale and/or report on very specific case studies and not on general trends (Ramsden and Moses, 1992). Other, larger scale studies have found little correlation between the quality of research produced by an academic or institution and the quality of its/their teaching (Stappenbelt, 2013).¹ This puts the idea that research and teaching belong together in a 'bundle' or 'nexus' under pressure. As Hattie and Marsh dryly observe, the most interesting research question may not be how research and teaching complement one another but 'why the belief of complementarity exists' (Hattie & Marsh, 1996: 533). In this paper we do not seek to add to the growing literature of papers that explore the existence or not of a research–teaching nexus on the basis of quantitative measures of teaching or research quality. Instead, we aim to examine the *belief* in complementarity that Hattie and Marsh find so interesting. Using a voluminous new dataset that has become available owing to regulatory initiatives in UK higher education in the last decade, we present a discourse analysis of how the research–teaching relationship is constructed by UK universities themselves in institutional regulatory texts today. UK universities are obliged (like few other universities worldwide) to produce large volumes of texts spelling out their approach to both research and teaching in gargantuan research and teaching evaluation exercises, called the 'Research Excellence Framework' (REF) and the 'Teaching Excellence Framework' (TEF). Using publicly available data published in the context of the REF and TEF, we constructed a corpus of (a) REF Environment Statements and (b) TEF Provider Submissions (in total 2143 documents and 12,491,071 words) and examined this corpus using the techniques of corpus-assisted discourse analysis in order to analyse:

1. what UK universities themselves say about the relationship between research and teaching; and
2. what this reveals about the universities' own motivations for and interest in conducting research and teaching side by side in the context of the policy instruments of the REF and TEF and wider societal conditions.

Contra Marsh and Hattie, we conclude that the 'belief' in the complementarity of research and teaching (at least as expressed in institutional texts) is neither strong nor bi-directional: while universities appeal to their research strengths in bolstering the status of their teaching, they rarely mention teaching strengths in the context of their research.

We begin this article with an overview of the expansive field of the research and teaching 'nexus' and the bundling and unbundling of research (Section 2), followed by an overview of the many terms and discursive constructions used in connection with this relationship (Section 3). Next, we present an overview of the methods employed in this study (Section 4). Following a high-level analysis of our corpus (Section 5), we present a qualitative inductive thematic analysis of categories on how UK higher education institutions discursively construct the relationship between teaching and research (Section 6). Finally, we review the implications for the relationship between teaching and research in the contemporary university (Section 7).

THE RELATIONSHIP BETWEEN RESEARCH AND TEACHING: PROCESSES OF BUNDLING AND UNBUNDLING

In historical terms, the idea of bundling research and teaching can be traced to Humboldt and his blueprint for the University of Berlin. Humboldt's bundling of teaching and research introduced the idea that teaching should be conducted 'in research mode' and that the university should be a community of enquiring scholars – both students and academics (Rowland, 2006). In his seminal work, *The Uses of the University*, (Kerr 2001) laid out how US universities adapted this idea of the European research university; instead of a partnership between fundamental research and teaching, the US university embedded itself in the market by putting this research and teaching offering in the service of first agriculture and later industry. Today, the university is indeed a key part of a knowledge economy (Burton-Jones, 1999; Moore, 2004; Olssen & Peters, 2005).

Following two centuries of bundling, universities in the twenty-first century may now be witnessing processes of unbundling and outsourcing (Lewis & Shore, 2019) as they pursue new agendas of marketisation, financialisation, efficiency generation and privatisation. Indeed, McCowan (2017) foresees a future for the university in which research and teaching may become 'unbundled'. Unbundling is a process from the business sector in which products or services that are regularly provided together are simplified and broken up to be sold separately for greater profit and/or consumer 'value' (in economic terms). McCowan explains the reasons for unbundling from three perspectives: the perspectives of value (what the university stands for), function (what functions the university performs) and interaction (what interactions take place on university campuses). For instance, McCowan holds that change in what is *valued* at the university may cause gradual unbundling: individualisation of learning, for example, may lead to a splintering of the traditional curriculum; or the rise of (smaller, vocationally focused) private providers next to large publicly funded research universities may put pressure on the idea that a research-based university education is public good (McCowan 2017: 741). McCowan further holds that the confluence of many smaller forms of unbundling (of value, function or interaction) may see the university losing its very identity as a research and teaching institution as changes are made which are seen as economically and politically inevitable. Be that as it may, the fact that research and teaching have, at various times in the history of the university, been bundled or unbundled makes it clear that research and teaching need not *necessarily* be conducted side by side in the university; exploring the form of the relationship between research and teaching in the contemporary university is exactly the point of this article.

The perennial question for the research–teaching model of the university in a contemporary mass access institution with growth and quantified outputs as its aim, is whether the relationship between research and teaching is a relationship of symbiosis or conflict (Elton, 1986; Malcolm, 2014) – bundled or unbundled. Tight (2016) carried out a systematic review of the 'research and teaching nexus' concluding:

So is 'nexus' just a slightly posher way of saying 'linkage' or 'relationship', or is something more being implied? For the proponents of the research/teaching nexus, it is clearly the latter, though there are probably a greater number of higher education researchers who are sceptical or in disagreement with them about the strength of the relationship. (Tight, 2016: 294).

Some attempts have been made to establish a positive correlation between research and teaching (Hattie & Marsh, 1996; Marsh & Hattie, 2002). Hattie and Marsh hold that, while there was little evidence that research improves teaching (or vice versa), the myth

of complementarity of research and teaching is powerful. They postulate three reasons why the myth endures:

In part, it is because universities use research as an advertising lure, because academics use research output as market commodities, and because most academics would like it to be true. (Hattie & Marsh, 1996: 533)

Next to quantitative studies attempting to prove a correlation between research and teaching (and meta-analyses of such studies), another important genre of research on the research–teaching nexus is qualitative studies of academics' own perceptions of it. One prominent example is the study of Coate et al. (2001), who set out to investigate 'to what extent in the everyday, working lives of academics there are connections between teaching and research' (p. 160). Coate et al. found that academics frequently voiced the opinion that there is a tight relationship between research and teaching; this was particularly obvious at Masters and PhD level (p. 165). However, all told, they found evidence of a number of different interrelationships between research and teaching at work in the university departments that they visited: sometimes a department's research benefited their teaching, but often research negatively impacted teaching or the two simply do not affect one another. While the idea that research and teaching somehow benefit one another is often voiced, it is equally common that research and teaching do not impact one another or interfere with one another.

In the final analysis, Tight (2016) holds that there is not one, or even a dominant, relationship between teaching and research and that the teaching–research nexus may be nothing more than words.

Finally, what then is the research/teaching nexus? I have tried to treat it, fairly neutrally, as an idea, but it could also be termed – by some people in some circumstances – a theory, a practice or a catch-phrase. To call it a catch-phrase might sound dismissive, but it definitely qualifies as one of the most talked about terms in contemporary higher education policy and research. (Tight, 2016: 305).

THE DISCOURSE OF THE RESEARCH–TEACHING NEXUS

If, as Tight holds, the research–teaching nexus is a 'catch-phrase', what words are used to describe it? What is the nomenclature or jargon of the research–teaching nexus or the research–teaching bundle? And what can we learn from the way that universities employ this jargon?

Brew (2006) explores not only the relationship between teaching and research itself, but also the *language* used in describing this relationship. Terms often used include 'research-enhanced education', 'research-led teaching', 'problem-based learning', 'interdisciplinary inquiry', 'teaching as research', 'teaching-enhanced research', 'evidence-based teaching', 'research-based curriculum' and 'research-aligned teaching'. Healey and Jenkins (2009: 7) use 'research-led', 'research-oriented', 'research-based' and 'research-tutored'. A first step is to understand the use of all of these different terms by universities themselves and their connotations.

The UK Russell Group of 24 'research-intensive', 'leading', 'world-class' universities outlines the benefits of a research-intensive learning environment, stating that, at their universities, leading researchers design and teach curricula including research components with innovative new pedagogical approaches forming cross-discipline communities and students are researchers themselves who may also make a contribution to knowledge (Russell Group, 2017).

Active researchers lead on the design of curricula ensuring students learn about the intellectual underpinnings of their subject, its structure, impact and diversity, following a route through knowledge that has been mapped by those who understand it most deeply and are extending its boundaries.

Curricula and broader co-curricular experiences are designed to enable students not only to learn about research, but to learn how to undertake their own research and inquiry within and across disciplines. (p. 2)

A similar group of universities in Australia, the Group of Eight (Go8; Group of Eight Australia Members, Unknown). According to the Go8:

A focus on the teaching-research nexus at Go8 universities leads to the development of advanced curricula and research-based learning that produce distinctive graduates ... Go8 alumni take up senior positions in professional life, business and government in Australia and other countries. (p. 4).

According to Universitas 21 (the network of global, research-intensive universities), studying at a research-intensive university makes students part of an intellectual, 'research-rich' and 'multi-disciplinary' community as student and lifelong alum, and provides them a flexible and cutting-edge curriculum, grounded in a researcher mind-set (Universitas 21, 2017).

It is clear that universities the world over emphasise the relationship between their teaching and research, but one thing stands out about UK universities in particular. In the UK, universities are under an obligation to *articulate* their visions of the teaching and research that they do every five to seven years in high-stakes government assessment exercises. The UK has had national evaluation processes for research since the 1980s (the Research Assessment Exercise and its successor the REF) and has had national evaluations of teaching since the 1990s (first the Quality Assurance Agency 'Subject Review' and now the TEF).²

Over their lives, the REF and TEF have both come in for significant academic criticism (Martin, 2011; A. Matthews & Kotzee, 2019) as they have transformed the university from an enquiring academically free institution to one subjected to an audit culture in line with wider neoliberal practices (Shore & Wright, 2015). Be that as it may, for the higher education researcher, the REF and TEF present distinct research opportunities. The reason for this is that, together, the REF and TEF compel universities to describe how their research and teaching benefit students and society; for instance, the REF demands that universities describe how their research benefits society (through the REF 'impact and environments statements') and the TEF demands that universities describe the linkage between their research and teaching (in its demand for describing the learning environment). To give an idea of how universities themselves talk about the teaching–research nexus, the researcher interested in the language and wider discourse of teaching and research is presented with a comprehensive corpus of texts to be mined for insights.

DATA AND METHODS

In this paper, we are interested in studying the discourse around the research–teaching nexus in order to understand (a) what UK universities say about the relationship between research and teaching and (b) what this reveals about the universities' own intentions and descriptions of conducting research and teaching side by side in the context of REF and TEF as policy instruments. Before describing our methods, it is useful to consider the strengths and weaknesses of the REF and TEF documents as data for studying the research–teaching

nexus. The advantages of using these data include their sheer volume (2143 documents and 12,492,071 words), their public availability and their serendipitous value to us as researchers: while the architects of the REF and TEF did not set out to answer questions about the research–teaching nexus, the REF and TEF compelled UK universities to *explain* and *justify* the value of their teaching and research in text in a way that gives researchers a unique insight into their thinking about research and teaching, thus giving us the opportunity to analyse and compare both datasets. Against these advantages, we acknowledge that there is also one substantial disadvantage: it is quite possible that the REF and TEF submissions do not accurately reflect the opinions of academics at their universities, but reflect only what universities would like to communicate publicly in response to high-stakes national evaluation exercises. We acknowledge that the writers of these texts may simply be ‘saying what the evaluators want to hear’, but we hold with Sin (2014) that even such texts are valuable to the researcher as policy objects. While the writers of these texts clearly try to portray their university in the best possible light, *how* they portray their university is revealing to the researcher because the words, phrases and talking points that are chosen and the style in which it is represented reveal what is the acceptable discourse to use when talking about quality research and teaching at universities today. We therefore hold that the REF and TEF statements in our dataset are useful data, as long as it is borne in mind that we are dealing not with unvarnished opinions but with carefully constructed versions of reality presented for public and regulator consumption.³

The TEF has been in operation since 2016 and makes use of both quantitative and qualitative measures of teaching excellence (Gillard, 2018). For the purpose of this study, we collected together the 232 UK ‘provider submissions’ that formed the written, qualitative part of the 2017 TEF. The reason for focusing on the 2017 exercise is that this was the first full round of the TEF in which the majority of universities participated and therefore represents the largest single year of submissions. The TEF was first fully rolled out in 2017 (the dataset used in this study) and has undergone much critique and analysis, with a full-scale independent review. Following the review decisions were made not go ahead with a subject-level version and that the TEF exercise will run every 4–5 years in line with the REF (Kernohan, 2021).

The REF is designed to measure the impact of research output in UK universities (Tymms & Higgins, 2018; Watermeyer, 2016) and also takes a mixed approach to evidencing research excellence. The most recently published iteration of the REF was in 2014 (at the time of writing), when 154 UK institutions entered submissions in 36 subject-based units of assessment. Each submission encompassed (a) research outputs (predominantly books or journal articles), (b) a number of impact case studies and (c) an environment statement, which is a written description of the research climate or culture of the university department (or other subject unit). For our discourse analytic research, we chose to focus on the research environment statements, in which university subject units described their research environment, making mention of their research strategy, people, income, infrastructure and facilities. Table 1 provides an overview of the corpora used in this study.

For our analysis, we chose the method of corpus-assisted discourse analysis, a form of discourse analysis in the social sciences that draws upon the methods of corpus linguistics

TABLE 1 Overview of the corpus

Sub-Corpus	Documents	Words
TEF2 2017 provider statements	232	1,742,438
REF2014 environment statements	1911	10,749,633
Total	2143	12,492,071

(Baker et al., 2008; Hardt-Mautner, 1995; A. Matthews & Kotzee, 2020; Mautner, 2005). Corpus-linguistic approaches to the study of text involve taking a large body of real-life texts (a corpus) and using computer analysis tools to analyse the texts for keywords and patterns of word usage (McEnery & Wilson, 1996). We used LancsBox4.0 (Brezina et al., 2018) to conduct our analysis. Linguists often use corpus linguistics to map the real usage of language in a linguistic community (for instance to understand what are the most typical patterns of linguistic usage, or the most common variations in how language is used, in different linguistic communities). However, social scientists have begun to use corpus linguistic techniques to study patterns of linguistic use and what this can reveal about society (Baker, 2010).

By taking two genres of texts (TEF submissions and REF environment statements), we used triangulation methods to analyse the discursive construction of the relationship and links between research and teaching in UK universities. In particular, we employed two types of triangulation: (a) data triangulation (two corpora of text genres); and (b) methodological triangulation (using corpus linguistic methods followed by discourse analysis; Egbert & Baker, 2020). 'Corpus-assisted discourse analysis' is the term used for initial quantitative analysis followed up by a more qualitative, 'human eye' reading. In corpus-assisted discourse analysis, the methods of frequency, collocation (the words found next to a key word) and concordance (lines of text extracted from a key node word) are used for an initial analysis and 'mapping' of the corpora (Baker, 2006). We followed this up by conducting qualitative thematic analysis on a down-sampled selection from each corpus (Johnson, 2013).

Our study follows previous published work using the TEF provider submissions to conduct higher education policy analysis (Matthews, 2020; Matthews & Kotzee, 2019). This study is original in being one of the first studies to use corpus-assisted discourse analysis techniques in higher education policy. Moreover, it is notable for the extremely large corpus used (>12 million words) and being one of the first studies to mine the REF environment statements for insights regarding university policy-making and teaching and learning practice.

CORPUS ANALYSIS

In our analysis, we first used the assembled corpora to (a) study the relative frequency of a number of keywords that construct the relationship between research and teaching and (b) identify the most common 'collocates' of those keywords, that is the words that most frequently appear close to those keywords in the institutional texts. We begin by presenting an analysis of frequency and collocation of the word 'research-*', that is, the word 'research' used in a hyphenated conjunction with some other word. We conducted this analysis to discover, out of the myriad ways in which the research-teaching nexus is spoken about (e.g. 'research-led', 'research-informed', 'research-based', see Section 3 above), which is the most common. We focused on these hyphenated words both because of their use in the literature reviewed above and because they are such a distinguishing feature of *university* discourse about research. For example the term 'research-*' is not found in the British National Corpus (Brezina & Meyerhoff, 2014). The hyphenated words selected and presented are those that occur most frequently in the corpus.

Table 2 presents use of the keyword 'research-*' in the TEF corpus. We can see that in TEF provider submissions, the construction 'research-led' is the most common and the collocations show us that this term tends to be used when talking about teaching itself, or about the teaching culture and approaches that universities adopt. 'Research-informed' and 'research-based' in context are associated with the curriculum itself. 'Research-intensive' is associated with the institution and the fact that the institution carries out high-volume,

TABLE 2 TEF2 2017 provider statements – ‘research-*’. Relative frequency of 0.05 per 10,000 words and above. Collocations are listed with the highest frequency; frequencies are reported with a minimum frequency of 5 and a minimum Mutual Information Score (MI) stat of 6.0. Collocations span 5 × 5 words of keywords

Keyword	Frequency	Relative frequency per 10,000 words	Collocates (in order of frequency – most frequent first)
research-led	111	0.64	Teaching, culture, approach, approaches
research-informed	94	0.54	Teaching, curriculum, research, providing
research-based	56	0.32	Approach, curriculum
research-intensive	44	0.25	Institution, universities, institutions
research-rich	37	0.21	Learning, environment, education
research-active	32	0.18	Staff, who

high-quality research. In contrast, ‘research-rich’ seems to be used in connection with learning rather than teaching, and ‘research-active’ in connection with the staff at an institution.

In Table 3, we present an analysis of the frequencies and collocations of ‘research-*’ in REF environment statements. In the REF corpus ‘research-active’ is the most frequent hyphenated term and collocations show words such as ‘staff’, ‘academics’ and ‘professors’ indicating that the term ‘research-active’ is used to describe academics as researchers and collocates like ‘all’, ‘increase’, ‘recruiting’ and ‘targeted’ indicate (in the context of the REF) that universities often write about maximising research-active academics. The second most frequent hyphenated term in the REF corpus is ‘research-led’. From its collocates (like ‘teaching’, ‘courses’ and ‘undergraduate’) it is clear that ‘research-led’ is most often used in connection with teaching (as was the case in the TEF corpus above). Looking further down the table, keywords such as ‘research-based’ and ‘research-informed’ also tend to be used when writing about teaching (also the case in the TEF corpus above). However, terms like ‘research-focused’ and ‘research-only’ show that some areas of activity and staff concentrate purely on research.

Corpus analysis across the two corpora shows that words that describe the research–teaching nexus are used in different ways, depending on whether the focus is on (a) academics as researchers, (b) academics as teachers or (c) the institution itself. The words ‘research-active’ and ‘research-only’ are used in connection with academics as researchers; words like ‘research-led’, ‘research-based’ and ‘research-informed’ are associated with teaching, and the word ‘research-intensive’ describes the institution itself. This is in line with what Marginson (2019) describing the three elements of the contemporary university as the corporate university (research-intensive), the self-forming student (research-led, research-based and research-informed) and a knowledge-bearing, knowledge-creating faculty (research-active).

Having identified key hyphenated terms as used in the teaching–research nexus literature, next we were interested in how the keyword ‘teaching’ was represented in the REF and how ‘research’ was described in the TEF. By studying discourse on *research* in the TEF, we hoped to clarify universities’ views on how research benefits teaching; conversely, by studying discourse on *teaching* in the REF we were interested in how universities represent the benefits of teaching to research. Firstly, on a purely frequency basis ‘teaching’ in the REF corpus appeared 9.45 times per 10,000 words ($n = 10,162$). However, ‘research’ appeared in the TEF corpus 24.43 times per 10,000 words ($n = 4527$). On a (relative) frequency level, references to ‘research’ in the TEF were far more numerous than references to ‘teaching’ in the REF. We conclude from this at a frequency level that universities say more about research’s

TABLE 3 REF2014 environment statements – research-*. Relative frequency of 0.05 per 10,000 words and above. Collocations are listed with the highest frequency; frequencies are reported with a minimum frequency of 10 and a minimum MI stat of 6.0. Collocations span of 5 × 5 words of keywords

Keyword	Frequency	Relative frequency per 10,000 words	Collocates (in order of frequency – most frequent first)
research-active	947	0.88	Staff, all, increase, academics, appointment, permanent, professors, levels, expected, full-time, recruiting, allocated, targeted, numbers, clinicians, eligible, encourage, meet, retention, loads, whom, 25, newly, appoint, load, comprises, workload, lecturing, relief, appointing, veterinary, comprising, reduced, grown, high-quality, recruit, reduce, retired, should, introduction, fixed-term, entitled, semester, pis, employed, assigned, complement, majority, proportion
research-led	510	0.47	Teaching, institution, excellence, commitment, internationally, contemporary, courses, research-informed, undergraduate, focussed, nodes, strongly, substantial, integrated, r-lincs, ug, ma, top, multi-faculty, deliver, 2013/14, kcl, modules, vibrant, offer
research-related	443	0.41	Activities, travel, events, range, expenses, fund, topics, matters, available, courses, costs, regular, enhance, attendance, assistance, any, roles, relevant, goals, targets, proactive, purchase, expenditure, reporting, often, administration, iv, budget, networking
research-based	234	0.22	Cpd, professional, conferences, teaching, series, doctorate, programmes, doctorates, masters, promotions, route, presentations, advice, courses, host, continuing, contribute, contributions
research-intensive	143	0.13	Universities, institution, leading, management, heis, time, December, free, improved, top, finance, processes, institutions, large, up, university's, m5, midlands, vibrant, 30, Birmingham, committed, most, can
research-informed	138	0.13	Teaching, learning, institution, plan, strategic, research-led, practice, Greenwich, curriculum, strongly, undergraduate, 2013/14, creating, increase
research-focused	101	0.09	Appointments, strategic, agenda, activities, supportive, events, propose, believe, strongly, mentor
research-only	52	0.05	Staff, contracts, career

influence on teaching than they do about teaching's influence on research. Table 4 reports these frequencies and the statistical significance of those differences using log-likelihood, which Rayson et al. (2004) hold is the most accurate linguistic test of significant difference where log-likelihood above 15.13 is significant and equivalent to a p -value of <0.0001 .

In order to learn more about the context of 'teaching' in research excellence (REF) and 'research' in teaching excellence (TEF) we conducted a collocation analysis of both words in each corpus (Tables 5 and 6).

TABLE 4 Frequencies, loglikelihood significance statistics and difference of keywords 'teaching' and 'research'

	REF frequency (relative frequency per 10,000 words)	TEF frequency (relative frequency per 10,000 words)	Log-likelihood	Percentage difference
Teaching	10, 162 (9.45)	10,829 (62.15)	16636.74	-84.79
Research	239, 204 (222.52)	4527 (24.43)	44643.61	+756.49

TABLE 5 REF2014 environment statements – collocates of 'teaching'. Collocations are listed with the highest frequency (25 most frequent and minimum MI stat of 5.0). Collocations span 5 × 5 words of keywords

Collocate	Frequency (collocations)
Learning	955
Administrative	628
Loads	579
Reduced	488
load	413
administration	405
duties	377
teaching	362
experience	339
undergraduate	286
relief	285
graduate	284
postgraduate	268
given	250
first	233
fellows	232
they	224
skills	220
time	206
research-led	191
leave	181
assistants	171
lighter	165

TABLE 6 TEF2 statements – collocates of 'research'. Collocations are listed with the highest frequency (25 most frequent) and a minimum MI stat of 5.0. Collocations span 5 × 5 words of keywords

Collocate	Frequency (collocation)
practice	454
scholarship	403
research	342
professional	331
projects	262
project	173
undergraduate	161
activity	139
informed	126
scholarly	108
independent	104
undertake	89
pedagogic	87
le2	80
engage	76
conference	70
active	68
engaged	65
postgraduate	62
innovation	59
applied	54
educational	53
forefront	51
developments	51
methods	51

Looking at Table 5, one can see that, in the REF environment statements, references to teaching are made most frequently in the context of writing about learning (e.g. 'learning', 'undergraduate'), about administration ('administrative', 'administration') and about the amount of teaching ('loads', 'load', 'duties'). When looking at the top 25 collocates of the word 'teaching', it is striking that there is only one word – the now familiar 'research-led' – that (possibly) hints at there being a beneficial link between research and teaching (research-led could be used in several contexts). In contrast, a number of other collocates hint at teaching having a *negative* effect on research; for instance, the words 'reduced', 'relieve', 'leave', 'relief' and 'lighter' all indicate that, when universities write about teaching in the REF, a major theme is how universities have strategies to ensure that research-active academics do *less* teaching. This finding is confirmed (and explored in more depth) in our qualitative analysis (Section 6).

Table 6 lists the top 25 collocates for 'research' in the TEF corpus. As is clear from the table, when universities describe research in the context of teaching, they seem to focus on the activity of doing research ('practice', 'activity'), on opportunities for doing research or instances of research ('project', 'projects') and on the characteristics of their research ('professional', 'scholarly', 'independent', 'pedagogic'). Research gets a much more clearly positive mention in the TEF provider submissions when universities write about research

‘innovation’ or being at the ‘forefront’ of research. It seems that, while research is on the whole represented as benefiting research in the TEF, teaching is presented as a burden (that universities try to minimise by ‘reducing’ researchers’ teaching loads) in the REF.

DISCOURSE ANALYSIS

Following this quantitative analysis of research and teaching terms, a qualitative inductive thematic analysis was carried out to identify the key themes across the TEF and REF corpora where institutions write about research in the same context as teaching and vice versa.

Concordance lines were extracted with 12 words either side of the keyword *research* making up a concordance line (text extract) of 25 words. These lines were further filtered to only include *teaching* in the line. The result of this data extraction was 9898 concordance lines of 25 words which included both the keyword *research* and *teaching*. Table 7 provides an overview.

Further downsampling (Baker, 2020; KhosraviNik, 2009) of the data was required for a qualitative human reading and analysis of the extracts. The technique of ‘systematic sampling’ was selected, also known as ‘1 in *K* sampling’ (Webb & Wang, 2014:101).

Table 8 shows the results of applying 1 in *K* sampling to each of our corpora to provide a manageable number for qualitative reading and analysis. This results in 663 concordance lines for inductive thematic analysis across TEF2 (317) and REF2014 (346).

Using the qualitative analysis software Nvivo, these 663 concordance lines were coded inductively to generate codes within each genre of text. Constant comparison was used within and between the texts to generate categories across genres for comparison to construct a substantive theory (Bryman, 2008) of the discursive construction of teaching and research in UK universities. The themes are reported in Tables 9 and 10.

Positive links in an institutional approach to teaching and research

The most common theme in the TEF corpus was ‘Positive links in institutional approach to teaching and research’. Under this theme, we categorised assertions by the university in

TABLE 7 First downsampling

Corpus	Number of 25 word concordance lines with *research* as node word AND Including *teaching*	Words total	Dispersion – the amount of at least one research–teaching concordance line present
TEF2	1, 268	31, 700	180/232
REF2014	8, 630	215, 750	1725/1911
Total	9, 898	247, 450	

TABLE 8 Second downsampling

Corpus	Number of 25 word concordance lines with *research* as node word AND Including *teaching*	1 in <i>K</i> sampling	Total number of concordance lines for analysis post sampling	Dispersion of sampling – number of institutions in resulting sample
TEF2	1, 268	1:4	317	150/232
REF2014	8, 630	1:25	346	125/155

TABLE 9 Research and teaching – TEF themes

Theme	References
Positive links in institutional approach to teaching and research	93
Learning and teaching (projects, development, funding and events)	72
Parity between research and teaching (shared load and recognition)	57
Students develop research skills	32
Strategy incorporating research and teaching	27
Investment in resources and facilities	12
Teaching focused staff as positive	8
Teaching relief to focus on research	1

TABLE 10 Research and teaching – REF themes

Theme	References
Support and development for research and teaching activity	86
Teaching relief to focus on research	71
Positive links in institutional approach to teaching and research	67
Parity between research and teaching (shared load and recognition)	35
Investment in resources and facilities	27
Academic appointments and use of funding	24
External links	10
Learning and teaching (pedagogical) research	10

question that there are indeed positive links between research and teaching at the institution. While this was the most common theme in the TEF corpus, this theme was only the third most frequent theme in the REF corpus. Below are illustrative examples from each corpus.

We are committed to the growth of a well-supported research community of staff and students integrated with teaching, learning and knowledge exchange. (REF2014 environment statement)

Inquiry and research are embedded within all programmes and demonstration of how research informs the teaching is a requirement within periodic review and validation documentation. (TEF2)

Parity between research and teaching (shared load and recognition)

A second major theme in writing about research and teaching together was an active avowal (made by many universities) that research and teaching are regarded as being on a par in their institutions. These kinds of avowals are made in both the TEF and REF corpora, but are more frequent in both absolute and relative terms⁴ in the TEF corpus. Examples of how universities give expression to the idea of teaching/research parity include:

In addition to research outputs, staff members have responsibility for delivering substantial amounts of undergraduate teaching. (REF2014).

single track career pathway for academic promotion accords teaching excellence parity with research across academic grades. (TEF2).

Teaching relief to focus on research

A third major theme is teaching relief (remission) to be able to focus on research. This is the second most frequently mentioned theme in the REF submissions and was already evidenced in our collocation analysis in Section 5. However, this theme is not one of the major themes in the TEF submissions. Examples of how universities describe efforts to relieve academics from teaching duties in the REF corpus include:

[T]here are competitive research leave schemes which allow for intensive blocks of research time, or a reduced teaching load over a longer period.

[F]unding teaching relief for selected research-active Law staff who were expected to enter research outputs for REF2014.

Research is embedded in the workload model, and active researchers benefit from reduced teaching loads.

This has been achieved, with research active staff continuing to receive up to one third teaching remission.

Each week, research-active staff should have at least two days free of teaching.

[R]esearch active staff are compensated for administrative responsibilities by reduced teaching loads.

From these examples, it is clear that universities present the reduction of teaching (along with administration, in the last example) as a strategy to improve research. The fact that these schemes are often competitive also signal that it is the best researchers who are targeted in such schemes. This form of discourse in the REF draws into question the common assumption of a link that goes from teaching to excellent research.

DISCUSSION

In Sections 5 and 6 we analysed the discourse that UK universities use in connection with research and teaching and the different ways that they represent the relationship between the two in recent (2014 and 2017) REF and the TEF regulatory exercises. Tight (2016) calls the idea of a research–teaching nexus a ‘myth’ and Hattie and Marsh (1996) hold that the persistence of the myth is due to the fact that universities use research as an advertising lure. A discourse analysis of this kind cannot, in itself, demonstrate that there are no productive links between teaching and research, but it can demonstrate what the approved or accepted discourse(s) about the link is in the UK in this timeframe (2014–2017). Clearly, the communicative purpose (Askehave & Swales, 2001) of each text genre and its context must be confronted. Both the REF and TEF submissions studied were official responses to regulatory frameworks on teaching and research excellence and, because performance in the REF and TEF has reputational and financial consequences for universities, one can expect that these documents were framed to create the best impression of the university concerned,

and not necessarily to reflect the frank views of the academics and university leaders who wrote these documents. However, our analysis evidences clearly what universities do say about research and teaching and the texts have a material impact on wider discourses within the university itself, and beyond, influenced by the policy instruments (REF and TEF) as well as actors within institutions. We see these documents as a product of wider education policy, specific policy instruments (REF and TEF regulatory exercises), institutional changes and managerial moves towards efficiencies derived from commercial environments (unbundling) along with particular views of university actors writing and influencing the documents. In this way, the texts have an enacted ontology as policy objects (Sin, 2014) that influence the future development of the university (Matthews et al., 2021).

Horrod (2020) and Mathieson (2019) point out that policy mechanisms may be embraced, resisted or creatively negotiated and some of the most interesting discourse is found in the 'creative negotiation'. Bear in mind that the evaluation panels of TEF and REF submissions are mostly populated by academic leaders from other universities and one will realise that the TEF and REF written submissions are largely written for an audience of academics in a mode that writers think will impress. However, the judges are *themselves* academics, equally tied up in the language and mode of thought analysed here. Moreover, they do not have complete free reign over what discourse they can take as evidence of excellence: they are (a) constrained by the language introduced by policy makers who have set a wider context of competition and regulation of higher education, i.e. the Higher Education Research Act 2017 (Legislation.gov.uk, 2017), (b) cannot drift too far from the discourse that has already become prevalent over 20 years of such accountability exercises and (c) also have to *report* on how they made their judgements of excellence. For this reason, they too are likely to reward the 'common' or 'accepted' discourse of excellence and use that form of talk in their own reporting, creating an even stronger demand to adopt the same discourse in the next evaluation exercise. The language of the REF and TEF written submissions that we studied in this paper may not indicate what academics truly think, but it indicates what is the 'expected' or 'approved' discourse about research and teaching 'excellence' today, a discourse that, because of the incentives associated with the REF and TEF, becomes ever harder to break away from.

In our analysis, we found that there are two different discourses at play when talking about teaching and research excellence. The discourse of teaching excellence is a 'bundling' discourse – it presents teaching and research together in the way that universities claim that their research *underpins* their teaching, making it special and unique – a dominant discourse which has remained from the Humboldtian ideal of the European research university. In contrast, the discourse of research excellence is an unbundling discourse, in that research excellence tends to display itself as a single-mindedness in pursuing research, with little time or attention left over for anything other than research.

This may be because of the different pressures on universities in marketing themselves to students (neoliberal policies of competition for student choice for example), on the one hand, and to research funders on the other. Students who are going to spend 3 years on campus are likely to be attracted by a more varied, bundled, offer and are 'purchasing' much more than educational content – a reputational marker of prestige. Research funders, on the other hand, purchase academic researchers' intellectual labour and have a vested interest in demanding *as much of that labour as possible* (without distraction).

It has become common-place to ask whether higher education is 'unbundling' (Craig, 2015; Gehrke & Kezar, 2015; McCowan, 2017) in line with approaches taken from business operations with the aim of efficiency and competitiveness. Wright (2014) claims that the name of Humboldt is used to describe an elitist and a traditional past and to decry and resist a marketised, neoliberal future. In line with (Trow's 1973) conceptualisation of the modern university evolving from elite to mass to (potentially) universal, the university is changing

and growing. The modern university has grown exponentially from the elite institutions of the Enlightenment and keeps growing as part of a neoliberal knowledge economy. As we have seen, however, research and teaching make odd bedfellows in the modern university: when universities themselves write about the relationship between their teaching and research it is hard for them to explain exactly how research and teaching benefit one another. As we have demonstrated, documents submitted in response to the REF and documents submitted in response to the TEF construct what it is to be an excellent university differently. While designed to mirror one another and to bring parity between research and teaching, reading these two sets of documents side by side ironically demonstrates how far apart research and teaching, in many cases, really are. While many academics already tacitly know that research is privileged over teaching in the contemporary university, this paper has shown this to be the case empirically through an examination of how universities report on their research and teaching strengths in the official national evaluation exercises for research and teaching excellence. Future research on this topic may include the extent to which national research and teaching evaluation policy drives (or merely reflects) the relationship between teaching and research in the contemporary university. Further analysis and diverse research methodologies will be required to track the evolution of universities' research and teaching discourse and practice to build on this empirical work to reveal whether research and teaching are mutually dependent or drifting apart - bundled or unbundled.

ETHICAL GUIDELINES

Ethical approval was granted for this research by the University of Birmingham on May 23rd 2019 and assigned reference ERN_19-0814.

CONFLICT OF INTEREST

There are no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data is publicly available for download.

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ENDNOTES

- ¹ Stappenbelt reviews many of these large-scale reviews as well as carrying out a primary study with engineering students.
- ² While many European countries today use performance-based research funding systems (Sivertsen, 2017), the UK's funding system – the REF – is both the oldest and the best known. Moreover, the UK is the first country to model a teaching evaluation exercise on its research evaluation exercise.
- ³ We thank an anonymous reviewer for *BERJ* for encouraging us to expand on this point.
- ⁴ We found 57 references to this theme in the TEF corpus and 32 references in the REF corpus after downsampling. The REF corpus (10.7million words) is, however, considerably bigger than the TEF corpus (1.7million words).

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