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ARTICLE

A conducive environment? The role of need support in the higher education workplace and its effect on academics' experiences of research assessment in the UK

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Abstract

Little is known about how researchers in higher education institutions (HEIs) experience and respond to support received from their departments. The present study investigated how support for researchers' autonomy (choice and self-expression), relatedness (through connections with colleagues) and competence (feeling effective in one's work) influenced their attitudes towards an external assessment of research. To do so, we surveyed 598 academics from four HEIs in the UK about their attitudes towards one such external assessment: the Research Excellence Framework (REF), a nationwide assessment of research quality and the subject of debate about research evaluation. Our findings, drawing on self-determination theory, show that departments can shape responses to the REF: individuals whose psychological needs were supported by their academic departments held more positive, and less negative, attitudes towards the REF. This occurred both directly and indirectly through researchers' recognition that the REF had a more positive influence on their research activities and outputs.

Abstrakt

Wir wissen wenig darüber, wie Hochschul-ForscherInnen auf Unterstützung ihrer Instituten reagieren und diese erleben. Die

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vorliegende Studie untersuchte, wie die Unterstützung von Autonomie (Wahlfreiheit und Selbstausdruck), Bezogenheit (durch Verbindungen mit KollegInnen), und Kompetenz (sich effektiv in der eigenen Arbeit erleben) die Einstellungen von ForscherInnen zu externer Forschungsbewertung beeinflusst. Zu diesem Zweck befragten wir 598 AkademikerInnen an vier britischen Hochschulen zu ihren Einstellungen gegenüber einer externen Forschungsbewertung: dem Research Excellence Framework (REF), eine landesweite Bewertung von Forschungsqualität, die in der Debatte steht. Beruhend auf der Selbstbestimmungstheorie, zeigen unsere Ergebnisse, dass Institute Reaktionen auf das REF beeinflussen können: Individuen, deren psychologische Bedürfnisse von ihren Instituten unterstützt wurden, hatten mehr positive und weniger negative Einstellungen gegenüber dem REF. Dieser Effekt wurde sowohl direkt wie indirekt dadurch vermittelt, dass ForscherInnen anerkannten, dass das REF einen positiveren Einfluss auf ihre Forschungstätigkeiten und Ergebnisse hatte.

1 | INTRODUCTION

Little research has sought to understand how academic researchers experience support from their immediate work environments (namely, academic departments), and how such experiences shape responses to external demands they face, yet there is much of the debate across commentators and scholars, regarding developments in higher education (HE), particularly with regards to the evolving role of research assessment. Scholars and commentators have long criticised the pervasive effect of research assessment in the UK and elsewhere as deleterious to academics and their practice. Described as being the beating heart of an 'audit culture', research assessment is often described impeding the freedoms of the academic community and scientific endeavour. Indeed, seen by its critics as symptomatic of a marketised higher education, where a market logic is prevalent, research assessment in the UK is often criticised as threatening the identities, freedoms and self-sovereignty of academics. The current form of research assessment in the UK, the Research Excellence Framework (REF), which extends to the evaluation of the non-academic impact of research, has even been criticised as 'a Frankenstein Monster' (Martin, 2011) and a 'dehumanising' force in academic research (Watermeyer, 2016) and though these accounts may ring true for so many, there are fewer accounts from those who have sought to test how the REF is received by researchers, and what academic workplaces can do to shape that reception.

This paper therefore focuses on attitudes towards the REF, the periodic assessment of research qualities and impacts across the UK HE system, which takes place every five to seven years. In 2014, 154 universities participated in the latest cycle of this exercise, and its results had significant consequences for the distribution of public funding to universities, for the prestige of departments and universities, and for staff and student recruitment. Given its salience in the academic mindset, and as the UK system readies itself for the next assessment cycle in 2021, we sought to understand how the REF is viewed as a positive or negative aspect of the incentives and support that academics experience within the HE workplace.

1.1 | Theoretical framework: Psychological needs at work and self-determination theory

Our work is theoretically underpinned using self-determination theory (SDT; Deci & Ryan, 1985), a 40-year old approach to understanding human motivation that has shown particular promise in explaining variability in workplace well-being (Deci & Ryan, 1985, 2000; Ryan & Deci, 2017) and responding to deadlines and pressures (see Ryan & Deci, 2017), but which has not been tested in relation to experiences within HE. When applied to an organisational context, the theory highlights that employees need to feel that they are supported in three psychological needs (i.e., psychological need support): their *competence*—or their feelings of efficacy in their work; *relatedness*—or feelings of closeness and connection with colleagues at work; and *autonomy*—the feeling that one is acting volitionally and therefore able to express oneself. Specifically, organisations may help their employees feel satisfaction for the *competence* need when they support activities that challenge employees in line with their abilities, and offer support and structure for achieving goals in line with their employees' values. Organisations can also help employees feel satisfaction for the *relatedness* need through creating a work culture that supports employees' mutual trust and caring for others at work. Finally, they can support employees in their need for *autonomy* by allowing them to express themselves honestly, respecting and responding to employee views, and encouraging employees to make meaningful decisions in their daily working life (see Dagenais-Desmarais, Forest, Girouard, & Crevier-Braud, 2014; Gagné, 2003; Greguras & Diefendorff, 2009; Leroy, Anseel, Gardner, & Sels, 2015; Ryan & Deci, 2017).

Empirical research based on SDT has revealed that individuals' experiences of having the needs for autonomy, relatedness and competence met at work leads to more positive views of potential workplace stressors (Van den Broeck, Ferris, Chang, & Rosen, 2016), and the satisfaction of psychological needs has similarly been conceptualised as psychological resources that assist individuals during difficult work periods (i.e., Verbruggen, De Cooman, & Vansteenkiste, 2015), in order to help buffer the detrimental effects of work stressors on well-being (Viswesvaran, Sanchez, & Fisher, 1999). Alongside its effects on employee well-being, psychological need satisfaction at work is linked with greater job engagement and less burnout (Van den Broeck et al., 2016). Comparable findings have revealed that need satisfaction at work is associated with employees putting more effort put into work (De Cooman, Stynen, Van den Broeck, Sels, & De Witte, 2013; Schreurs, van Emmerik, Van den Broeck, & Guenter, 2014). Indeed, the importance of need satisfaction at work was elegantly demonstrated by Olafsen, Halvari, Forest, and Deci (2015), who found that workplace psychological need satisfaction related to more internal, or personally driven, motivations to work, whereas merely incentivising employees with money did not. Overall, these findings highlight the role of need satisfaction in the workplace context, but they have rarely been extended to understand the experiences of those working in HE (for an exception, see Chubb & Reed, 2017).

1.2 | The REF and motivation in higher education institutions

Although psychological need support and incentives—two motivationally relevant experiences at work—have been compared in previous research (Cerasoli, Nicklin, & Nassrelgrgawi, 2016), to the best of our knowledge no research has examined how the support for psychological need satisfaction influences *individuals' attitudes towards assessments*. One such assessment—the REF—is the UK's performance-based research funding system (Hicks, 2012), used primarily to highlight areas of excellence across all disciplines, allocate around £1.6 billion of public research funding annually to universities, and benchmark the quality of earlier research through a process of expert peer review. Internationally, the UK can be seen as being at the vanguard of research evaluation, though performance-based research funding systems are becoming more widespread globally (Hazelkown & Gibson, 2017). Broadly speaking, the REF acts as a performance incentive for institutions, departments and academics alike. Thus, it provides a direct lens from which to view how psychological need satisfactions influence higher education institution (HEI) academics' responses to a shared research agenda. We believe that novel question

of whether meaningful aspects of the workplace, such as psychological need supports, impact responses to exercises such as the REF is critically important within academic contexts, where career stability and promotion opportunities usually relate to clear and measurable performance indicators, and where there is a growing audit culture in relation to performance (Collini, 2017; Docherty, 2011; Shore & Wright, 1999).

The expectations set by, and outcomes of, the UK REF have extensive implications for universities (Rebora & Turri, 2013; Watermeyer, 2016), and therefore for academics, whose career progression and stability, influence within the department, and research resources are often linked with their ability to conduct research activity and demonstrate impact in line with REF expectations. In other words, while the REF acts as an external assessment at the organisational level, its implementation is thought to impact academics by affecting work demands and feedback (Davey, 2013; Fanelli, 2010), As a result, academics' perceptions of the REF are perceived to vary widely and can be divisive, with commentary both critical (e.g., Attwood et al., 2010; Battaly, 2013; Martin, 2011; Sayer, 2015; Watermeyer, 2016) and more balanced or supportive (e.g., Hill, 2016, Oancea, 2019, Wilsdon, 2015). A review of media commentary and empirical literature on the REF suggests that academics subjected to this external assessment hold highly disparate attitudes towards it. Moreover, research often cites the impact that REF has on research activity within the UK as justification for either position (see Oancea, 2010, 2014). To elucidate this point, critics of the REF express concerns that it has the capacity to hinder researcher autonomy (Smith, Ward, & House, 2011), that it is damaging to staff morale and working practices and deleterious to identities (Sage, 2014, Watermeyer, 2016), and acts as an oppressive force in a creative workplace environment (Wells, 2012). These debates are long-standing and reflect broader concerns about the ways in which HE is seen to be marketised in current times and therefore threatening traditional understanding of scholarly norms of behaviour long associated with academic life and the Haldane Principle of Research (e.g., Merton, 1942; Williams, 2002). Instead, due to the use of public funds to support research, governments and funders express a counter-argument that there is a need for accountability when receiving public funds. In light of this, many commentators also note the positive aspects of the REF. Here, the REF provides a necessary accountability mechanism for the annual allocation of around £1.6 billion of flexible public funding, can inspire positive changes in the UK's academic culture (such as encouraging more impactful work that benefits society) and effectively harnesses academic epistemic responsibilities (Chubb & Reed, 2017; Hill, 2016; Oancea, 2019).

1.3 | Present research: Psychological need satisfaction in HEIs and attitudes towards the REF

The importance of the REF within UK universities means that it operates as a single, definable workplace system of evaluation (Hamann, 2016), which can be viewed positively or negatively (i.e., an individual's *attitude* towards the REF). An attitude refers to an individual's overall evaluation (e.g., like/dislike) of an object. These overall evaluations are guided by various sources of information, including affective responses (e.g., anger and contempt about the REF), beliefs (e.g., that the REF hinders *blue sky* research) and social perceptions (e.g., my colleagues dislike the REF). Attitudes are important because they influence how people process information and how they behave (see Haddock & Maio, 2019; Maio, Haddock, & Verplanken, 2018). In the present context, for example, academics' attitude towards the REF may be expected to influence how they interpret new information about the REF and the ways they will respond towards initiatives regarding the REF, as well as further investment into academic pursuits that are valued within their institutions (Haddock & Maio, 2019). Thus, along with understanding the perceived impact of the REF on one's own research endeavours (i.e., recalled experiences and behaviours of the past and present), it is important to consider attitudes given their implications for shaping future behaviours of academics.

In this paper, we test the links between psychological need satisfaction at work and attitudes towards the REF. Further, we seek to understand whether perceived impacts of the REF on one's own research activities would mediate this link (Figure 1). As depicted in Figure 1, we tested both the *scope* of perceived impacts of work (i.e.,

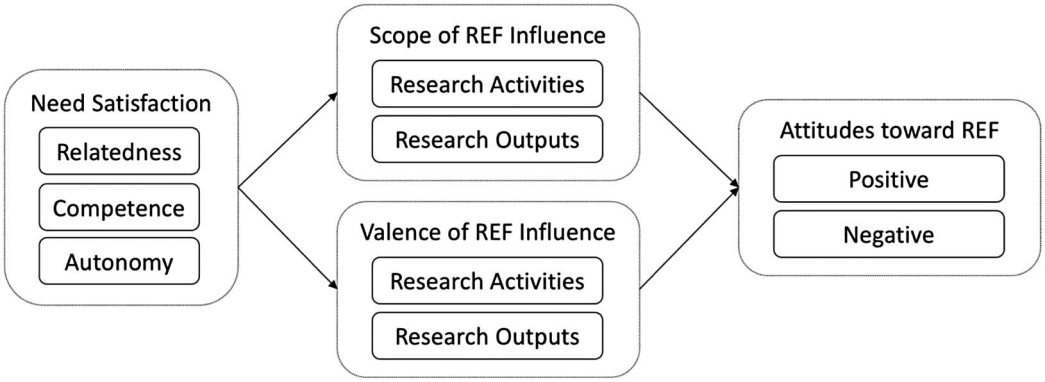

FIGURE 1 Conceptual model predicting attitudes towards the REF exercise

we asked, how much did the REF influence one's research activities?) and *valence* of perceived impacts of work (i.e., we asked, was the REF's influence on one's research activities primarily good or bad?) as two pathways to attitudes towards the REF. In developing this framework, it is important to note that *attitudes towards the REF* and *perceived impacts of the REF* do not reflect the same underlying construct. An individual's attitude towards the REF represents an overall evaluation that is based on multiple sources of information. While perceived impacts about the REF are likely to inform an individuals' attitude, they represent one, albeit important, piece of information in the process of attitude formation.

Based on the literature, we argue that to the extent that individuals in HEIs are supported in their psychological needs for autonomy, competence and relatedness, they may extract from such systems aspects that feel personally beneficial. On the other hand, in non-supportive environments the same incentives can result in employees feeling under pressure—a metric for measuring potential failure and a reason for such an evaluation to exist (Davey, 2013; Fanelli, 2010; Martin, 2011). Although such links might be artefacts of an overall positive or negative attitude towards the REF, we sought to mitigate this risk by measuring and controlling for attitudes regarding the REF's impact on the UK academic community at large. This left residual variability in the attitude outcome, which was specific to one's *own* experience of the REF, rather than representing positive or negative views towards REF and research activities, more generally.

2 | METHODS

2.1 | Participants and procedure

Participants were recruited from four universities: Cardiff University, University of Sheffield, University of Sussex and Lincoln University. It is not possible for four universities to represent the full diversity of UK HEIs, but these institutions were selected to provide some degree of contrast in research profile and REF engagement and practically because of the access the research team were able to achieve.[1] Other pragmatic factors also influenced the selection: we sought a spread of research areas through strategically recruiting in each thematic group of Units of Assessment (UoAs), or areas of research, which would be submitted to the REF exercise, see Table 1.[2] We thus selected HEIs that would have sufficient numbers of academics from each UoA. Of these, 598 participants (228 women; 38.1%) took part, with a modal age of 35–44 years (n = 190, 31.8%), and a range between 18–65+ years and 220 (36.8%) respondents who identified as an early career researcher. See more in supplementary materials.

TABLE 1 REF 2021 Units of Assessment of the Research Excellence Framework included in the pilot study

Main Panel A: Medicine, health and life sciences
UoA 3—Allied Health Professions, Dentistry, Nursing or Pharmacy
UoA 4—Psychology, Psychiatry and Neuroscience
Main Panel B: Physical sciences, engineering and mathematics
UoA 11—Computer Science and Informatics
UoA 12—Engineering
Main Panel C: Social sciences
UoA 17—Business and Management Studies UoA 17—Business and Management Studies
UoA 23—Education
Main Panel D: Arts and humanities
UoA 28—History
UoA 34—Communication, Cultural and Media Studies, Library & Information Management

Note: The REF exercise is comprised of four main panels, split further into subpanels (Units of Assessment; UoAs). The UoAs listed here were meant to reflect diversity of research areas that undergo assessment.

The procedure was approved by the School of Psychology Ethics Committee at Cardiff University. Participation was voluntary and participants were informed about the study procedures and data handling approach at the start of the study, and debriefed at the end of the study. Data were and will be handled in accordance with the General Data Protection Regulation (GDPR).

2.2 | Survey measures

2.2.1 | Psychological needs

Respondents completed one item reflecting each of the three needs. These were taken from the basic psychological need satisfaction in relationships scale (La Guardia, Ryan, Couchman, & Deci, 2000): *competence* support: 'I feel that, overall, my department/school helps me to feel capable and effective in my work,' *autonomy* support: 'I feel that, overall, my department/school encourages me to have a voice in what happens, and to feel free to be who I am,' and *relatedness* support: 'I feel that, overall, my department/school encourages closeness and trust with others at work.' Items were completed on a seven-point scale (0 = *not at all agree*; 6 = *strongly agree*). The three supports for need satisfaction showed high interrelations, $\alpha = .91$, but were also retained for analyses individually to examine relations with each need.

2.2.2 | Scope of influence on activities and outputs

To answer the question, is the REF seen to influence amount (scope) of quality research and research outputs, participants responded to three items addressing their perceptions of the amount or scope to which the REF had influenced the *quality of their research activity* in the past four years (since the last REF exercise). These items were answered on a seven-point scale (0 = *Not at all agree*; 6 = *Strongly agree*). Specifically, participants reported how much they perceived the REF influenced their research activity in terms of its novelty, creativity and authenticity. Further, they responded using the same scale regarding the amount (scope) the REF has influenced the *quality of their academic outputs* in terms of quantity, quality and prestige (in terms of the journal, publisher, etc.). Both subscales showed high internal reliability, αs = .85 to .89, and correlated strongly but not exceedingly strongly ($r = .72$).

2.2.3 | Valence of influence on research activities and outputs

To answer the question, is the REF seen to influence work in a positive or negative way, participants responded to the three items above relevant to the *quality of their research activity* and to the *quality of their academic outputs* with respect to how positively or negatively the influence on their research activities has been, on a seven-point scale (−3 = *Extremely negative;* 3 = *Extremely positive).* Both valence subscales showed high internal reliability, αs = .74 to .91, and correlated strongly but not exceedingly strongly (*r* = .66).

2.2.4 | Attitudes towards the REF's influence

Participants' attitudes towards the REF were measured using two uni-dimensional items. This allowed us to consider positive attitudes *and* negative attitudes, each in its own right (see Maio et al., 2018). One item focused on respondents' ***positive*** perceptions of the REF ('Thinking more broadly, please evaluate how POSITIVE the beneficial qualities of the REF are for you'), whereas the second item focused on respondents' ***negative*** perceptions of the REF ('Thinking more broadly, please evaluate how NEGATIVE the detrimental qualities of the REF are for you'). These questions were answered on a seven-point scale (0 = *Not at all positive/negative*; 6 = *Extremely positive/negative*).

2.2.5 | Attitudes towards the REF's influence on the community (covariate)

To account for general views of the specific research impacts of the REF on UK academics, we asked participants the extent to which the REF has impacted eight types of research activity which have been the subject of debate. These included: engagement with potential users; pursuing 'blue sky' versus 'incremental research'; engagement with open access research practices; and undertaking research activity, among other activities. These items were answered on a seven-point scale (−3 = *greatly decreased this*; 3 = *greatly increased this*). As these items showed acceptable reliability (α = .64), they were combined to form a single scale and included as a covariate when predicting attitude towards the REF's impact on one's own research (discussed in the results section below: *Scope and Valence Relations with Positive and Negative Attitudes*).

2.3 | Analytic strategy

Preliminary results including correlations are presented in supplementary analyses, where correlations between psychological needs and outcomes of interest for each of the separate Units of Assessment under investigation are also presented. In exploratory analyses, we furthermore saw that early career researchers benefited more from psychological need satisfaction in terms of the perceived influence of the REF on their research activities (*rs* early career linking needs to perceived influence = .31–.41).

For our primary models, data were tested as multilevel models recognising the interdependence between individuals in the same department. Thus, at Level 1 we defined variables at the individual level, while at Level 2 we defined covariates at the departmental level. Specifically, predictors at *Level 1* consisted of psychological needs, and controlled for formal involvement in the REF and general views of how the REF has impacted UK culture. Furthermore, the four potential mediators—amount of impact on academic research, amount of impact on academic outputs, valence of impact on academic research, and valence of impact on academic outputs—were defined at Level 1. In *Level 2* models where needs were predictors, we further predicted attitudes from psychological

needs, averaged from individual responses across a given department and representing the culture within the department, more broadly.

Nested indirect effects were tested using Mplus software (version 7.4; Muthén & Muthén, 1998) to test the hypothesised multilevel mediation model. Multilevel models accommodate the nested structure of the data and are better suited than ordinary least-squares regression to handle missing data (Little & Rubin, 2002; Shrout & Bolger 2002).

3 | RESULTS

3.1 | Psychological need support relations with scope and valence of impacts of REF

Tables 2 and 3 summarise statistical results for the models discussed below. We first examined the extent to which basic psychological needs at work related to perceptions of the influence of the REF on one's research activities (Table 2). Findings considering *valence* of influence showed that those who experienced more psychological need satisfaction felt that the REF had a more *positive* influence on their research activities and outputs. On the other hand, there was no relation between psychological need satisfaction and the *scope* or amount of influence of the REF. In summary, basic psychological need satisfaction at work related to perceptions that the influence of the REF was positive rather than negative, but not to how *much* influence—from a little to a lot—was perceived.

3.2 | Psychological need support relations with positive and negative attitudes

Supporting our hypothesis regarding the role of need satisfaction on attitudes (and presented in Table 2), at Level 2, departments in which individuals felt more support for the satisfaction of their psychological needs were also

TABLE 2 Primary results for models linking psychological needs to outcomes of interest

	Individual psychological needs				Departmental psychological needs			
	b	*SE*	*t*	*P*	*b*	*SE*	*t*	*P*
1. Valence: activities	0.22	0.05	4.83	<.001				
2. Valence: outputs	0.15	0.04	4.36	<.001				
3. Scope: activities	0.01	0.05	0.25	.80				
4. Scope: outputs	0.02	0.05	0.45	.65				
5. Positive attitude	0.22	0.05	4.41	<.001	0.16	0.07	2.31	.02
6. Negative attitude	−0.19	0.04	−4.93	<.001	−0.09	0.06	−1.49	.14

TABLE 3 Primary results for models linking perceived influence on research to attitudes

	Positive attitude				Negative attitude			
	b	*SE*	*t*	*P*	*b*	*SE*	*t*	*P*
1. Valence: activities	0.19	0.04	4.24	<.001	−0.18	0.07	−2.71	.007
2. Valence: outputs	0.29	0.06	4.82	<.001	−0.41	0.06	−7.20	<.001
3. Scope: activities	0.03	0.04	0.74	.46	0.08	0.05	1.59	.11
4. Scope: outputs	0.05	0.05	0.92	.36	0.01	0.05	1.46	.15

ones in which academics reported more *positive* attitudes towards the REF, though need satisfaction at the departmental level did not relate to *negative* attitudes. At Level 1—the individual level—those who experienced more support for their psychological need satisfaction reported more positive *attitudes* and less negative *attitudes*, as was hypothesised.

3.3 | Scope and valence relations with positive and negative attitudes

Findings relating perceived influence on academic pursuits and attitudes are presented in Table 3. Considering the effect of the 'Attitudes towards the REF's influence on the community' covariate, reports of a more positive impact on the REF on the UK community, *more generally*, related to one having a ***positive*** attitude that the REF benefits *one's self*. Accounting for this, two of the four potential mediators showed links with positive attitudes. Namely, academics who perceived that the REF positively impacted on both their own *quality* of *research activity* and the *quality of research outputs* had a more positively valenced attitude towards the REF (see Table 2). On the other hand, the *scope* of influence of the REF did not relate to positive attitudes. Said another way, when people felt their research activities were enhanced by the REF, this view translated to more positive attitudes of the REF on the whole. On the other hand, the amount—whether the REF influenced academics a little or a lot—did not matter.

Predicting ***negative*** attitudes, at Level 1 (Table 3), viewing the REF as a more positive influence on the UK community negatively related to viewing the REF as detrimental to oneself. As was the case for positive attitudes, one's formal involvement in the REF process did not relate to attitudes. Furthermore, seeing a positive influence of the REF on one's *quality of research activity* was linked to less negative attitudes. Independently of this, perceiving the REF facilitating *research outputs* linked to less negative attitudes. On the other hand, the *amount* of perceived influence on one's own *quality of research activities* and *outputs* did not relate to negative attitudes.

3.4 | Indirect effects

An indirect effect was present linking competence need satisfaction to positive attitudes through perceived valence of impact on quality of research, b = .04, SE = 0.01, $t(582)$ = 3.09, p = .002, and perceived valence of impact on quality of outputs, b =.04, SE = 0.01, $t(582)$ = 3.10, p = .002. Similarly, valence of impact on quality of research linked psychological needs to lower negative attitudes, b = −.04, SE = 0.02, $t(582)$ = −2.09, p = .04, as did, independently, perceived valence of impact on quality of outputs, b = −.06, SE = 0.02, $t(582)$ = −3.69, p < .001.

3.5 | Discussion

Assessment systems such as the REF can shape organisations' aims and the ways employees experience their workplace (Clark & Wilson, 1961; Kessler, 2008). Perhaps as a function of the workplace environment, reactions to the REF are highly varied, with opinions divided as to the benefits and respective drawbacks. However, we have little understanding of how the academic workplace environment relates to academics' perceptions of the REF. This research relied on targeted recruiting within selected organisations to achieve higher representativeness of diverse and non-extreme views, and to allow statistical modelling of academics with shared experiences of their same departments. This was a first attempt to understand the extent to which perceptions that the academic workplace is supportive relates to such positive and negative attitudes towards REF.

The findings revealed that perceived departmental support for the three basic psychological needs—autonomy (choice and self-expression), relatedness (feeling close and connected to colleagues) and competence (feeling

effective in one's work)—were related to how individuals viewed the REF as influencing their own research activities. Specifically, we assessed the influence of the REF on researchers' own activities, operationalised as the perceived novelty of research, authenticity of research (how it represented researchers' professional interests) and perceived creativity. This operationalisation of research quality was more closely aligned to a view that such need supportive motivational climates should influence authentic and creative behaviour (Gerhart & Fang, 2015; Hennessey, 2003; Hon, 2012). Our research suggests that psychological need support from one's department is also related to perceived influence on research outputs, reflecting not just creativity but research productivity in a more practical sense. These findings are similarly well-aligned to the motivational literature, which has shown that psychologically need supportive climates elicit more persistence and engagement (Gagné & Deci, 2005; Meyer & Gagné, 2008; Schreurs, Emmerik, Broeck, & Guenter, 2014). In this study, we considered both the *amount* of influence (i.e., less or more influence), and its *valence* in terms of the influence being beneficial or harmful. Although psychological needs support at work related to the valence of influence the REF had, when accounting for this psychological need, support did not relate to the quantity of influence of the REF. That is, academics did not feel that supportive workplaces protected or otherwise distanced them from the REF having an influence on their research activity, but rather that the influence was more positive.

Furthermore, in part through the perceived influence of the REF on both research activities and outputs, psychological need support from one's department related to more positive, and less negative, attitudes of the REF. Little work has been conducted on basic psychological need satisfaction at work and attitudes, directly (see De Cooman, Stynen, Broeck, Sels, & Witte, 2013; Greguras & Diefendorff, 2009; Hetland et al., 2015 for exceptions), but rather indirect evidence for their association has been found in extensive studies of psychological needs and job satisfaction and organisational commitment (e.g., De Cooman et al., 2013; Meyer & Gagné, 2008; Van den Broeck et al., 2016). No research, of which we are aware, has considered attitudes towards an external assessment as a function of basic psychological needs. This research therefore provides an initial understanding of the divided views individual academics have of the REF, and how they perceive its impact on their thoughts and behaviour. Understanding such attitudes is critical as they are likely to influence how individuals interpret future information and activities relevant to the REF. For example, the degree to which individuals engage with information about the REF is likely to be affected by the extent to which they possess positive and negative evaluations of the REF (Maio et al., 2018).

Concomitantly, findings show that perceived psychological need support *averaged* across individuals and assessed between departments related to positive, but not negative, attitude towards the REF at the departmental level. Stated differently, departments which on average were felt to be more supportive were also ones in which positive sentiments towards the REF were endorsed, even when accounting for variability at the individual level. This suggests that departments can create a more or less positive climate which is felt by academics in the department and which influences their work experiences and reactions to workplace expectations. Relations with positive but not negative affect here are notable, because these discrepant findings suggested that while supportive departments may have encouraged more positivity towards the REF, they did not mitigate the potential negativity or perceived costs of the REF.

Notably, whereas, we tested the perceived influence of the REF on research activities, it may be that other mechanisms link psychological need support at work and attitudes towards the REF, consistent with prominent models of attitude (see Maio et al., 2018). For example, there is an extensive body of work linking psychological need satisfaction to well-being (Ryan & Deci, 2000, 2017), including in relation to self-esteem, life satisfaction and affect, and it may be that these, in turn, shape attitudes towards the driving incentive system. Further, studies have demonstrated that positive well-being can help shape more positive attitudes (Hepler & Albaraccín, 2013). Alternatively, it may be that individuals who feel their departments *fail* to support their psychological needs feel more resentment towards the academic workplace and research expectations set within it (Aelterman, Vansteenkiste, & Haerens, 2019; Kanat-Maymon, Roth, Assor, & Raizer, 2016), or that these less

supportive environments foster defiance or the desire to do the opposite of what is asked (Van Petegem, Soenens, Vansteenkiste, & Beyers, 2015; Vansteenkiste, Soenens, Van Petegem, & Duriez, 2014).

3.6 | Policy implications

Our findings indicated that academics reported varied and more negative than positive attitudes towards a system that evaluates the merit of their work. These findings reflect the nature of discussions about the REF, which, while polarised, are prominently characterised by criticisms and concerns about the REF's influence on UK universities and researchers (Sage, 2014). However, such views of the general academic population have not yet been systematically tested, and this study begins to speak, empirically, to debates concerning the REF (Martin, 2011). Conducting research in a broader context, outside the context of the four universities used in our study, is an important ambition for future research, since it is useful to have an empirically derived understanding of how an external assessment is received by all of those subject to it. This sampling was undertaken intentionally to achieve more representative samples, rather than a more cursory appeal pulling from academics with a desire to express strong views, and so that nesting within departments as well as variability between departments could be modelled. Though we have no reason to believe that findings would *not* generalise to other institutions, this requires further stringent confirmatory tests. Future work may therefore extend the current study by recruiting a broader sample, keeping in mind that broad and superficial sampling may yield samples with more extreme positive or negative attitudes.

While we did not directly evaluate this, the current findings, and the kinds of studies focused on academics' views, may speak to the perceived costs and benefits of having an established system such as the REF. Our findings speak to the ongoing debate on the impact of the REF, arguing that the REF acts as a policy instrument that negatively affects academic freedom and creativity (Byron & Khazanchi, 2012; Erat & Gneezy, 2016; Hennessey, 2003). Specifically, the current findings point to the possibility that departmental support could attenuate some detrimental effects of external research assessment, or, alternatively, that the absence of support could exacerbate them. An alternative approach for future research could further examine whether it is the REF or qualities of the department that most affect academics' experiences.

Further, we can derive little information from the current study about whether academics would prefer that an external assessment like the REF did not exist at all. Alternatively, perhaps the REF represents a form of pressure that typically characterise academic workplaces, and which would be quickly replaced with another set of agendas and goals to drive academics' behaviour, as is indicated by some of the qualitative findings of the broader study (Weinstein et al., 2019). As some have suggested, the REF may be one manifestation of a broader tendency of HEIs and organisations to benchmark and evaluate the performance of employees (Murphy & Sage, 2015). Indeed, it is perhaps the REF's implementation by institutions which may be problematic, rather than REF itself. These are all important considerations for further study, as little is known about what academics feel would most enhance the productivity, creativity and rigour of their research.

3.7 | Limitations and future directions

Though our research opens avenues for future enquiry, some methodological limitations merit consideration. Importantly, models of may be explained by alternative explanations regarding the direction of causality or by third factor influences. It is difficult to disentangle these issues given that individuals who produce more outputs may experience incentive systems differently than those who fail to meet performance expectations. Since there is also reason to believe that psychologically need supportive climates foster engagement (De Cooman

et al., 2013; Schreurs et al., 2014; Van den Broeck et al., 2016), the most accurate model is therefore one of bi-bidirectionality. Relatedly, because the current study relied on a cross-sectional design, it is difficult to fully understand the extent to which reports reflected a more global sense of positivity at work, which extended to both attitudes towards the REF and reports of workplace experiences. To attempt to account for this possibility in the current study, we defined views of the positive and negative influence of the REF on the *academic community* as a covariate, and indeed the links between perceived psychological need supports and attitudes were nuanced using this conservative approach. Longitudinal studies testing a cross-lagged analysis are therefore necessary to understand the trajectories of research performance and experience as a function of academic workplace motivational climates, and to understand shifting attitudes and reactions to the REF and other forms of workplace incentives.

In UK HE, where performance expectations are standardised through frameworks like the REF, we find that undoubtedly academics' attitudes, emotions and behaviours are affected. This research offers evidence speaking to researchers' reactions to the force of expectations the REF is seen to place on academic life in the form of perceived research creativity, authenticity and rigour. Our findings pointed towards departmental support being a mitigating factor of potential negative impacts of the REF on academic motivation. We saw that individuals experience evaluations differently as a function of their perceived support from departments, in terms of experiencing support for competence or feeling efficacious in their work, relatedness or feeling close and connected to colleagues, and autonomous or having choices and a say at work. By placing more emphasis on these factors, it seems then that HEIs and departments may be able to mitigate the potential costs of systems such as the REF, and use them more positively to harness academic motivation and further strengthen the quality, rigour and impacts of research.

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ENDNOTES

[1] Two of our four selected HEIs (Cardiff and Sheffield) sit within the Russell Group or larger research-intensive universities; one is a smaller research intensive outside of the Russell Group (Sussex); one is a post-1992 HEI (Lincoln). Adopting another recent four-cluster typology of UK HEIs, three sit in Cluster 2 (Cardiff, Sheffield and Sussex) and one in Cluster 3 (Lincoln) – see Boliver, V. (2015) 'Are there distinctive clusters of higher and lower status universities in the UK?' *Oxford Review of Education*, 41(5), 608–627.

[2] REF 2014 had 36 Units of Assessment, organised by discipline into four main panel groupings. In 2021, the REF will have 34 Units of Assessment.

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