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Abstract

The negotiated allocation of teaching and institutional service workload in universities is a key determinant of the quantity and quality of all work for academic staff. There is abundant quantitative evidence that women and men experience differential outcomes from faculty, school or departmental workload allocation processes, and convincing theoretical explanations as to why this happens. We add to this knowledge through feminist analysis of a mixed methods case study of an academic unit in a European University, focusing on gendered dynamics in the workload allocation processes there. Our analysis follows the 'sweaty concept' methodology proposed by Sara Ahmed as a means of developing feminist theory that is founded on embodied experiences of discomfort in worlds that are not welcoming. The concept we develop through this is 'inequitable modelling'; it suggests that while workload allocation processes are understood by model designers as a managerial tool to enable transparency and fairness (forms of procedural equity), the managed, especially women, experience them as opaque and unfair (forms of lived inequity). We conclude by questioning the principles and outcomes of such tools in achieving gender equity, and then describe how a feminist approach to workload modelling and allocation might be implemented.

Keywords

Academic workload; academic labour; gender; inequality; feminism; University.

Introduction

The COVID-19 pandemic has made manifest and exaggerated gender inequalities in academia. There is a growing volume of evidence demonstrating how the disruption of academic labour has disproportionately impacted women, especially related to the gendered division of domestic and care labour (see e.g. Wright, Haastrup and Guerrina, 2020; Yildirim and Eslen-Ziya, 2020; Myers et al., 2020; Aldossari and Chaudhry, 2020; Couch, O'Sullivan and Malatizky, 2020). Building on these observations, Pereira (2021) argues that universities need to be held accountable for existing and new inequalities. That can be done by "showing that gender inequalities emerge from the allocation of work inside universities, and not just in the division of work *outside* them" (Pereira, 2021 p. 9). We follow from this argument, to focus on empirical analysis of workload allocation models, which are rarely discussed in the literature from a gender perspective, as a key site of continuing discriminatory practice. In the last decade we have seen widespread efforts to improve gender parity at work for academic staff; however we argue that inequality remains embedded in the everyday lives of members of the profession, as manifest in the tools that designed to degender work. Their interpretation and implementation are especially significant, as we show, noting how women in particular are working with high levels of discomfort in a world that does not welcome them.

Academic workload allocation models can be remarkably quantitatively complex, in the detail of how even the smallest of academic tasks are quantified (for example, personal tutoring service), and in the calculations that the quantifications are fed into. Despite repeated demonstrations by feminist scholars as to the gendered nature of quantification and calculation (D'Ignazio & Klein, 2020), academic workload allocation is often represented as a simple technocratic process, inherently neutral and objective, that will inevitably produce equitable outcomes regardless of gender. By actively excluding gender, as well as other identity markers such as class or ethnicity, managerialist processes like workload allocation deny the presence of social structural conditions in organisations, which in turn means that such procedures have the potential to maintain, reproduce, or worsen existing inequalities (Acker, 2006).

Our argument here builds on a significant research tradition informed by feminist thinking and gender studies. In particular, we note a recent strong movement to promote gender budgeting as a strategy to increase the visibility of gendered inequalities fostered by financial and managerial systems in higher education. Gender budgeting acknowledges that the outcomes of

financial and other quantified calculations are not gender-neutral and objective; rather, these managerial processes and outcomes are generated through political instruments with gendered implications and consequences (O'Hagan, 2015). As a way of understanding the gendered nature of academic work, our analysis here further challenges the claimed gender-neutrality of workload allocation as practice and outcome from a different methodological perspective. We build our argument through a mixed-method case study of workload allocation practices in an academic unit in European university. We show that, despite its designers' public statements of transparency and equity, the workload allocation framework in use was treated as a management tool rather than a means of promoting equality of opportunity or outcome. This leads us to propose a different way of seeing such workload allocation processes, as based on 'inequitable modelling' as they are experienced. This notion of inequitable modelling also demonstrates that the emerging pandemic gender inequalities are based on underlying and pre-existing inequalities, both on and off campus.

The rest of the paper unfolds as follows. First, we review empirical accounts of the organization of academic work. From this, we develop a guiding research question that we explain through the use of two key contributions to feminist theory (Ahmed, 2017; D'Ignazio & Klein, 2020). We then summarise the methods we used to collect data, and the analytical methodology. Our data analysis follows, from which we conclude that the academic workload modelling has very limited potential to address embedded inequalities – both those embedded in modelling as a technical process, and the structural conditions that frame such modelling's implementation. The final section of the paper considers what feminist academic workload modelling might look like, the interests it would serve, and what resistance there might be to its implementation.

Academic workload allocation: Constructing inequity as impossible

In the name of institutional efficiency, individual performance, and professional accountability, many academic institutions have adopted new managerialised approaches to the organization of professional work, in common with many other public and third sector organizations. Within universities, this rapid managerialisation and quantification of professional work may also be partly a response to increasing demands (i.e. work intensification), or increasing workloads (e.g. rising student numbers/static staff numbers, increased research productivity requirements). As part of this shift, in order to show that academic staff have balanced, manageable workloads and the construct a sense of internal equity, there has been widespread

adoption of workload allocation models, both generic and bespoke. In spite of this display of quantitative reasonableness, overwork among academics remains an endemic problem, creating dissatisfaction, distress and ill-health among staff (see e.g. Miller, 2019; Steinþórsdóttir et al., 2019; Kenny, 2018; Kenny and Fluck, 2017; Boyd, 2014; Hornibrook, 2012; Vardi, 2009; Houston, Meyer and Paewai, 2006).

Although similar in desired outcome, workload allocation methods and practices are characterised by their diversity across institutions. Vardi (2009) classifies approaches into three organizational types: actual hour based, contact hour based, and points based. She argues that all three types contain the potential to be used as methods of distributing workload more equitably. Vardi's data suggests, interestingly, that satisfaction among academic staff varies with the complexity and clarity of models. Higher levels of satisfaction are reported with the use of models that provide a general framework based on time; this means simple, clear, usually contact hours-based models. There is much more discontent and there are many more problems with models that are comprehensive and detailed in their quantification, such as actual hours and points-based models, experienced as simultaneously more complex and less transparent. The detailed quantification of this second kind of modelling allows for managerial claims that such models are more accurate and therefore fairer, but in reality, Vardi finds that they 'do not reflect the true time it takes to accomplish a task' (p. 506).

In addition, crucially for us here, Vardi's research demonstrates that the more detailed a model is, the more potential it contains for differential rewards of certain activities and behaviours. Specific activities are prioritised to reflect the current managerial direction of the institution, for example; recently this most often involves unequal credit for research activity (Ringwood et al., 2005). As Vardi (2009) notes, this 'strategic' approach has the predictable consequence of colleagues refusing to take on less valued, but still very necessary, tasks, often related to institutional maintenance and collegiate care (Heijstra et al., 2017).

Within a faculty, school, department, or group, each individual academic will be in a slightly different position to be able to refuse less well rewarded tasks, depending on career history, current position, and social status. There are also however systemic issues that manifest in the everyday use of workload modelling. Here we focus on gender, or more precisely, gendered inequality. To do this we engage with Acker's (2006) concept of inequality regimes, to enable analysis of the numerous interlocking practices and processes that result in and maintain

gender, class and racial inequalities in academic organisations. By inequalities, Acker is referring to systematic disparities in power and control over, for example, decisions, resources, outcomes, and opportunities (Acker, 2006). All of these dynamics are clearly present in the design, implementation, and consequences of academic workload modelling.

There is one key issue within workload modelling and allocation that concerns us, the allocation and performance of less valued activities in academic workplaces. Heijstra et al. (2017) term these activities 'academic housework': invisible, undervalued and time-consuming activities, service 'chores' such as complex module leadership, degree programme management, student recruitment or admissions work, membership of teaching committees, personal and welfare tutoring, attending graduation ceremonies, and many other activities grouped under the catch-all formal and informal terms of 'citizenship' or 'being a good colleague'. The level and nature of involvement in these activities is of course also dependent on length of service, hierarchical position, and personal willingness, in addition to gender. However, the effects of differential allocation and expectation are especially acute for women. Macfarlane and Burg's (2019) findings suggest clearly that women's commitment to academic housework, or the expectation that women perform more of these tasks, can have a direct and negative impact on career progression in a hierarchical sense. For many, time spent on academic housework affects time available for research and related activities, such as high profile reviewing or editorial work, that are pivotal for external reputation and institutional promotion. In addition, work intensification and the associated expectation to do research work 'after hours' at evenings and weekends is more problematic for women, as they still bear the bulk of the burden of caring and domestic responsibilities (Rafnsdóttir and Heijstra, 2013).

Curiously, with the very few exceptions noted here, gender is rarely discussed in the research debate that surrounds the allocation of academic workloads. The most detailed discussion is provided by Barett and Barett (2011); they note the urgent need to raise awareness of how women's long-term career progression can be negatively influenced by interruption in continuity of employment, perhaps as a result of childbirth and early years care, or in the extended use of temporary or fractional contracts as a means of working flexibly. To address this, Barett and Barett argue for greater transparency over workload allocations in order to prevent women being professionally positioned by (conscious or unconscious) bias and inequitable treatment. Such transparency, they suggest, 'could assist, not just those women who choose to progress to higher levels in academia, but also academics generally to achieve equity

in the balance of their work roles and other activities' (Barett and Barett, 2011, p. 153). However, it is well documented that transparent allocation of work remains a challenge even in its technical or managerial operation (see e.g. Hornibrook, 2012; Papadopoulos, 2017). Kenny and Fluck (2014) provide an argument that involvement of academic staff in the development and implementation of the workload allocation process helps achieve both transparency and equity, but this is somewhat speculative.

From this, we would suggest there is a clear need for development of all three aspects of understanding academic work organization. First, we need more detailed evidence – data, in other words, of all kinds. We have found that most discussion of inequity in academic workload allocation is based on 'corridor conversations' and suspicions. These forms of evidence can be insightful, but they do not provide a sound base for fully understanding gendered discrimination. Second, we need more theory development. In this paper, we do this by drawing and building on two important contributions to contemporary feminist theory, summarised in the next section. Finally, related to our location in feminist thinking, we propose action to address gendered inequalities directly – actions related to structural conditions that frame the technical or managerial practice of workload modelling and allocation, that would help to address the sexism that is currently built into them.

Workload modelling gendered lives through feminist data analysis

As we have suggested in the previous section, there is limited value to analysing workload allocation models simply as technical, managerial exercises. That would be to accept the claims their designers make as to neutrality and objectivity. That is implausible, we believe, when it is empirically clear that their outcomes vary systematically for different groups of academic colleagues. This variation underpins differential career outcomes. Even knowing the 'rules of the game' does not mitigate the gendered effects of workload modelling.

There is, we would argue, a different and potentially more insightful approach to analysing workload models that draws on feminist theory, especially more recent feminist theorising of organizational life (Fotaki and Harding, 2017). Feminist methods and analysis have extended our understanding of many aspects of academic work (see, for example, van den Brink and Benschop (2014) on professorial recruitment; Fotaki (2013) on women's marginalization and male norms; Ford & Harding (2010) on conferences). For our analysis here, we draw and build on two key contributions, first considering the implications of practising feminism with Sara

Ahmed (2017), and then exploring the power-laden nature of the kind of data science that informs workload modelling, with Catherine D'Ignazio and Lauren Klein's (2020) arguments.

Living a feminist (academic) life

We begin in this paper, as Sara Ahmed does in her work, in the knowledge that feminism remains necessary 'because of what has not ended' (2017:5): all forms of sexism, and their patriarchal, misogynist logics (Manne, 2018). We have been suggesting throughout our review that academic workload modelling is gendered, with positive effects for those who identity as men and/or work with and to male norms of career and performance; and negative effects for those who identify as women or reject those male norms that structure academic working lives. Academic workload modelling is, in other words, sexist, at least in its effects.

We write here as insiders, as professionals working in the academic profession, either feminist or pro-feminist. This recognition is, as Ahmed notes, painful and possibly depressing for us; this is sharpened in finding that some do not recognise sexism as real or existing, especially in relation to technocratic methods of managing equity such as workload modelling. The possibility of structural inequalities, for example, being written into managerial forms has to be insisted upon, demonstrated, and argued, over and over again. This recognition is, Ahmed argues, an invitation to *practise* feminism, beginning over and over again to show and explain sexism, sexist discrimination, patriarchy, and misogyny, and the effects they can have on working lives.

Ahmed provides a key theoretical and methodological guide as to how to practice feminism in this way, towards the end of sexism. She suggests taking a different approach to working with the interaction of experience and theory, to develop 'sweaty concepts'. These begin with the realisation that descriptive work can also, simultaneously, be conceptual work; and that concepts are present in the everyday work we do to organize professions such as ours. Sweaty concepts start to emerge when we recognise difficulty, labour that is more difficult than it should be, a struggle. This is what we identified in our data, and we therefore approach analysis as description that provides (feminist) conceptual insight.

Constructing a feminist data science

The analysis we develop in this way, through acknowledging the physical discomfort of workload modelling, is founded on a second feminist perspective that suggests data science of the kind that underpins workload modelling can be understood as an exercise of power. Catherine D'Ignazio and Lauren Klein (2020) provide an abundance of examples of the ways that ostensibly neutral data can be mobilised to either suppress or support equality. From this, they draw an important theoretical argument – that data exists within a system of power, and that data feminism is one potential route for data science.

This way of seeing data involves thinking about the collection and use of data to identify their uses and limits, informed by embodied experience (especially women's direct experience), to inform action oriented towards progressive change, taking account of intersectional feminist arguments. This approach will inevitably show 'how standard practices in data science serve to reinforce… existing inequalities' (p.8), and provide the means 'to challenge and change the distribution of power' (pp.8-9). It is both process and goal, thought and action, abstract and practical.

We believe that these two approaches taken together, Ahmed's sweaty conceptualising and D'Iganzio & Klein's data feminism, enable us to begin to see structural inequalities in descriptive quantitative analysis, which in turn leads to development of our sweaty concept of inequitable modelling. The object of analysis, workload modelling and workload allocation, is brought to theory through data collection, data science, and conceptualisation, all with the aim of demonstrating that sexist power relations surround the structures and experience of academic work. The next section details how we constructed our dataset.

Data, methods, and analysis

To do this empirical and conceptual work, we construct a case study from data collected in a faculty of a European university. The academic unit is sub-divided into departments, counts around 150 academic staff and over 250 administrative and managerial staff, and is of course embedded in a wider university context that includes many other academic units. The unit we researched had been operating its own workload allocation system ('the old system' in our data) over more than a decade; 'the new system' was designed and implemented by university senior leaders as part of a wider initiative.

During the period of data collection in 2018 and 2019 men were overrepresented proportionally and demographically in most academic positions and at most levels of the hierarchy. In particular, men dominated at Professor level (66%), while recent appointments and promotions had created perfect gender balance at senior Associate Professor level. Women were under-represented among teaching focussed and teaching only staff (44%), but constituted the majority of early career researchers (65%). This is notable because over 90% of these researchers work on fixed term contracts, in a university where relatively few academics overall are on fixed term contracts (under 15%). This demographic data therefore reflects the gendered precarity that frames academic working lives from the outset (Ivancheva, Lynch and Keating, 2019; Steinþórsdóttir et al., 2019).

Our analysis of this unit and its workload modelling uses mixed methods, drawing on both quantitative and qualitative data, in order to gain the most complete conceptual insight possible (Creswell and Plano Clark, 2011; Johnson, Onwuegbuzie and Turner, 2007; Kelle, 2006). The mixing of multiple methods (Onwuegbuzie and Collins, 2007) is also useful for triangulation purposes (Denzin, 1970; Jick, 1979). Triangulation not only increases confidence in findings, but also stimulates development of creative data collection methods that can lead to richer data and therefore give a more complete insight into the phenomenon (Jick, 1979; Onwuegbuzie and Collins, 2007). This approach fits well with our conceptual framing as outlined above.

Data were collected as follows:

1) Records of workload allocations for the academic years 2018-2019 (old system) and 2019-2020 (new system) for all academic staff. Data were anonymised, but included details of gender, contract, targeted workload and actual workload under both models. More detailed data was provided for roughly half of the staff, showing workload allocations by activity (research, teaching and assessments, supervision, leadership, administration and citizenship).

Data includes workload assignments of 214 academics, 138 men and 76 women. Within this, 142 (85 men and 57 women) worked full-time and therefore had ‘full’, 100% workload targets. Of this group, 33 (20 men and 13 women) were probationers within 3 years of starting, with an increased research allowance; 39 were working part-time or had fractional contracts (33 men and 6 women). The majority of these were men (65%; male/female ratio 1:1.8). This was also true for those on probationary contracts (61%; male/female ratio 1:1.5), which mirrors a

gender imbalance in recent recruitment patterns (in 2017-2018, for example, 55% of new recruits were male).

Data were cleaned and inputted to Microsoft Excel, then analysed using SPSS Statistics. It is important to note that the records we analyse are accurate only for a specific point in time, June-August. Workloads can and do change, both during the academic year and retrospectively[1]. Changes after August due to staff changes, student numbers or any other change in personal or other circumstances are therefore not considered quantitatively. Analysis focuses on detailed descriptive statistics for workloads assignments, workload as a proportion of full-target workload, and workload activities as a proportion of full-target workload.

2) To gain fuller understanding of the changes implicated by the move between the two frameworks, semi-structured interviews were conducted with five key staff involved in design and implementation of workloads, at senior leadership and academic unit levels (hereafter we call this group 'model designers'). Interviews were designed to gain insight into rationales and ideologies underpinning workload systems as managerial tools, and motivations for the new design. The interviews were conducted between June and August 2019, each lasting between 25 and 65 minutes; all were digitally recorded, transcribed, and analysed using Atlas.ti 1.0.2(68). To maintain participant confidentiality and anonymity we do not refer to job title or gender. Thematic analysis performed was consistent with the systematic phases of our guiding approach: we identified and selected core categories, then carried out systematic thematic content analysis. Core categories were then aligned between all types of data.

3) Data from a survey, focus groups and interviews conducted in 2017-18 as part of a self-assessment of attitudes to and experiences of a range of issues, around equality and diversity, including workload. Here we report only on the data related to workload. Participants included academic staff, professional services staff, and post-graduate researchers. To maintain anonymity in this paper we only refer to participant role and gender.

[1] This is important to note because, despite academics leaving or not accepting work offered, department records continued to include these assignments as confirmed and happening. In other words, workload allocations were not regularly updated to reflect changing circumstances (e.g. sick leave cover, unexpected teaching assignments, student recruitment over target). This suggests that the workload allocations can contain a significant proportion of 'ghostly work', something we return to in our analysis.

In addition we have maintained regular contact with academic staff working in this unit since data collection, including throughout the Covid-19 pandemic. We have done this in part to continue to monitor changes there, and also for respondent validity in our emergent analysis. Our analysis of this rich mix of qualitative and quantitative data brings three core categories to the fore as we develop our sweaty concept of inequitable modelling: motivations (for the new college-wide framework) and workload management in practice; accuracy and control; and the idea of gendered academic activities. These categories frame our analysis in the next section.

Findings

Theme 1: Motivations and practices

The academic unit and university are often presented as institutional practitioners of policies that support equality and inclusion. In line with this, the motivation for the new workload framework spoke directly although not exclusively to this rhetoric, as illustrated by a model designer:

> *From the college perspective it was always about two things: the first thing was around equity, that is making sure that across the college people were doing broadly similar things, in terms of the expectations about what they were expected to do. [...] The second reason for wanting a workload model is making sure that the university's resourcing model works, making sure that you can move, posts and finances between [units] to support the [units] that are under the greatest pressure.*

Discussions with model designers emphasised wellbeing of all academic staff, while transparency was discussed as a benefit mainly to management. The workload framework was designed to facilitate planning by increasing transparency and making it possible to monitor the distribution of workloads and ensure they are 'fair', 'reasonable' and that 'people are working appropriately':

> *...transparency's good and I understand why it's needed, needs to be there, and I think an overview of what we do to stop us doing something stupid, and, or, in fairness, stop us doing something that's unfair, is a good thing to do. Transparency across what everybody else is doing, I think is a bad thing.*

This account shows clearly that transparency has limits *when it enables colleagues to cross-compare outcomes with each other*. That possibility would, as this model designer went on to reveal, create 'discontented people' (what the discontent would focus on was not stated).

We also found a shared belief among model designers that workload frameworks are objective and precise, and therefore they should not result in gender biased outcomes. However this was acknowledged as fragile; heads of department are in control of assigning activities, such as teaching for specific modules and particular administrative roles, with no systematic oversight. As one model designer pointed out, 'it [the outcome] comes down to the awful lot of subjective judgements that you have to make', while another noted the dangers of these subjective judgements:

> *There's a danger of certain people always ending up with the plum jobs and others doing the terrible jobs that nobody likes. The [unit is] very keen on making sure that we're fair about that sort of thing, admin jobs are a big career development as well, so you need to make sure those are given out on a fair basis.*

Model designers also acknowledged that the workload framework has a degree of flexibility, and actual workload outcomes depend on the decisions of individual managers. However, they also recognised that for a workload framework to reach its objective of equity all heads of department need to be 'on the same sheet' and apply it 'consistently' and 'accurately'. This creates an inevitable tension between consistency and flexibility:

> *If you [a manager] are too rules-bond, you don't fairly respond to variation. If you are too discretionary based, then it can just be the whim of whoever's making decisions, so, you try and have some discretion within a broader, rule-based framework.*

Consistency in the workload allocations is not ensured in the view of women participating in the focus groups and interviews, all of whom noted that practices are not always even across departments. This corresponds with admissions by model designers of the possibility of 'cheating' by, for example, creating activities to give colleagues tasks with 'slack in the system', especially for those who needed 'a break' or had personal or professional 'problems or issues' (note the appeal to wellbeing here).

Such practices depend on a head of department's relationship with colleagues, and clearly creates the possibility of inequitable modelling and differential outcomes. This was widely

recognised in focus groups. Women in particular noted that career progression and quality of working life are very dependent on individual heads of department within the academic unit. Some, especially those with caring responsibilities, recognised the need to rely on the 'benevolence' of their superiors:

> *Many of the core activities scheduled at unsociable hours... [the university] operates a system where teaching is allocated in hours 9am to 7pm at night. This is not gender neutral. You can only re-arrange through the head of department - if they are not sympathetic to your needs such as picking children up from [faculty] you cannot change it.*

Judgements also apply to participation in activities perceived positively, for example because they are seen as favourable to career development or simply because they are enjoyable, such as trips, dinners and special events. This was strongly supported by survey results that showed that women saw that men were more likely to be invited to participate in these kinds of activities. These 'optional' activities are also closely linked to appointment to specific roles within the faculty, again with differential status and career implications. Model designers recognised that appointment to administrative roles is a 'potential source of bias', but argued that their decisions are subject to sufficient scrutiny. Again, the explanation for any inequitable modelling or outcome is worth quoting:

> *The [academic unit] is understaffed across academic and professional services, so everyone is stretched and under pressure. So, it's kind of difficult, sometimes, to disentangle overwork from experiences of discrimination and bias.*

The model designers clearly wanted to be *seen to be* fair, and for colleagues to see that 'decisions are down to logical reasons'. However, equity of opportunity and transparency were not always drivers of behaviour or action:

> *The problem with advertising positions, and I've always had this worry, is that the least suitable people put themselves forward. The handful I thought would be ideal for this job haven't put themselves forward.*

> *I think on one level [advertising an administrative role] that's potentially, that's almost PR transparency, because you have people applying for jobs and you think, no. And that reflects my bias. I mean, I think that my bias would be professional bias in that I think they do a good job or a bad job.*

The idea that there is a 'best person' who should be appointed to an administrative role was commonplace in both interviews and focus groups:

> *You give the best person the job, hopefully, maybe I'm very old-fashioned in this sense, just give the job to the person I think could do it. But I'm a man, so what do I know?*[2] *Maybe I'm biased towards people who are men, but I think in our department that women, I think, I feel, I hope, get a fair crack of the whip.*

However, the idea of the 'best' or excellent academic candidate is a contested and gendered phenomenon, something that none of our respondents showed recognition of. This denial of gender was also common to accounts of accuracy in workload modelling, the theme of the next section.

Accuracy and control

The new workload model is built on previous frameworks, but is more detailed and involves changes to specific tariff weightings. The format also changed from a simple hours-based model (assuming Full Time Equivalence, FTE, of 37.5 hours per week, 44 weeks a year) towards a more detailed point-based framework (1000 points corresponding to FTE). This provides, as Vardi (2009) argued, increased complexity, reduced transparency, and comprehensive quantification that gives a false sense of accuracy.

If, however, we take seriously the claim that the new system more accurately reflects 'real' workloads, then it shows that women have higher workload as a proportion of target than men. Table 1 shows how this conclusion holds for all types of contract, except for full-time teaching focussed staff. This pattern is the reverse of the old system where women worked a lower proportion of target workload than men, with the exception of those on research and teaching contracts (we return to this below). For full-target staff, women's workloads as proportion of target increased more than 4% between the systems/years, while the equivalent figures for men remained fairly constant.

[2] This is a very curious comment that we have struggled to make sense of, let alone analyse. We have included it here as relevant, but left it open for the reader as to meaning.

Table 1: Mean workloads as a proportion of target workloads (%) for two workload frameworks (2019-2019 and 2019-2020) by contract type and gender

	All staff		**Full-target staff**					
	2019-2020	2018-2019	2019-2020			2018-2019		
	All contracts	All contracts	All contracts	Research & teaching contracts	Teaching focussed contracts	All contracts	Research & teaching contracts	Teaching focussed contracts
Men	100.096 (n=138)	100.965 (n=126)	101.527 (n=85)	101.533 (n=57)	101.514 (n=28)	101.695 (n=91)	101.000 (n=38)	100.441 (n=21)
Difference	*-0.869*		*-0.168*	*+0.533*	*+1.073*			
Women	100.807 (n=76)	99.133 (n=68)	103.675 (n= 57)	105.594 (n=34)	100.839 (n= 23)	99.433 (n=45)	101.248 (n=20)	96.703 (n=15)
Difference	*+1.674*		*+4.242*	*+4.346*	*+4.136*			

Notes: The data is shown as % of target workload. Reported *Difference* is between the two systems

The higher workloads of women are consistent with women's responses to questions about workloads in the staff survey; women were significantly more likely than men to say that they need to work longer hours and that they are expected to do more work. In order to ensure equity women's workload should ideally be reduced, but this is unlikely to happen. As one of the model's designers noted, more academic staff will not be employed if workloads exceed 100%, suggesting that the measurement is in some sense notional:

> *If everybody's over 100 percent… this isn't a process by which we'll be able to employ more staff. So, if we find that everyone is 120 percent, we have to find ways to cut the work somehow.*

The reality of this remark has been recently demonstrated in stark ways. In the early days of the COVID-19 pandemic the workload weighting given to research was reduced by half, from 40% to 20%, for all academic staff in the unit (and more widely in the university) on teaching and research contracts. This action was taken in order to create more space within workload modelling for teaching and education-related work; more posts could have been created, but weren't, despite the maintenance of institutional income from student fees and research funding (and, somewhat bizarrely, the maintenance of expectations of research productivity).

All model designers acknowledged that their colleagues are overburdened with work. They also agreed that workload models often do not reflect the actual amount of work expected or that people do:

> *It doesn't reflect the hours that I do. And that's true of everyone. That, that's no different if you're on a research contract or on a teaching contract. If you start worrying about, well, you know, I've been given 30 hours to do this job and I'm only doing 30 hours, none of us would get anything done.*

Within the institution, and this is a well-recognised feature of academic work (Miller, 2019; Kenny, 2018; Kenny and Fluck, 2017; Boyd, 2014; Hornibrook, 2012; Vardi, 2009; Houston, Meyer and Paewai, 2006), there is a culture of 'overworking', as noted by a female academic in a focus group:

> *It almost feeds that culture that everyone's just going to not take holiday and everyone's going to do more than what they're required to do and being paid to do and hours that they're being paid to do. Quite frankly if we didn't all do that, the place would fall apart.*

It is apparent that the workload allocations can create discord among academic staff. However, not all academics are in a position to oppose workload allocations, especially those in more precarious positions such as probationers or colleagues working on fixed term contracts. This is confirmed by a female academic in a focus group who didn't want to 'complain':

> *But because we're on a fixed term contract I don't want to be seen as a non-team player.*

Her fears are justified. Model designers were impatient with colleagues who 'worry about every line in their workload' or do not want to work overtime. Moreover, they spoke at length talked about how 'people will play the system' and 'pad their workload':

> *It's always an inflationary process. People never say, oh, actually, I don't think I need that much time. They say, oh, I'm doing this role, and it's not recognised as much.*

Again, we would note that this is a gendered dynamic, with our male respondents more likely to acknowledge complicity in working with the model. This brings us to our final empirical section, focused on how work activities themselves could be gendered.

Gendered academic activities?

In order to examine possible causes of these gendered changes between models, and persistent accounts of workload allocation and modelling as gendered, we analysed how workloads are assigned to full-time staff broken down between main activities as differentiated in the workload frameworks: research, teaching and assessment, supervision, and management or administration roles. The latter include significant leadership roles such as serving as head of departments, director of research, or degree programme lead, as well as more everyday commitments such as personal tutoring and general citizenship. All academics working on research and teaching contracts are expected to undertake some form of management/administrative task, and are allocated 40% of time to unfunded research (at the time the research was conducted). Some add to this 40% weighting by generating external funding for specific projects. Academics working on teaching focussed contracts normally have only 10% of their time allocated to research. As shown in Table 2 below, gender differences in time allocated to research were quite small under both systems. There is noticeably more gender variation over time allocated between teaching related and management and administration activities.

Teaching and student assessment receive lower weighting under the new system, and show different patterns by gender and contract type. Table 2 shows that in both systems women working on research and teaching contracts are assigned less for teaching and assessment than their male colleagues (new system: 15% vs. 25% of their workload; old system: 19% vs. 28%). In contrast, women on teaching focussed contracts are assigned more for teaching and assessment than their male colleagues (new system: 53% vs. 49%; old system 56% vs. 46%). Despite teaching related tasks constituting no more than half of allocated workloads, focus group participants highlighted how these tasks take up a lot of time at particular times of the academic year. Heavy workloads in relation to teaching were also commented on; given that teaching is often to large numbers of students (commonly up to 400 in a single module, often delivered by a single academic), the three-week time limit for grading made the experience of marking 'intense'. This is reflected in one academic's response when asked if she worked at weekends:

> *In the term time, yes. Almost every week, 22 weeks when lectures are ongoing and marking. [...] And it can be late nights, especially when marking. That's the most demanding time probably, when you have to turn around 150 essays in three weeks. They say 15 working days, but you need the weekends as well. And the demands of the students are getting higher. This is one case where I think the students can reasonably ask for good feedback. I think that's reasonable. But then the university is saying: Well, you have fewer days to get that feedback back to students, so something has to give somewhere.*

Table 2: Overview of workloads for different types of activities*

Workload activities: mean % of full-target workload	Contract type	System	% of full-target workload	n	% of full-target workload men/women
Research and development	Research & teaching	Old	44%	46	44% / 45%
		New	41%	43	41% / 40%
	Teaching focussed	Old	12%	27	13% / 10%
		New	10%	28	10% / 10%
Teaching and assessment	Research & teaching	Old	25%	46	28% / 19%
		New	22%	43	25% / 15%
	Teaching focussed	Old	49%	27	46% / 56%
		New	50%	28	49% / 53%
Supervision	Research & teaching	Old	8%	46	9% / 7%
		New	11%	43	12% / 8%
	Teaching focussed	Old	7%	27	7% / 7%
		New	7%	28	6% / 7%
Management and administration	Research & teaching	Old	24%	46	21% / 31%
		New	28%	16	18% / 39%
	Teaching focussed	Old	30%	27	34% / 20%
		New	36%	11	36% / 34%

Notes: Data are for three departments

Management and administration receive higher weighting in the new system. In table 2, under both systems women on research and teaching contracts are assigned higher allocations for management and administration than their male colleagues (new system: 39% vs. 18% of their workload; old system: 31% vs. 21%). Women and men on teaching focussed contracts are assigned a similar proportion of their workload to these tasks in the new system (34% vs. 36%), but in the old system women are assigned a lower proportion of their workload than men (20% vs. 34%). The higher allocation of workload time to management and administration under the new framework was noted by some of the model designers, describing 'generous allowances' to some roles, such as personal tutee and leading a module, and a risk of 'inflation' in terms of allocated points that needed to be avoided.

The gendered imbalance between allocation to teaching related and management or administrative activities may have consequences that create inequity. Among academics on teaching and research contracts males appear to be allocated more time for teaching related activities while women spend more time on management and administration. Some activities are less valued, more time consuming, involve hidden work, and are associated with the 'academic housework' label that relates to teaching (Heijstra et al., 2017). Inasmuch as this is true then this would have further implications for women's career progression.

Clearly a heavy or unbalanced teaching or administrative workload can result in activities that are important for career progression, such as research or development of a pedagogical profile beyond the institution, being put off or being done outside 'normal' working hours. This has different implications for women and men, as women continue to carry most of the responsibility for unpaid family care work (Rafnsdóttir & Heijstra, 2013). This was highlighted in a somewhat weary way by female academics in focus groups and interviews, raising concerns about gendered dynamics of childcare responsibilities in particular.

Discussion and conclusions

There have been suggestions that considerations of equity and equality be put to one side while the COVID-19 pandemic continues, as Pereira (2021) notes. This seems unhelpful to us as it does to her, for two reasons: first, there is no inherent conflict that we can see between dealing with a pandemic and continuing to address equality or equity, just as there is no inherent conflict between designing a successful organizational structure and increasing equity or

equality. Second, perhaps more important, the pandemic has brought issues of *in*equity and *in*equality into sharp focus – to take just two examples, compulsory homeworking has shown very clearly how gendered care responsibilities and domestic labour continue to be; and precarity of employment, as shown in gendered patterns of redundancy, is evident in many sectors (including higher education) and economies around the world (Wright, Haastrup and Guerrina, 2020; Yildirim and Eslen-Ziya, 2020; Myers et al., 2020; Aldossari and Chaudhry, 2020; Cook and Grimshaw, 2020; Couch, O'Sullivan and Malatizky, 2020).

For these reasons, we would argue that careful mixed methods analysis of the kind we present here is if anything more important in the current moment, especially as we look towards a 'post-COVID' or 'COVID-normal' workplace in the medium term. Many academic staff are in a relatively privileged position at the moment, with mostly safe and secure work in a sector that is relatively protected from the effects of economic cycles and emergencies. For this reason, we might expect processes such as workload allocation to be less gendered than in other sectors where resources are more scarce and precarity is higher. Our data suggests this is not the case. Further, our analysis suggests that data are being collected, collated, and presented in ways that claim objectivity and transparency for a managerialist project that draws on the language of equity. Such claims are founded on a representation of workload modelling as *inherently equitable* as a result of careful design and an idealised process of negotiation between colleagues.

Our analysis here is oriented towards challenging this empirically and conceptually. We have sought to practice a form of data feminism (D'Ignazio & Klein, 2020) that directs attention to the power relations built into any data collection process. Further, we have sought to develop a 'sweaty concept' (Ahmed, 2017), *inequitable modelling*, that respects individual and collective experiences as a foundation for theory development. Throughout data collection, we were struck by how women in particular described workload models and the negotiation of workloads as *inevitably gendered*, inequitable and unequal in process and outcomes. These dynamics are, we believe, built into models such as those we analyse here, in part through implementation in a gendered organizational setting, and in part through misguided efforts to make them more detailed and therefore more reliable and transparent as a route to equity and equality.

Despite ideological references to equity and transparency surrounding the design and imposition of a new workload framework in our case study, it is clear that it is not achieving either of those outcomes as promised. The model designers recognised that the workload framework is first and foremost a managerial tool to inform resource decisions, assess resourcing needs, and ensure 'people are working appropriately'. While presented as objective and ensuring gender equal outcomes, the model and its designers deny the gendered nature of academic work, contemporary work organizations, and working cultures. Claims to 'gender-neutrality' ignore differentially gendered social positions and are therefore likely to reproduce existing bias in decision-making (Elson, 1999). Such claims may recently have become more difficult to challenge in our case study organization; instead of using Excel spreadsheets staff now access their workload allocations via specialist software in which the underlying algorithms are no longer visible or manipulable, making it even more difficult to share and compare allocations with colleagues. This has reduced transparency, raising the likelihood of women being professionally positioned by bias (Barett and Barett, 2011) and reducing levels of staff satisfaction (Vardi, 2009).

This brings us to the final short section of the paper, where we outline what feminist workload modelling systems and processes might look like. We believe it would be relatively straightforward to design and implement a feminist workload modelling framework, following the principles outlined by D'Ignazio and Klein (2020), which we have followed in our analysis. Some of these principles are abstract (e.g. 'challenge power', by recognising unequal structures and working towards justice), while some are more concrete (e.g. 'show your work', by acknowledging the invisible labour involved in maintaining any organization and its managerial processes). We believe these principles can be expressed in terms of the ethics of the mundane but essential task of workload modelling, to orient this particular structure towards feminist action and outcomes.

First is the ethic of power. Workload models can be understood as expressions of existing power relations, including power relations that elevate or oppress. Reproduction of inequitable power relations is not inevitable – data and their analysis can contribute towards justice rather than subjugation. Second is the ethic of pluralism. Workload models operate through the reduction of a complex human social activity to a series of individualistic numbers and calculations that exclude as much as possible. The human can be reincorporated through structured, systematic data collection on colleagues' plural experiences of living with the

workload model. Third, and finally, is the ethic of context. No managerial tool or process is developed, implemented, or experienced in the ideal world of its designers. Numbers are never a world in themselves, despite what system designers may claim.

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