Change in a university department through the practice lens: an ethnographic study of factors inhibiting and scaffolding success

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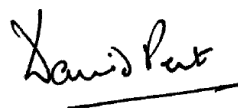
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This thesis results entirely from my own work and has not been offered previously for any other degree or diploma.

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Abstract

Change in higher education has been researched at a variety of levels, from international policy to the response of the individual, but the academic department has received little attention as the focus.

Deploying social practice theory underpinned by a critical realist ontology, this thesis reports a single-site ethnographic study into the factors which scaffold and inhibit change within a science department in a research-intensive university as a consequence of the implementation of a management initiative. The exemplar change programme described is Athena SWAN, which seeks to provide a framework to improve the working environment, especially for women. Multiple methods, including survey and interview, are used to explore the competences, materials and meanings germane to change in the instantiated practice. Perspectives from different staff groups are reported using an organisational model. This study explores the limitations of current models and suggests alternatives for the investigation of instantiations of given practices.

This report demonstrates that effective change can be better scaffolded by the integration of practices across the department, paying due attention to the needs

and perceptions of different staff groups, the impact of external environmental

pressures and rate of change with time. An alternative model for conceptualising

competing practices with apparently contradictory goals is offered as a means to

articulate tensions and promote collaboration between practices and enhance

opportunities for effective organisational change.

Contents

Acknowledgements

List of abbreviations

AS   Athena SWAN
ECU   Equality Challenge Unit
HEFCE   Higher Education Funding Council, England
HEI   Higher Education Institution
IT   Information Technology
NIHR   National Institute for Health Research
PI   Principal Investigator
SPT   Social Practice Theory
STEMM   Science, Technology, Engineering, Mathematics and Medicine

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Chapter 1 - Introduction

1.1. Preview

This chapter lays the foundations for a single-site case study research project investigating change in a higher education institution. The primary focus is on exploring the question 'What factors inhibit and scaffold changes in social practices subsequent to a management intervention in an academic department?'. Based on a critical realist ontology and using social practice theory, this study uses multiple methods, within an ethnographic framework, to investigate change from the perspectives of different staff groups in a university science department.

This chapter begins to define the boundaries of the research field of changing practice and sketches out some of the conceptual landscape. The broad background of managerialism and change in higher education is outlined and appropriate research questions are formulated. The underpinning literature and theoretical position are described and analysed further in Chapter 2 and the consequential methodological issues pursued in Chapter 3.

1.2. Background

Initiatives such as the introduction of student tuition fees (UniversitiesUK, 2013), the introduction of the Research Excellence Framework and the Bologna process (Neave and Veiga, 2013) have precipitated significant change in higher education across the United Kingdom. Some changes are mandatory and inescapable, such as changes in funding introduced by the Higher Education Funding Council for England (HEFCE, 2015). Other changes or initiatives are more optional, or can appear to be so, and these might include the introduction of, or application for, charter marks such as an Athena SWAN award from the

Equality Challenge Unit (ECU) (ECU, 2015b) or Investors in People (IIP) (IIP, 2015). The motivations for engaging with this latter group of changes are discussed in Chapter 3, but they all share similar characteristics in that such engagement requires resources and management at the appropriate desired level within the HEI, if the changes are to be successful and become embedded. These terms are defined in Section 1.7.

1.3. Management

The influence of the practice of management within HEIs has attracted significant research attention in recent years (see, for example, Tight, 2012, Shattock, 2012, Warner and Palfreyman, 2001, Warner 2001), as political pressures for greater accountability across the sector have grown (see, for example, the UK Government Proposals for reform in higher education (Department for Business, 2015)). At the level of the institution, significant, if under-theorised work has been published addressing the practicalities of change and its management (Shattock, 2003, Warner and Palfreyman, 1996). Whilst Warner and Palfreyman, for example, adopt a practical, almost handbook approach, the thrust of their position appears to acknowledge the inevitability of central managerialism in HEIs. Shattock, writing from the position of both a senior administrator and an academic, reflects more on the complexity of different organisational layers within an HEI. He recognises the importance of the department as the main operational unit (Shattock, 2003, p. 74f), the potential for intermediate layers of organisation to act as an impediment to change, yet the importance of a 'strengthened steering core' (p. 177). Deem et al. (Deem et al., 2007) explore aspects of different roles within an HEI from Head of Department upwards and although they adopt a more highly theorised stance, the links between institutional theory and critical realism are undeveloped (p. 3f). Finally, Kogan (Kogan, 2014) focuses on the effect managerialism has had on the balance of power within HEIs, with transfer from

'senior academics from their departments to the central institution and the dominance of systems over academic values' (p. 76). There is much that could be contested here in terms of what senior academics conceive power to be and the nature of the tensions between systems and values, but the reality of the changing managerial context of HEIs cannot be denied.

Thus this shows how management in HEIs can be explored and described from a variety of perspectives, from theoretical to practical, and at different levels, from the individual (usually an academic staff member) to the whole institution. These ideas will be developed further in Chapters 2 and 3, but two matters are of immediate significance. Firstly, there is an absence of consideration of the operation of departments themselves, that is at the 'meso' level (Trowler et al., 2005). Whilst some studies of new initiatives for change do purport to focus on local implementation, this can be restricted to an examination of the views of individual academics (Trowler, 1998) and not reflect changes in the operation of the department itself, in terms of its practices. Secondly, the extent of the theorisation of management can be seen as limited, both at the level of inquiry design and translation into methodology. Two important dimensions of this present study seek to address these issues, by using a defined and consistent theoretical perspective and by engaging with the concept of the department as the basic unit (Becher and Kogan, 1992)(p. 87ff).

1.4.   Leadership

Closely linked to the concept of management and sometimes almost (and unhelpfully) used synonymously, is the notion of leadership. Unsurprisingly, given the lack of focus on management at departmental level, the research on departmental leadership is similarly sparse. In setting the boundaries of the field, the literature does reveal some preliminary ideas. Firstly, there are frequent references to the complexity of departmental leadership

(Middlehurst et al., 2009, Middlehurst, 1993, Bryman, 2007) and its multidimensionality and, as is often found in older (typically pre-92) universities, its limited temporality. With most references pointing to facets of the role of the head of department, as opposed to leadership exercised by others, emphases include: providing direction; providing a supportive (internal) environment; representing the department (externally); and protecting staff autonomy, as well as demonstrating personal integrity and credibility (Bryman, 2007, p. 2). Bryman contrasts middle leadership in higher education from that elsewhere by suggesting

> 'it means that the head of department is often in a position where he or she
>
> is not engaged in executive leadership – implementing policies and directives
>
> emanating from the centre – but in defending or protecting his or her staff,
>
> quite possibly in opposition to expectations among senior echelons.' (p. 3).

Bryman also suggests in this report that little research has been carried out into other forms and layers of leadership within departments. Middlehurst et al. add further complexity by describing in their terms the different 'forms and levels of leadership' (Middlehurst et al., 2009, p. 319), including management through formal and informal channels, leadership within the discipline, and politics.

Knight and Trowler (Knight and Trowler, 2001) take a more theorised stance on departmental leadership, arguing against technical-rational approaches to management, within higher educational organisations which can be perceived as hierarchical (p. 14). Instead, they advocate approaching leadership, especially in the context of change, from a more collegial perspective emphasising the contextual nature of leadership as a social activity, within particular space-time dimensions of meaning. Again, however, Knight and Trowler focus on leadership by academics of academics, with little attention paid to other staff groups within the departments of HEIs, such as technicians and other professional

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support staff. They acknowledge that 'collegiality can mask inequality and exploitative power relations'(Knight and Trowler, 2001, p. 10) a comment which has significant importance in large science departments where academics may form the numerical minority. Empirical studies have been few. Smith's study of two contrasting engineering departments (Smith, 2005), based on a case study methodology, is largely descriptive and is academic-focused to the exclusion of other staff groups. Gibbs et al. explored the leadership of teaching, and changes in teaching, within leading research-intensive departments (Gibbs et al., 2008), identifying a broad range of enabling leadership activities and strategies (p. 421ff), and exposing widely different practices across apparently successful departments. This work is examined in more detail in Chapter 2.

The study of leadership across HEIs, especially in the context of change, can therefore be seen as a problematic space, where the discourses of management studies and the academy both exert significant influence and where the methodological issues of research into leadership are contested.

1.5.   Change

The research literature commonly has a focus on management (and leadership) within a context of change. In the two-year period of their research (2009-11), Bolden and his co-authors list eight significant changes, internal and external, requiring an institutional response. These range from reform of student funding to changes in UK immigration rules and student and staff protests (Bolden et al., p. 4). In more theoretical terms, Stensaker et al. , for example, problematise the whole area of change in higher education, surveying different areas of change (Stensaker et al., 2012), and methods for addressing the needs of particular change initiatives, before Sarinena and Välimaa, in the same volume, theorise the processes in terms of theories of modernisation or, alternatively, of conflict and crisis, all

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from an institutional perspective (p. 43f). Similarly, Kogan (Kogan, 2014, p. 76) identifies factors needed for precipitating change, in terms of leadership and management, changes in structures and the interface between academic and administrative staff. In both these examples, however, aggregation of the results of change is at this institutional level, rather than, as Shattock suggested, at the important and significant level of the department. Thus a gap in the research is exposed between the evaluation of the impact of initiatives at institutional and at the level of the individual academic. This could be seen as somewhat surprising, given the emphasis that some of the more dated literature has placed upon the department as a focus of intellectual activity. Two examples illustrate this. Becher and Kogan place an understanding of the 'basic unit' (Becher and Kogan, 1992) central to a 'full understanding of how the higher education system works' (p. 87), attributing to such units essential physical properties such as space, and an administrative and academic existence. Clark (Clark, 1983) takes a more abstract approach, viewing the higher education system 'highly dependent on national political policies' (p. 143), as layered, with the department as a microcosm of the HEI (p. 23). Clark develops this thinking in terms of the knowledge, work, beliefs and authority within each layer, with the department emerging as the operational unit. Each of these elements can combine such that the 'basic unit is difficult for higher-ups to penetrate' (p. 177). Therefore, reasons for the lack of research focus at the departmental level might include this lack of penetrability set against a proliferation of discipline-specific practices. As Clark suggests 'To take a look at physics at York, you had better send some physicists' (p. 177), thus reflecting the degree and extent of the power of the professional 'guild'.

1.6. Initiatives, projects and interventions

In his report, Bolden indicated the variety of policy initiatives which can influence, even be imposed upon, HEIs within a short timeframe (Bolden et al., 2012). As an example, reform of student funding has an inescapable impact on an institution's organisation and service provision. Equally, whether a department enters a large number of its staff for the Research Excellence Framework, or is more selective in its submission, can be driven more by local politics, although any decision is not without serious financial consequences. Institutional or departmental response can thus be envisioned as being on a number of dimensions. One dimension could describe greater or lesser degrees of compulsion to participate; another could describe the locus of responsibility or effort for implementing change on a scale from the centre of the HEI to the department. But a further dimension and a critical one for this study is whether or not the initiative or change intervention has a lasting impact on behaviours within an academic department. The focus of this study is the introduction and development of Athena SWAN programmes within departments, using a specific department as a case study and investigating change in practice with respect to gender-related issues.

The Athena SWAN Charter Mark (ECU, 2015) for gender equality in higher education falls into the category of discretionary initiatives but, increasingly HEIs are adopting this scheme. Although the ECU's initial focus was on the development of women's careers in science-based subjects, this has now been extended to all academic disciplines. The scope and means of implementation of these changes or initiatives may be dependent on the nature of policy, the resources available or the internal political workings of the particular institution. Therefore some policies may be implemented within the central administration of an HEI and departments given a new process to follow, or it may be left to departments (or some intermediate body) to organise the change in its own particular manner. Whilst there are external imperatives for participation, such as the position of the Chief Medical Officer for

England, Professor Dame Sally Davies, requiring 'that all medical schools who wish to apply for National Institute for Health Research (NIHR) Biomedical Research Centres and Units funding need to have achieved an Athena SWAN Charter for women in science Silver Award.'(Davies, 2011). There is also pressure for departments to engage with the Charter in order to improve their Research Excellence Framework Environment ratings.

1.7. Towards a research problem

At this stage, I want to synthesise some of these thoughts and perspectives towards the development of the research problem.

The literature points toward significant gaps in the understanding of how departments in HEIs (as distinct from individuals and whole institutions) 'work', derived from the lines of thinking described in the previous sections. The understanding of how change takes place at this level, how it is managed and led, how and why it either becomes embedded (that is, where practice is permanently changed) or simply fades after an initial wave of enthusiasm, is not well understood and is under-researched. Such research as has been undertaken has often been focused on particular individual activities (teaching or research, for example), or on individual staff groupings, which overwhelmingly can be taken to mean academic staff. Thus, the understanding of how departments work as social entities, with the social practices they embody, is very incomplete. It highly contestable as to whether a comprehensive understanding, or single model for success, could ever be generated, covering all staff groups within a department and their interactions across a broad range of activity. Not least, the multiple variations in environmental factors and boundary conditions, from space and finance, to internal politics and changing priorities over time, make any claims of such description difficult to sustain. Nevertheless, successful management and leadership of change in response to initiatives affects the working lives of the many staff

groupings which constitute an academic department, especially in the sciences. The use, or abuse, of power; good communication or not; adequate resourcing or not, all impact on perceived and material views of success. So after more than a decade of running the administration of a large science department at FenU, and with a fair share of successes and failures, I want to focus in this study on the departmental response to change initiatives, what enables or scaffolds long-term success and conversely what inhibits or impedes that success.

Departments in HEIs need, as has been described, to address a broad range of change initiatives often simultaneously and within a finite resource envelope. From the perspective of at least some interested parties, any change can be viewed as having positive benefits. For example, the introduction of assessment of research activity can be seen as useful in giving assurance to funders and the public in relation to value for money; managers in HEIs may see the exercise as useful in assessing departmental or individual strengths. Other stakeholders, perceiving some form of threat, may view the activity more negatively. The question is whether any change has lasting impact and is 'embedded' or whether it is simply the 'enclave' enthusiasm (Saunders et al., 2005) of an individual or small group, which decays when that enthusiasm evaporates. A change in priorities external to the department may also alter the impact of change.

As argued in Chapter 2, it is possible for such interventions to be understood within a framework of change in social practices. Whatever the real or perceived benefits to different parties, the fundamental issue can be characterised by a consideration of how different elements of practice do (or do not) change, and thus influence the degree to which change in the whole practice is lasting and effective, or not.

Therefore, research questions can be formed in these terms. The primary question, as introduced on page 1, is this.

'What factors inhibit and scaffold changes in social practices subsequent to a management intervention in an academic department?'

This leads to particular subsidiary questions such as:

'What materials, competences and meanings encourage and are perceived as encouraging the embedding of change?' (Shove et al., 2012, p22);

'What experiences and opinions do different staff groups associate with success in this form of intervention?'; and

'How can effective changes in practice be defined, articulated and assessed?'

In this study, broadly the following definitions are used.

Successful change is one where there is evidence that a change in a practice element (of a practice-as-performance) has produced a positive result, in relation to the stated aims of the intervention, recognising that these aims may be emergent and change over time.

Embedded change is where there has been a systemic change to a practice element, for example a new process for appointments has become mandatory. The change might not necessarily have been successful.

Effective change requires both of the above. It has to be embedded and successful. This has the potential to change practice-as-entity, but is dependent upon the level of analysis.

1.8.   Research context

These questions will be investigated within a department at FenU. This long-established University has an annual turnover of £1bn, with over 10 000 staff (1 649 academic staff, 1 695 academic-related, 3 707 research staff and 3 294 assistant support staff). There are around 19 000 students: 11 864 undergraduates; 1 910 taught postgraduates; and 5 203 research postgraduates (FenU, 2015) (January 2015 data). One feature of the staff profile is the relatively low fraction of the total constituted by tenured academic staff. Research

activity is concentrated in the 75 academic departments, although different bodies also contribute to teaching. It is the *department* which is the intended focus of this study, as will be explored in Chapter 3, but it is important to record that each department enjoys a high degree of autonomy. This can be characterised by physical separation (5 miles) from one side of the city campus to the other, and financial autonomy through the possession of departmental trust funds, which can be expended on staff and infrastructure, independently of the central bodies of the university.

Departments in FenU have been exposed to a range of local change initiatives, as well as those externally driven, over the past decade, of a more or less obligatory nature. These include the introduction of resource allocation models, to formal planning cycles and processes, risk management and the national research assessment exercises. FenU has also had a programme to encourage its science, technology, engineering, mathematics and medicine (STEMM) departments to apply for Athena SWAN (AS) awards for the past 8 years. The scheme has recently been extended to arts departments (ECU, 2015b). The AS initiative is significant and all departments are expected to engage with it, with the goal of improving working and family-related practice, especially to the benefit of women. For some departments, especially in the medical sciences, the need to satisfy funding agencies makes it all but imperative to participate. So, the AS scheme will be used as an example of a management top-down initiative and a vehicle for exploring the research questions. Further rationale for these choices is given in Chapters 2 and 3.

1.9.   Summary

In this chapter, the background to the study has been described in terms of the general and particular focus of the research. Change at the meso level viewed from a social practice perspective 'emphasises contextual contingency, and this privileges close-up, in-depth case

study-based research designs of the ethnographic sort' (Trowler, 2014b, p. 20). The next

chapter describes the literature and interrogates this rationale which underpins this study's

approach.

Chapter 2 - Literature Review and Theoretical Foundation

2.1. Preview

This chapter reviews and critiques the literature which underpins the research questions, the theoretical framework and the proposed methodology. The specific literature on the impact of change within academic departments is, as indicated in Chapter 1, relatively sparse: Tight reports only 12 published studies with a departmental theme in 2010 and none with a policy focus (Tight, 2012, p.31), so a broader analysis such as this adds a significant dimension to the originality of this work. The approach, therefore, is to explore critically the literature in cognate contexts, breaking down the research questions in the process.

2.2. Literature Review method

The design of the literature review is developed from the elements of the main research question:

> 'What factors inhibit and scaffold changes in social practices subsequent to a
>
> management intervention in an academic department?'

The focus of the study is the *academic department* within a UK HEI. This means that the emphasis is on the place of the department within an institution, the factors that shape a department and the influence of disciplinary variation. The next step is to acknowledge that in considering developmental projects such as Athena SWAN, *management practice* within academic departments needs to be explored, especially within the context of *change* and the ways in which change can be described. Change processes can be investigated through a number of different channels. These range from a focus on the individual with their own attitudes, behaviours and choices (ABC) (Shove et al., 2012, p. 142) to concentration on the organisation (see, for example, Kotter, 2012). The former isolates the individual from the

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working environment; the latter can ignore the subtleties and nuances at different levels within an organisation. Instead, the complexity of a 'department' as an organisation and the multiplicity of roles within such, taken alongside the power structure, suggests an inquiry based on the ideas of *social practice theory*, even though the outcomes of such interventions are often versed in such personal or organisational terms (see, for example, Fredman and Doughney, 2012, p. 54f). This chapter will therefore also describe the development of social practice theory and explain its appropriateness to this study. There are two further dimensions to this review: firstly, a consideration of the rationale behind AS, and, secondly, an exploration of evaluative methodology.

Each topic search was carried out using the Web of Science™ Core Collection and specifically the Social Sciences Citation Index, the Arts and humanities Citation Index and the Conference Proceedings Citation Index – Social Science and Humanities. The time interval selected was 1990 – 2016. These parameters were chosen as being most relevant to the field of enquiry. Searches were then refined to eliminate the proliferation of articles and papers relating to medical and hospital practices and to departments of management or management science, by using educational research and social sciences filters. Where the number of articles returned by searches on critical topics was small, or where the literature is highly specialised (such as published reports on Athena SWAN by the Equality Challenge Unit), specific websites or books were used to initiate and develop research. Particular issues in respect of individual topics are described in the sections below.

Against the goals of demonstrating the scope of previous work, the associated debates and the relevance to the current study (Murray, 2011, p. 124ff), this chapter will also define the central terms and explore usage within the relevant fields. Informed by Fink (Fink, 2014, p. 14), the aim is also to demonstrate a systematic approach, which is explicit, comprehensive

and reproducible.

2.3.   Academic Departments and Disciplines

In Section 1.2, some preliminary observations were made on the status of the idea of the 'department' within the field of higher education research work. In this section, these ideas will be developed more formally, since *practice* within *academic departments* is the primary focus of this study and a working understanding of 'academic department' is therefore essential. This is an area where the literature search on published articles reveals no papers which provide a working definition. Kell and Annetts, for example, take the existence of the 'department' as a given in their study of peer review practice in teaching (Kell and Annetts, 2009). Therefore, I return to a deeper exploration of the ideas of Shattock and others as introduced in Chapter 1.

Shattock (Shattock, 2003, p. 74) quotes Becher and Kogan (Becher and Kogan, 1992) and Becher and Trowler (Becher and Trowler, 2001) in suggesting the 'departments represent the essential university building block'. Becher and Kogan describe the department as the 'basic unit' (Becher and Kogan, 1992, p. 87ff), identifying this basic unit as sitting between the layers of the individual (taken to be an academic staff member) and the institution (p. 18). Whilst recognising (p. 89) that institutions also contain basic units consisting of research institutes and research functions, Kogan and Becher place their emphasis on mainstream teaching and research units. These can be categorised by adherence to a particular academic discipline (and its professional norms), by their status and stability (p. 92), and by their autonomy (p. 100f). Such basic units also display a high degree of resilience and of inertia to change: departmental closures can attract high levels of protest, such as that of the Physics Department at the University of Reading (BBC, 2006). Becher and Kogan do highlight that behind departmental structures there lies the whole span of academic expectations and

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values of the pan-institutional disciplinary structure (Becher and Kogan, 1992, p. 104),

embedded within professional bodies and modes of communication, such as journals and

conferences.

Although articulated in different terms, the same themes feature in Burton Clark's writing on

the higher education system (Clark, 1983). He focuses on the idea of speciality in respect to

knowledge (p. 16) as a feature of the department. He continues, noting that

> '... academic work is rooted in the evolution of disciplines and professions, each
>
> possessing its own bodies of ideas, styles of inquiry, and traditions that set
>
> directions of effort' (p. 18).

Specialisation of knowledge is intimately connected with structures: 'Underlying the status

of the department… is its crucial characteristic of being authoritative in its own field of

learning.' (p. 33). Clark looks to integrate ideas of knowledge, work, belief and authority,

recognising the external influences of the guild of peers in the broader academic community

within the same field of knowledge. He seems to concur with Becher and Kogan in

recognising the power of localised knowledge centres to impede management (p. 177), and

this element of a department as a source of power is important within this study. Further,

Becher and Trowler start from the premise that

> '… the ways in which particular groups of academics organise their professional lives
>
> are related in important ways to the intellectual tasks on which they are engaged.'
>
> (Becher and Trowler, 2001, p. 23).

That is, the epistemological nature of work is closely coupled to the culture within which

work is practised. This takes the notion of a department to a different conceptual plane from

Shattock and Clark, whose studies are more descriptive, pragmatic and analytical without

significant theoretical foundation. Indeed, the nature of disciplinary epistemology is

translated into their taxonomy for differentiating between disciplines and therefore into the

idea of departmental identity. The characterisation of disciplines, as shown in Table 2.1, adds significantly to the manner in which practices can be analysed and understood, thus forming an important step in the argument towards a definition of what an academic department represents.

Classification	Typical disciplines
Hard-pure	Physics
Soft-pure	History, anthropology
Hard-applied	Mechanical engineering, medicine
Soft-applied	Education, law

Table 2.1
Classification of disciplines
(After Becher and Trowler, 2001, p. 36)

This nomothetic approach is not uncontested. Leading up to the 1990's, a constructivist theory of knowledge gained prominence and acceptability, reducing epistemology and knowledge to mere 'knowing'. For example, this permeated through into the school curriculum as a development of Kelly's personal construct psychology (Kelly, 1991, Gilbert, 2005, p. 257-267, Pope and Gilbert, 1983). Moore and Muller (Moore and Muller, 1999) have sought to challenge this constructivism, what they characterize as the 'voice discourses' of individuals' relativism and reductionism. Instead, they appeal to a 'scientific' mode of argument (Kuhn, 1970) although in doing so they do not appear to address fully the criticisms of Usher and Edwards (Usher and Edwards, 1994) regarding the incompatibility of science and the social, owing to what Moore and Muller define as 'science'. Young (Young,

2000) seems to agree with Moore and Muller's arguments against constructivism and in favour of a form of social realism but only to the point where Moore and Muller appeal to 'asocial epistemological realism' (p. 526). Elsewhere, Young suggests a resolution through a redefinition of knowledge as anthropological or sociological, with the latter dependent upon the former (Young, 2008). This sense of a social theory of knowledge and the way that power relationships are reflected (p. 14) gives richness to the way in which an academic discipline can be construed and thus instantiated in a department. Trowler (Trowler, 2014a) follows Young's line of argument, towards this middle way, with a more socially constructed idea of a discipline and demonstrating progression from his earlier, more essentialist, work on academic tribes and territories (Becher and Trowler, 2001). Trowler, following Bernstein, then proceeds to make a distinction between discipline as *research* and as *curriculum* (Trowler, 2014a, p. 1724), thus adding complexity to the way in which the idea of a department can be construed and to the understanding of a department as a set of social practices. Further, he suggests that

> 'the category 'discipline' does not have a set of essential characteristics which are all necessarily present in every instance. Secondly that each **individual** discipline has no essential 'core characteristics' either, in the sense of being all present and identifiable at all times' (p. 1722f).

This may be overstating the point somewhat (it is difficult to imagine a physics department without Maxwell's equations as such a core characteristic), but the idea of *change over time* within a discipline is an important one to capture when it comes to understanding the department. Turner meanwhile (Turner, 2000) takes a contrasting approach, proposing an alternative model of disciplinarity as a matter of 'identity and exchange' (p. 51), appealing to the ideas of market and cartel, that is the obligatory certification of achievement in a specific field to give formal access to certain careers. (For example, a geologist needs a degree in

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geology, in that specific discipline.). This links to Trowler's idea of knowledge as curriculum, but adds the influence of external forces of the market and history. Interestingly, Turner does not attribute the same factors to research effort, arguing for the flourishing of a much broader range of skills within research activity, as exemplified by interdisciplinary research centres. He bases this on the absence of the market pressures of students and clients, such as employers (Turner, 2000, p. 60).

So while the literature comments quite widely on the nature of a discipline along, as has been described, both epistemological and more pragmatic dimensions, less attention has been applied to the instantiation of *discipline* as *department*, which of course is critical to this project.

The work highlighted so far does not consider change in departments over time driven by issues such as changes in research and teaching priorities, and resourcing. The growing impact of interdisciplinarity with the creation of specialist research centres and (especially postgraduate) teaching programmes has not been widely researched in terms of the broader implications for what being 'a department' means (see Duncan et al., 2010, Jooss et al., 2010). Beyond epistemology, departments may also be described and defined in terms of their approach to collaboration with other departments (beyond formal research and teaching links), to socialisation, and by their approach to change, giving due consideration to the source of that change. Loyalty of academics may be split between their department, institution and the invisible college which encompasses the discipline or sub-discipline. This all suggests a construction of an idea of the department which is more fluid and multi-faceted than simple taxonomies, such as those propounded by Becher and Trowler (Table 2.1) would suggest.

There is a more significant matter, however, which has particular import for STEMM departments. The research reported so far focuses almost exclusively on academic staff. In

STEMM departments there are a significant number of staff in a variety of other roles, even to the extent that academic staff are a minority. These data are one STEMM department in FenU, not atypical, in 2014.

> 'The department is currently home to about 900 people, including 55 academic staff (5 female), 155 research staff (circa. 40% from overseas) and 373 postgraduate students, as well as about 700 undergraduates.' (FenU, 2016)

To this must be added over 120 professional services staff and nearly 200 'visitors' (academic staff and students from other departments, retired staff and industrial partners). The low percentage represented by the department's own academic staff (6%, excluding undergraduates) is starkly obvious. Therefore, any consideration of what constitutes a definition of an academic department has to take into account consideration of staff groups other than academics, since their very presence will affect practices and changes in practice. Unsurprisingly, perhaps, the role of such staff in departments is also under-researched.

To take one job family, in STEMM departments, technical support is often located at departmental level but this has received scant attention in the literature. A Web of Science™ search revealed 14 articles, none of which, by analysis of the abstracts, revealed any systematic study of technicians' work. Yet, a review of commissioned reports does indicate some research activity. Lewis and Gospel's report for the Gatsby Foundation (Lewis and Gospel, 2011), provides a quantitative overview and some reflections based on a limited number of qualitative case studies. The focus is a description of the state of the technical workforce rather than an examination of social practice within departments, including the relationship between technicians and other staff groups, that is interactions in practice between staff groups. This report reinforces the view that research into the role of technicians has been sparse: the only major work has been that of Barley and Orr (Barley and Orr, 1997). In their chapter in that volume, Whalley and Barley (1997) draw out

important ideas on the question of 'what is a technician?', more in terms of perceptions and behaviours than specific skills. They highlight: the critical division between manual and mental work, a divide which technicians bridge (Whalley and Barley, 1997, p. 24); the organisational changes, which over time have sought to rationalise working practices (p. 28); and the way in which technical work has evolved through the 'out sourcing' (p. 36) of professionals' work. Keefe and Potosky discuss the way that technical roles are defined by professional 'others' (Keefe and Potosky, 1997, p. 54) and the way that technicians have a lack of power over entry into the role, standards and self-regulation, leading to a sense of blurred identity and dissatisfaction (p. 55). This serves to indicate how a treatment of 'the academic department' purely from the perspective of academic staff is incomplete, especially within STEMM departments. The plurality of staff groupings may also indicate that within a department there may be more than one culture extant, consonant with Alvesson's idea of 'multiple culture configurations' (Alvesson, 2013, p. 205), where 'organisational cultures are (then) best understood not as unitary wholes or as stable sets of subcultures but as mixtures of cultural manifestations of different levels and kinds' (p. 205). Further, Alvesson indicates that 'culture is best understood in relation to social practice' (p. 204), so if the different influences within a department are to be investigated, the working definition of a department should recognise the existence of these multiple interests and power bases. Two studies act as exemplars. Houston (Houston, 2008) in a single case study in New Zealand, describes the challenges faced in 'making choices about appropriate interventions for (quality) improvement' (p. 134). He identifies the issues surrounding the 'privileged position of the academic-as-researcher tribe' (p. 134), where individual research-active academics benefit and everyone else does not. This can be manifested in a conflict of priorities between teaching and research in the minds of both staff and students (p. 134). Such difficulties can be exacerbated by problems of communication and information flow

(p. 135) and draws the discussion into the realm of professional identity (see, for example, Fanghanel, 2012).Van der Vleuten (van der Vleuten et al., 2004), in a case study in a Dutch institution, introduces another political dimension to departmental life in describing competition between different research areas, in this case, educational research and biomedical research, grounded in the perceived value of the different areas of activity. The response was to consider expansion of the educational research courses to develop a critical mass of activity. Although not addressing the fundamental issues of values, the study takes a more pragmatic, resource-based stance.

Issues of identity and role can be explored further using the ideas of third space professionals (Gordon and Whitchurch, 2010), that is staff lying between the pure academic and pure administrative and support roles, such as knowledge transfer specialists. The influence of such staff, driven by external requirements, such as REF Impact Case Studies in the UK and internally by the need to maximise income, can lead to tensions and competition within a department. Further, a larger grouping of academic disciplines within one organisational unit, as can be common within some institutions in respect of social science disciplines, may lead to rivalry over resources and recruitment of staff and students. Equally, within such structures, particularly when there has been re-organisation, there may be inertia to change to new common ways of working and increased deployment of street-level bureaucracy (Lipsky, 2010) and a disparate range of responses from academic staff (Fanghanel, 2007, Trowler, 1998).

This suggests that an exploration of the department using the ideas of social practice theory would be more appropriate to investigate the multidimensional aspects of such an organisation, to identify the factors, epistemological, practical and physical, which scaffold and inhibit changes in practice. A rigid normative definition of what constitutes a department is therefore not consonant with the theoretical model. A department needs to

be understood in terms of its material (space, people of all staff groups, students, and resources); its competences (research, teaching, leading, managing, etc.) and meanings (the significance given to (potentially different) academic disciplines, activities, competition between activities and people, politics and communication).

Any innovation or intervention (the terms are used interchangeably) into or within a department will therefore affect these three elements of practice. The degree of success, however that might be conceived, is a function, although not exclusively, of competences and meanings associated with leadership, management, communication and environment. The next section reviews some of the complexities reported in the literature in these particular areas and their outworking in a number of practical examples.

2.4. Leadership, management and change

The research question as described in Section 2.1 addresses the issue of change in social practice within an academic department as a result of management intervention, that is how a department responds when a new policies or procedures are introduced and how practice then changes. The question leaves open the site of origin of the intervention: it could be taken as external or internal. But this is consonant with the approach being taken which is that any intervention may effect a change in practice, understood as a complex of interlinked elements. This is the focus of analysis: it is not particularly important what the source of the intervention is, only the changes in meaning and practice that arise. The ideas of intervention or initiative are used interchangeably: the critical underlying meaning is one of deliberately introduced, focused intention of change within a bound context (such as introducing Athena SWAN in a department).

Any such intervention requires some initiation, which even if external to a department will require some internal leadership and management, whether formal or informal. Historically, leadership, management and administration have been evaluated separately, whilst acknowledging their interconnection. Knight and Trowler (Knight and Trowler, 2001, p. 28) emphasise the differences between leading, (focusing on 'understandings of and intents about the aims of action'), leadership ('the skilled or artistic performance of leading… and (as) the enactment of a formal or informal leading role'), and management ('the performance or delegation of operational tasks to accomplish predesignated goals of a grouping'). They characterise administration as the 'detailed fulfilment of management actions' (Knight and Trowler, 2001, p. 27). The links are reasonably clear. Management in the sense of delegation will require some form of leadership; actions in administration are a consequence of management activity. Furthermore, they acknowledge that leadership may be either formal or informal in a particular context. In the case of the Athena SWAN initiative, the dimension of informal power is significant, given the scheme's structure. Middlehurst develops these themes, recognising the diverse sources of change and the need for leadership. She emphasises a number of different dimensions to leadership of change.

> 'At a physical and material level, leadership is required to initiate the development
> of new structures and systems, new posts and new activities. At a cognitive level, it
> is required for the development of ideas, interpretations, explanations and analyses
> for scenario planning, policy-making and steerage. At an affective level, leadership is
> necessary for the articulation and representation of values, for the development of a
> productive working climate, for building and maintaining effective working
> relationships and for the reiteration or reshaping of informal codes of conduct.
> Leadership also plays a part in the emotional domain: by confronting fear, anger

and loss, tension and conflict; by providing challenge, respect, enthusiasm or

inspiration, and by creating and maintaining trust.' (Middlehurst, 1993, p. 191).

Within a social practice framework, the physical, material, cognitive and affective all

resonate with elements of practice (see below, Figure 2.1) and with the links between those

elements. This contrasts with a pure rational-technical theoretical basis for leadership, as

demonstrated in some of the handbook-style volumes on university leadership (Bolton,

2000, Warner and Palfreyman, 1996, Lucas, 1994). So although it is impossible to exclude

some of these ideas from this work, the overall understanding of leadership, management

and administration will be focused within the elements of practice, emphasising situational

instantiation over personal attribute and action.

The literature recognises that recent years have seen the significant changes in UK higher

education as a more managerialist ideology has become

> 'a 'taken-for-granted' and ubiquitous precondition of everyday talk and action
>
> (which is) routinely resisted, avoided and adapted in all sorts of ways by all sorts of
>
> individuals and groups trying to get the day-to-day business of higher education
>
> done' (Deem et al., 2007, p. 27)

Against this background of complexity, tension and change, it is unsurprising that HEIs take a

diverse approach to leadership appointments, from the appointment of career leaders and

managers typically found in post-1992 institutions to the 'reluctant manager', for example a

fixed-term Head of Department in a pre-1992 institution (Deem et al., 2007, p. 35), which is

the typical arrangement at FenU. This last form of arrangement leads to further complexity,

as the incumbent knows that at some point a 'return to the ranks' is inevitable and the

consequences of actions taken whilst in leadership will have to be accepted. The debate

over the impact of managerialism, its limitations and the justification of its use is highly

contested and the issues have formed the basis of a number of volumes (Trowler, 1998,

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Martin, 2011, Fanghanel, 2012, Deem et al., 2007). The detail is beyond the scope of this study, although it is important to note the reported limitation of the effectiveness of top-down approaches (Trowler, 1998, p. 101), despite the time elapsed since Trowler's work.

A number of studies have explored different aspects of departmental changes, arising from a number of interventions, some obligatory and others less so.

Spencer-Matthews (Spencer-Matthews, 2001) investigates the introduction of a quality management system as a result of external drivers, through a case study in a single department in an Australian university, using a mixed methods approach (p. 54). She notes the perceived low level of legitimate power of the change agent in attempting to achieve cultural change, (that is, a more positive engagement with quality management systems), rather than simply a technical change of process within the department (p. 52). She also notes the potential barriers of 'assumed superiority in terms of experience, age, qualifications or social position' (p. 53) and the further barriers of institutional cynicism and pseudo-acceptance (p. 53), which were evidenced in her study (p. 56f) through the lack of engagement of academics and communication issues. Non-academic staff appear to have been omitted from both the initiative and Spencer-Matthew's study. It does however, highlight aspects of the change process which can be significant in delivering successful outcomes.

Gibbs et al. (Gibbs et al., 2008) develop some similar themes in a study of the leadership of teaching in research-intensive departments. This is another case study inquiry, covering 11 universities in eight different countries, with an analysis informed by McNay's description of organisational cultures: collegiate; bureaucratic; corporate; and entrepreneurial (see, for example, McNay, 2007, p. 8). Gibbs et al. identify a broad range of 51 leadership activities and then demonstrate the widely different extent to which these are applied in contrasting yet apparently equally successful departments (Gibbs et al., 2008, p. 425f). The authors

group these activities into ten categories: establishing personal credibility and trust; intensifying problems, turning them into opportunities; articulating a rationale for change; devolving leadership; building a community of practice; rewarding and recognising teaching; setting teaching expectations; marketing the department as a success; supporting change and innovation; and involving students. These are useful categories to apply to any departmental, management-led intervention. The important finding here was that what proved successful differed widely between departments: contextual factors are highly significant. In practice terms, material, meaning and competence combine to form a practice-as-performance and no one set of interventions will assure a particular end state for the transformed practice. Nevertheless, as Gibbs et al. point out, the contexts they investigated were not typical and this limits, to some extent, the generalisability of their findings.

Ashwin (Ashwin, 2002) reports on the development of peer learning in a single UK further education college. Noting previous difficulties with implementation, he describes a refreshed model, drawing on Lewin's ideas of unfreezing, changing and refreezing (Lewin, 1952). Although his paper lacks theoretical depth, his practical model has the following steps: putting the innovation into the context of current conflicts in the system; involving those affected by the introduction of the innovation; developing the innovation in response to the quality of its fit with the environment in which it is implemented; and embedding the innovation (Ashwin, 2002, p. 223f). He provides empirical evidence for success. The model can be seen as having more widespread applicability, where change is not mandatory, although the context was not specifically departmental.

Wieman et al. (Wieman et al., 2010) plots the impact of initiatives to improve science education in nine departments within two research-intensive Canadian universities. They emphasise the need for change to be data-driven; departmentally based; associated with

reward structures aligned with the change initiative; and the limited necessity for new

resource (p. 8). Again, the work is largely pragmatic, employing a mixed methods approach,

but evaluation has highlighted critical departmental factors which are shown in Table 2.2.

Factors Facilitating Change	Factors Inhibiting Change
Department-level	
• Supportive, respected chair/head with authority	• Unsupportive, inactive, or powerless chair/head
• Broad faculty support and involvement	• Effort limited to a few core faculty
• Science Education Specialists (SESes) highly visible, treated as colleagues	• SESes not integrated into the department
• Reward structure for Science Education Initiative - related activities and demonstrably superior teaching	• Last-minute teaching assignments
• Senior and junior faculty leaders who promote the project	• Departmental culture that - does not respect education research - expects total individual freedom in teaching
• Newly formed department in need of a curriculum	
Faculty-level	
• Faculty dissatisfied with student learning • Prior exposure to alternative teaching approaches	• Strong beliefs about teaching and learning that are inconsistent with education research • Blaming lack of learning on students • Teaching is a low priority

Table 2.2
Factors affecting change
(after Wieman et al., 2010, p.14)

These factors demonstrate the need for a comprehensive approach to the introduction of

change initiatives and acts as a summary for this section. Clear leadership, with adequate

resourcing is essential. The department should understand the need for change and appreciate the reward mechanism. Others have pointed out the pitfalls of pseudo-acceptance, where without broad staff engagement and commitment, change fails to materialise. Change needs to be participative. The limitations of these studies do reflect the focus solely on academic staff, which means that power structures and communication issues affecting other staff in departments have not been addressed: these matters will fall within the bounds of this current project. As indicated in Section 2.2, Fanghanel and Trowler have demonstrated how academic staff respond is different ways to change: this diversity can only be compounded by considering the responses of different staff groups from different bases of power.

2.5.   Social practice theory and its study

Thus far in this chapter, the theoretical ideas of social practice theory have been presented without detailed interrogation. In this section, the theoretical framework of the study is explored in greater depth.

Social Practice Theory (SPT) focuses on how practices become enacted, evolve and decay. As Trowler (Trowler, 2012a) points out, there is 'no accepted canon in this body of literature, although Reckwitz (Reckwitz, 2002) has provided a very useful summation…' (Trowler, 2012, Chapter 4, paragraph 1). This statement of Reckwitz is oft-quoted, as:

> 'a routinized type of behaviour which consists of several elements, interconnected
> to one   other: forms of bodily activities, forms of metal activities, 'things' and their
> use, a background knowledge in the form of understanding, know-how, states of
> emotion and motivational knowledge.' (Reckwitz, 2002, p. 249),

although as Trowler (Trowler, 2014b) points out, this definition 'taken alone (it) omits the social, relational, character of practice' (p. 20). Shove et al. (Shove et al., 2012) and Schatzki (Schatzki, 2002, 2005) also describe some of the elements of practice in similar terms. Quite critically, however, Reckwitz's definition does not make any reference to the dependency in time of social practices, which is explored more by Shove et al. in their writing (Shove et al., 2012, p. 33f). Their work is built on two propositions:

> 'The first is that social practices consist of elements that are integrated when practices are enacted. The second is that practices emerge, persist and disappear as links between their defining elements are made and broken.'
>
> (Shove et al., 2012, p. 21)

They then represent this pictorially as shown in Figure 2.1, where the three elements are shown with the appropriate links.
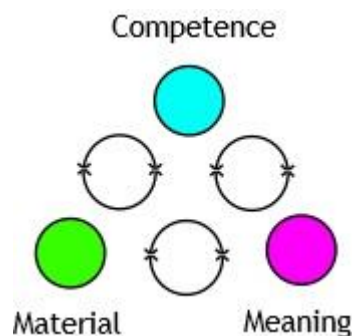
Figure 2.1
Basic model of social practice
(Shove et al., 2012, p. 32)

The three elements of practice: material (physical things); competence ('multiple forms of understanding and practical knowledge' (p. 23)); and meaning ('mental activity, emotions and motivations' (p. 23)) are all connected. A practice is only constituted when these links are established. A practice changes as these links and elements change over time: this will

be a major focus of this study, as evidence of embedded change in practice is investigated, together with the factors that encourage and inhibit these changes, in the context of change of practice-as-performance. But as Trowler notes, there is 'a historicity to (practices) so that the past, present and future are all evident at any one time' (Trowler, 2014a, p. 21) and this too must be incorporated into the study: where staff see practices having come from and where they see them going in the future. It is also important at this stage to identify two distinct groups of social practices. Whilst each instantiation of a practice can be considered unique (the personalities, materials can be different in each case), each of these 'practices-as-performance' (Shove et al., 2012, p. 7f) draws on a 'reservoir of understood practices' (Trowler, 2014a, p. 22) or 'practices-as entities', as Shove describes them (Shove et al., 2012, p. 8). This study will attempt to draw out lessons for change in the latter, drawing evidence from the former.

Now other researchers such as Reckwitz and Schatzki approach the theory of practice in different ways. Reckwitz (Reckwitz, 2002, p. 251f), for example, takes a far more sophisticated approach to the idea of mind within social practice, whilst Schatzki (Schatzki, 2005, p. 472) adopts a different definition, separating practice from material arrangements. (So in Figure 2.1, 'material' would be omitted.) Schatzki and Shove et al. also describe the intersection of practices quite differently: Schatzki rather non-specifically as 'meshes' (Schatzki, 2005, p. 473) or in Shove et al.'s rather more explicit terms as 'bundles and complexes' (Shove et al., 2012, p. 17, 84ff). Overall, Shove et al.'s schema, from Figure 2.1 and these other descriptions, gives a framework from which the next methodological steps for this study can be developed, and, not least, one which is communicable with participants. The idea of intersections of practices is important since this highlights the contestation between changes in different practices, or the impact of different change initiatives, within an organisation and its sub-units.

This all shows that Social Practice Theory remains a contested field, not least owing to the absence of a unique set of constructs, yet any analysis of the arguments requires a more developed theoretical scaffold in terms of ontology, taken as 'the image of social reality upon which a theory is based' (Grix, 2010, p. 59).

2.6.   Ontological position

This current project adopts a critical realist ontological perspective. Critical realism is a position developed by Archer (Archer, 2010a, p. 226ff) which explores the relationship between structure and agency. Central to the subject of this paper is how the actions of individuals and institutions interact, and by what mechanisms, to bring about change in practice. Archer's morphogenetic approach describes a 'process (which refers) to the complex interchanges that produce change in a system's given form, structure or state' (Archer, 2010a, p. 228). She emphasises that morphogenesis is both process and end-state. Further the process is cyclical, between the influence of structure, interaction between structure and agent, and the elaboration of structure. This links to Bhaskar's ideas that

> 'Social structures, unlike natural structures, do not exist independently of the activities they govern; (they) do not exist independently of the agents' conceptions of what they are doing in their activity; and (they) may not always exist or remain in the same state'. (Jones et al., 2011, p. 159)

Thus, the notions of recursiveness and change of state combine to show how in the context where social practice is changing from the perspective of involved agents (including researchers), a positivist or interpretist ontology cannot form a realistic basis for this enquiry. So, a position where 'the knowledgeable world ... is separable for the researcher' (Cousin, 2009, p. 7) to produce predictive theory sits opposed to the idea that the social practice of an institution in the sphere is socially generated and not objective and testable.

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Equally, an interpretivist stance neglects 'to acknowledge the political and ideological influences on knowledge and social reality' (Mack, 2010, p. 5). Critical realism, however, foregrounds ideas of power and influence which, alongside Bhaskar's views on reality (as quoted from Jones as above), are central to the work of any initiative such as the implementation of the Athena SWAN Charter. Nevertheless, the social structures involved are complex and multi-dimensional, meaning that any construction of reality and meaning has to be tentative since commonality of perceptions and priorities between participants and agents may be severely limited. Indeed, it could be argued that Archer's position (as described above) does not fully address the full impact of multiple pressure and actions within a given context. For example, a university is both fundraiser and employer (amongst other things). With different people involved in these different spheres (philanthropists and trade union officials respectively, for example), the social structure can be seen differently with pressures to act and respond in different ways, so it is not fully clear how Archer's model covers this. Critical realism has also to be seen in terms of adherence to a 'stratified or 'depth ontology'' (Edwards et al., 2014, p. 9) which makes

> 'a distinction is made between the 'empirical' (what we perceive to be the case: human sensory experiences and perceptions), the 'actual' (the events that occur in space and time, which may be different to what we perceive to be the case), and the 'real' (the mechanisms and structures which generate the actual world, together with the empirical). This perspective is important because it facilitates a better understanding of how powers which operate in different locations and/or, often, at different hierarchical levels relate.' (Edwards et al., 2014, p. 9).

Edwards et al. proceed to illustrate this in a scientific context by comparing the *empirical* evidence of an apple falling, the *actuality* of objects in general falling and the *reality* of the mechanisms of gravity. This demonstrates a general principal of critical realism which is 'a …

commitment … that there are deeper levels awaiting discovery (of meaning and reality)'
(Edwards et al., 2014, p. 10).

Although not congruent, the ideas on the one hand of depth ontology and on the other of
the hierarchy of practices (practice-as-entity and practice-as-performance) link to
demonstrate how practices can be understood at different levels. Indeed, Maller, drawing
on the schema of Shove et al. (as above), makes these observations:

> 'The distinction between entity and performance is critical because it enables
> researchers to theorise about practice change, as it is through repeated
> performances that practices can be observed to persist and evolve or fade and
> disappear (Shove et al., 2012, Warde, 2005, Shove and Pantzar, 2007). This
> extension of practice theory also allows for performances to be studied empirically
> as they are carried out, or described in the past, and for broader patterns of practice
> change to be investigated historically and predictions made about their future
> pathways.' (Maller, 2015, p. 59).

So here can be detected both a sense of hierarchy and interconnectedness, as well as the
important dimension of the time dependence of practices and of change in practice at
different levels. Maller's paper (Maller, 2015), focusing on health research, represents a
further stage in the development of SPT, importantly answering criticisms based on the work
of Giddens and also Bourdieu, addressing issues of conflation of structure and agency, and
highlighting the significance of the agency of the material, as opposed to Bourdieu's focus on
the individual. Although she stretches her ideas with the definition of SPT as an ontology
(Maller, 2015, p. 53), Maller puts the focus of analysis firmly onto practice rather than giving
space for blame to fall upon the individual.

Warde (Warde, 2005) applies SPT in the field of consumption, developing his theoretical
position from Reckwitz's definition (as above), linking this to the work of Bourdieu, Schatzki

and Giddens (Warde, 2005, p.133), although development of practice over time appears limited to change in practice-as-entity. Warde does not explicitly draw the same distinction between these two levels of practice as Shove does, but nevertheless he does recognise the differentiated instantiation of particular practices, sharing Maller's focus on the analysis of practice rather than focusing on the individual. Warde does have a significant comment, however, in respect of change (a central constituent of this project's research questions). He says,

> 'The principal implication of a theory of practice is that the sources of changed behaviour lie in the development of the practices themselves.'
>
> (Warde, 2005, p. 140).

So understanding changes in a practice are, according to Warde, fundamental to understanding the extent of change in behaviour. There is further relevance in Warde's views on the effects of the presence in any context of multiple practices and the variation of perceived value and reward inherent between any given practices (p. 142f). Briefly, in the context of this project, this leads to a consideration of how change in practice associated with one initiative such as Athena SWAN competes with, for example, initiatives in a department associated with improving performance in the Research Excellent Framework. Warde concludes by emphasising the link between the theoretical driver of SPT and research questions themselves:

> 'A thorough analysis will also ask how practices develop, considering both their internal dynamics and the external conditions of their existence, especially with regard to changing criteria of effectiveness and excellence. Finally, there is a question, much avoided in theoretical expositions, of how different practices affect one another, for surely understandings, knowledge and orientations transmigrate across boundaries. This range of research questions suggests a parallel need for

breadth in method and techniques of interpretation which are equally conditions for

the development of a programme of research inspired by theories of practice.'

(Warde, 2005, p. 149).

This demonstrates a trajectory from theory through to methodology which respects the

complexity of any given environment and develops thinking into exploring changes in

elements of practice-as-performance and associated links between elements.

Before proceeding to the next stage of examining further issues in the design of this study,

some further theoretical objections need addressing.

The use of critical realism as an ontology alongside SPT has been a recent focus of debate.

For example, Farrugia (Farrugia, 2013) explores apparent contradictions between his view of

Archer's stance on reflexivity, with its limitations in terms of interaction with social

structures (p. 287) and the evolution of social practices, drawing more on the ideas of

Bourdieu's habitus (p. 283). The tension between habitus and Archer's ideas of

morphogenesis is further developed by Farrugia and Woodman (Farrugia and Woodman,

2015, p. 630), focusing on critical realism's (Archer's) critique that habitus is deterministic

and 'unable to account for the way in which people live life according to their 'ultimate

concerns''(p. 630). They say that 'Essentially, Archer is arguing that morphogenesis has

removed the sociological reason for approaching identities as shaped pre-reflexively by

enduring dispositions' (Farrugia and Woodman, 2015, p. 631). This is, however, difficult to

reconcile with Archer's development of her ideas of reflexivity, double morphogenesis

(incorporating change in the agent as a result of change in social order) and time

dependency of change, to which structuration pays little attention (Archer, 2010b, p. 274ff).

Bonnington raises the issue of Shove et al.'s treatment of people as 'carriers' of practice,

suggesting that this is revival of a behaviourist ontology (Bonnington, 2015, p. 463), thus

rendering SPT somewhat limited. Arguing against this, in favour of Archer's modes of

reflexivity as a necessity within SPT (as above), he does not really develop his position against Shove et al.'s position, owing to the seeming superficiality of his analysis: the difference between practice-as-performance and practice-as-entity is not addressed, neither is mode of interaction between elements of a practice (Figure 2.1).

A critical approach to this enquiry is also appropriate since central is the idea 'not merely to give an account of society and behaviour but to realise a society that is based on equality and democracy for all its members. Its purpose is to… change…' (Cohen et al., 2000, p. 28). Power and its exercise have a vital role within equality initiatives and in how change is attempted. Phipps highlights this in her analysis of hierarchy and power (Phipps, 2008, p. 91): as the positions of the multiple stakeholders in an academic department are considered, this is a vital perspective to acknowledge the different power positions.

In summary, a comprehensive appreciation of Shove et al.'s SPT model (Figure 2.1), beyond its apparently simplistic form, allows a critical realist ontology to sit comfortably alongside it. There is space to acknowledge the influence of critical, relative power positions of different stakeholders, of different competing practices and of different elements within them. The notions of practice-as-entity and practice-as-performance align with the notion of the realist's layered ontology. An understanding of time dependency in change processes can be understood in terms of morphogenetic cycles of transformation in both structure and agent.

2.7. Methodology – Ethnography and Evaluation

The structure and form of the research questions (Section 2.1) coupled with the theoretical and background frameworks discussed in the four previous sections combine to form the foundations of the study's methodology. In brief, an investigation into the links between elements of practices, the developments of practices-as-performances and practices-as-

entities, within a critical realist ontology, directs itself towards a qualitative ethnographic study, following the necessity of investigating 'objects' of research which 'are constituted by arrays of behaviours, artefacts, knowledge resources and meanings' (Trowler, 2014b, p. 22) and which also allows for 'emergence' (p. 23), that is development of practice over time. This allows the investigation of 'different valid perspectives on reality' (Maxwell, 2012, p. 9) whilst acknowledging that 'critical realism rejects the idea of "multiple realities" in the sense of independent and incommensurate worlds that are socially constructed by different individuals or societies' (Maxwell, 2012, p. 9). Maxwell also emphasises the idea that one implication of realism is to treat research design as a real entity and 'not simply as abstract, formal plans or models' (Maxwell, 2012, p. 71). This means the following.

> 'First, as the actual conceptions of and plans for research held by the researcher, they are real parts of people's meanings, motives, and understandings, ….. and have consequences for the conduct of the research. Second, the conduct of the research "on the ground" – the actions taken by the researcher, and the ways that these influence and are influenced by the specific context and relationships in which the study is conducted—is itself a real phenomenon that may differ substantially from what was planned, and even from what the researcher thinks is happening.' (Maxwell, 2012, p. 71)

A consideration of the active role of the researcher in the design and execution phases of the design is therefore very significant, together with a reflexivity in approach as the study develops. An intellectual and practical flexibility is needed: 'designs are models *of*, and not simply *for*, research' (Maxwell, 2012, p. 71, emphases in original). This adds to the process by encouraging deeper consideration of the process of research design and the environmental factors which impinge on implementation.

Ethnography has a rich and diverse background within social science research. As with SPT, a straightforward definition has proved elusive. Trowler reports that, 'This (definition) is not a straightforward task because 'ethnography' is not a single entity with clear, agreed, characteristics: it a highly contested term.' (Trowler, 2014b, p. 18). LeCompte and Schensul start by defining ethnography as a science, with the researcher as a tool, with rigour in research method and data collection, yet emphasising a focus on the perspectives of people in the research setting (LeCompte and Schensul, 2010, p. 1). Their emphasis starts with the local and from that basis sees ethnography building 'more effective and socially and culturally valid local theories for testing, and adapting them for use both locally and elsewhere' (p. 1). They continue by noting the lack of control over the environment by the researcher, and the need to deploy multiple tools to discover what is going on before attempting any testing (p. 2, 5). Their approach can be summarised as focused on these two goals.

> '• Understanding socio/cultural problems in communities or institutions
>
> • Using the research to develop and assess approaches to solving problems
>
> or helping to bring about positive change in institutions or communities.'
>
> (LeCompte and Schensul, 2010, p. 9)

Therefore, whilst these authors' approach on change and on culture resonates with the research questions, the somewhat normative, scientific approach needs to be questioned. The use of multiple tools, taken with the position of the researcher, needs further examination. The presence of the researcher will always create displacement; different research tools might act against each other rather than in harmony.

Hammersley has written extensively in the ethnographic space (Hammersley, 1992). He explains the rational for developing ethnographic insights as follows:

'the purpose of ethnographic analysis is to produce sensitising concepts and models

that allow people to see events in new ways... The task of the ethnographer is to add

to our general store of sensitising concepts and models..'. (Hammersley, 1992, p. 15)

This is a more pragmatic stance that LeCompte and Schensul appear to take, although

Hammersley does pursue further theoretical considerations, suggesting that ethnography

can be reconciled to a form of 'subtle realism' (Hammersley, 1992, p. 43) and critical theory

(p. 96), although he takes a narrow view with respect to the latter, limiting consideration to

socialism and feminism. He uses Habermas's view of critical theory as ' grounded in an

emancipatory interest in the overcoming of social oppression, ...' (p. 99), but he also

recognises that ethnography can neglect the study of 'the constraints operating on the

people studied, who are portrayed as simply exercising their freedom' (p. 99). This acts as

warning that a management-led intervention cannot be explored in isolation, owing to the

multitude of other concurrent departmental activities.

Trowler develops the underlying concepts of ethnography by drawing these together with

the tenets of SPT, which he also terms 'praxeology', writing:

'I offer a definition of practice-focused ethnography specifically. That flavour

involves:

. . . fine-grained, usually immersive, multi-method research into particular social

activities aimed at developing 'thick description' (Geertz, 1983) of the structured

behavioural dispositions, social relations, sets of discourses, ways of thinking,

procedures, emotional responses and motivations in play. Beyond that descriptive

agenda the approach seeks to uncover broader reservoirs of ways of thinking and

practising which are being differently instantiated locally.' (Trowler, 2014b, p. 18f).

This definition helpfully encapsulates the multiple facets of the elements of practice and the

links between them (Figure 2.1) as well as the difference between practice-as-performance

and practice-as-entity, thinking that is developed later in the same paper (p. 22), alongside the role of material artefacts in practice performance (p. 21). Trowler supports thinking which criticises both Hammersley's attempts at theoretical development (the idea of subtle realism) and those of others (Banfield, 2004, Hillyard, 2010) in their lack of provision of detailed proposals for practical ethnographic studies. Banfield, for example, offers merely principles for investigation: 'Takes structures, generative mechanisms as their object of inquiry… Accepts the openness of the social world… Understands events as the outcome of multiple causal processes' (Banfield, 2004, p. 62). Trowler starts from the basis of principle: 'A praxiographic approach emphasizes contextual contingency, and this privileges close up, in-depth, case study-based research designs of the ethnographic sort' (Trowler, 2014b, p. 20), but moves on to describe how this relates to practice-as-entity and practice-as-performance. He points out that whereas practice-as-performance involves a 'unique configuration of know-how, resources, affordances and purposes', practice-as-entity has 'much greater longevity' (Trowler, 2014b, p. 22) and it is the latter that should be the focus of practice-based ethnography. This leaves open to question the means by which practice-as-entity can be empirically explored. Trowler suggests that this can be achieved by recognising

> 'Such a (multiple) view (of disciplines) means that research can pick out the factors at play in conditioning the enactment of discipline in one site, and offer conceptual clarity about the kinds of factors that are significant, what others could be in other circumstances, and why. Such research can offer findings which are illuminative in nature and so allow improved conceptualization of the factors at work in other contexts.' (Trowler, 2014b, p. 23)

Clearly, the challenge is to develop appropriate criteria against which factors are 'picked out' and the extent and justification of the means of transfer from one site (performance-as-

practice) to another. Trowler does go further and indicates potential foci for research design, including addressing the challenge of 'how to make "the normal strange"' (p. 24), the value of fresh eyes on a problem; and focusing on contentious issues as a means of 'exposing cultural characteristic which are otherwise invisible' (p. 24). Further, he suggests moving outside of the direct workgroup members for different forms of data: 'in researching academic practices of various sorts, administrators in a department are a particularly valuable (but often overlooked) resource' (Trowler, 2014b, p. 24). This is a valuable insight, given that practice in academic departments is largely treated from the perspective of academics alone (Section 2.2), with other staff groups and the interactions between them omitted.

In practical terms, ethnography requires practices and practitioners to be observed but, 'given that practice theory stresses the social nature of practice, methods that go beyond the individual are important.' (Trowler, 2014b, p. 26). Therefore, direct and indirect means of observation and inquiry are appropriate in a multi-method context to reveal not just facts and views, but meanings and understanding of competences alongside the impact of the material. The methods 'need, together, to be able to access the multiple dimensions of social practice: saying, doing, relating, feeling, valuing' (Trowler, 2014b, p. 27), focusing on practice and not just the role and views of the individual (Section 2.4).

Before proceeding to discuss the actual methods employed as a consequence of this discussion (see Chapter 3), it is necessary to locate this study within the overall evaluation space. The research questions are focusing on how change becomes embedded within an academic department and the factors which inhibit and scaffold that change.

Central to this scheme of analysis is the structure of the 'implementation staircase' (Saunders, 2006, p. 210). This describes policy (or an intervention) as an object which can be 'selectively interpreted and refracted at different points in the hierarchy of implementation'

(Saunders et al., 2011, p. 208). In this context, this means that an academic department, for

example, will interpret and implement its university's policy in a particular area in its own

way, which might be quite different to a department in a different academic area in the

same institution and may differ subtly from the university's perspective or intention. Figure

2.2 illustrates this idea.
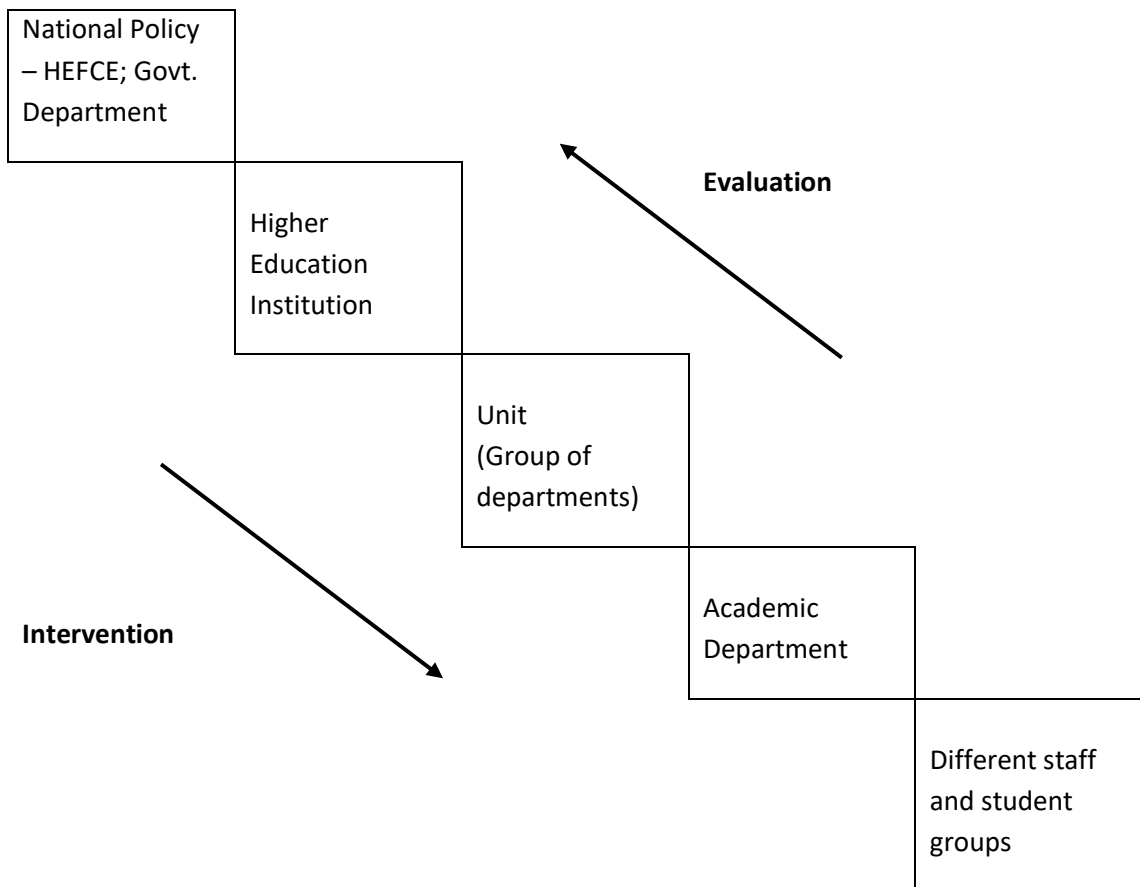
Figure 2.2
Implementation Staircase

Figure 2.2 demonstrates this staircase, with the interventionist strategy or policy being

delivered down to the right and evaluation typically reporting upward to the left.

The differences may be enhanced by discipline-specific priorities: for example, a subject area

such as physics may have recruitment issues to address, even in a selective university

(Macdonald, 2004, p. 4). More significantly, the way interventions are evaluated at each step on the staircase and then reported may well be subject to different pressures, from quantitative outputs on participation to financial accountability, thus affecting actual and real changes in practices and perceptions thereof. Thus different factors will be seen or thought to be constituting scaffolds and inhibitors of such changes.

Saunders et al. also describe the idea of 'policy trajectories (which depicts them as shifting over time due to the exigencies of circumstance)' (Saunders et al., 2011, p. 208). This resonates in the particular intervention of Athena SWAN where different departments may have different externally imposed or driven priorities and pressures upon them, from the Research Excellence Framework to new building and educational projects, notwithstanding the critical issue of different pressure points within the whole equality agenda locally. The implementation staircase thus provides a useful hierarchical structure and metaphor within which to discuss the evaluation of policy interventions and initiatives and the effects on practices.

This volatility and complexity in respect of goals and practice over time (as has been described above) and across institutions suggests two distinct elements of a theoretical framework with which to comment on evaluations down this staircase.

The first is more general and indicates that a developmental dimension to this evaluation might be appropriate. This is consonant with the layered ontology described above: as the work develops new avenues of investigation may be required as different aspects of practices and ongoing changes emerge. It is also consistent with an ethnographic methodology as outlined above. Patton (Patton, 2011, p. 23ff) describes the centrality of ideas of complexity, a dynamic environment, and exploration to developmental evaluation. He continues to explore possible foci in terms of their degree of influence (very local to the large-scale disruptive) and the capacity for such evaluation to provide feedback as the

intervention continues and for leadership in further intervention design. He does suggest that the ideal evaluator stance (p. 25) should be one of membership of the intervention team, and this would be consistent with an ethnographic methodology, but whether this is realistic or not is a function of the type of intervention, its duration and scope. Athena SWAN is often characterised as a journey, with the three- to four-year award cycle, between initial award and renewal or upgrade, acting as milestones on the development of policy implementation and change in practices. A developmental approach captures the ideas of multiple stakeholder engagement and interaction (Patton, 2011, p. 119) and evolution and change as the outputs and outcomes develop, as interventions become more embedded in structures. This resonates with the concept of the development of 'policy trajectories' (as above).

Secondly, to be more specific, the evaluation process can sit comfortably alongside a critical realist ontology. Pawson and Tilley (Pawson and Tilley, 1997, p. 69ff) describe realist evaluation in terms of regularities (in effect observed practices), (generative) mechanisms and contexts, recognising the links between the three elements in a rather basic equality: regularity = mechanism + context (p. 71), before adding in a time dependency of change (p. 73). Indeed, the formal and explicit inclusion of the idea of context adds richness to Shove et al.'s model of practice (Figure 2.1). Pawson and Tilley further develop their thinking by emphasising that 'we are wholeheartedly *pluralists* when it comes to the choice of method' (italics in original) (p. 85). Whilst ruling no options out, the development of the theoretical thinking related to the research questions suggests that methods should be deployed which are capable of exploring the realist's multiple levels of reality and perceptions of that reality at different levels of the implementation staircase.

The final element of the theoretical framework consists of the theory of change and this is informed by the work of Funnell and Rogers (Funnell and Rogers, 2011, p. 149ff). They also

draw a distinction (p. 200) between the theory of change, broadly the strategic situation and context with the chain of outcomes, and the more tactical theory of action, that is 'the desired attributes of intended outcomes….; programme features and external factors that affect outcomes; (and) what the program does to address key program and external factors' (p. 200). A single, stable theory of change is not really realistic in the evolving landscape of a management intervention and its evaluation: indeed, Funnell and Rogers (pp. 102, 144) suggest that the theory of change can be a matter of negotiation and revision during an intervention's lifespan, which again is consistent with Patton's ideas of evaluation discussed above. The development of the theory of change, often implicit in the interventions such as Athena SWAN, is made harder by attempting this study whilst the intervention is still a work-in-progress, but it is still feasible using the approach Funnell and Rogers describe as 'deductive development from formal and informal documentation about the problems the program is addressing' (p. 102). Figure 2.3 shows how such an approach may be operationalised, as a foundation for thinking about how elements of practices, the links between them and practices themselves change.
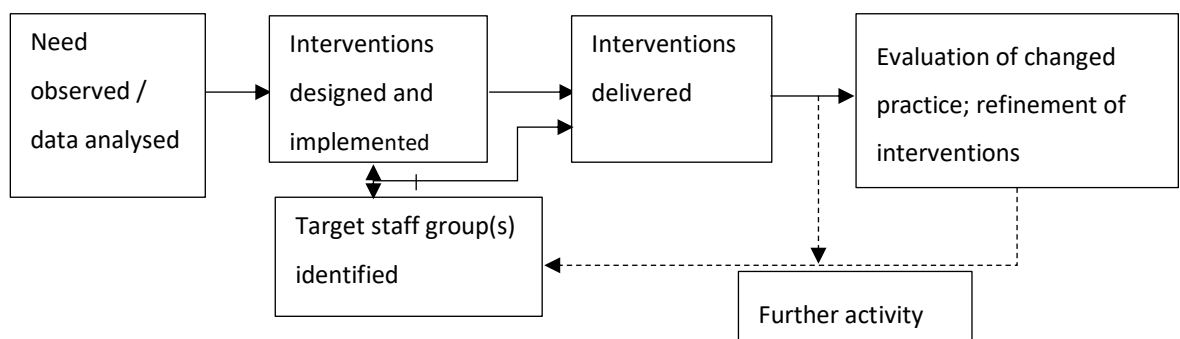
Figure 2.3
Model of change

This is a model for how an intervention such as Athena SWAN may be constructed at any step or interface on the staircase, all capable of evaluation in terms of factors enabling or

inhibiting change of practice. The feedback loop suggests that a positive experience may well lead to refinement of actions, including re-focusing, and this also should be investigated. Now this is very generic, even simplistic, but added complexity can impair meaning and usability. A model such as this often has further, surrounding layers, that is the constituents of the existing practice-as-performance. These could include all the supportive structures from the material (IT systems, protocols for communication and data sharing, people, and organisations such as partnerships) and the non-material, meanings and competencies, as well as broader environmental issues.

2.8.   Gender Initiatives and Athena SWAN

This project focuses on the implementation of a specific intervention, so this section of the literature review sketches the progress of recent research and initiatives to advance gender equality within STEMM subjects. An understanding of the particular issues of this intervention is needed to go alongside the theoretical perspectives in order to inform further the choice of methodology and methods. This review is intended to form a general background to Athena SWAN work and not to constitute a comprehensive study of gender issues in higher education.

The development of gender initiatives in the academic world has been growing over the past thirty years and some background to this work is needed if change in practice as a consequence of Athena SWAN activity is to be understood and theorised.

Phipps (Phipps, 2008) charts gender initiatives over three decades to the early 2000's. Her approach draws on a landscape featuring issues of gender, capitalism and globalisation (Phipps, 2008, p. 7), emphasising the need for countries to maintain status in scientific work and face up to competition. Phipps goes on to give prominence to the equality agenda (p.

11) and women's liberation (p. 16). The overall analysis does however lack some theoretical depth and foundation.

Much has also been initiated through the professional membership organisations: for example, the Institute of Physics created a Women in Physics Group in 1985 (Institute of Physics, 2016), and the Royal Society of Chemistry (Royal Society of Chemistry, 2016) followed in 1991. Organisations such as the Daphne Jackson Trust (Daphne Jackson Trust, 2016) have been providing support to those returning to academic careers after a break since 1992. The Institute of Physics' Group's aims are typical of the general model:

- We encourage the participation of our members in all activities of the Institute.
- We provide support to members in progressing their careers by encouraging their professional development.
- Our committee aims to reflect the varied careers of women physicists in industry, commerce, academia, teaching and research.
- The Group organises an annual meeting with discussions of topical interest.
- A regularly produced newsletter keeps members informed.

Our current concerns include:

- education at primary, secondary and tertiary level
- women in research and academia -especially those on short term contracts
- career breaks
- career management workshops
- networking in the UK and Europe

(Institute of Physics, 2016)

Table 2.3
Institute of Physics principles

Phipps describes these goals in broad terms as 'compensatory' and 'giving skills and support' (Phipps, 2008, p. 147). The target is therefore the individual rather than the institution. Behind this, Phipps continues, lies the issues of unequal power (p. 148) and dealing with 'symbols of masculine culture' (p. 149); such initiatives are not without their problems including feminist backlash and the inertia of educational change. Rees approaches gender

equality more from a policy perspective. Starting from a human rights perspective, she criticises the notion of 'equal treatment' (Rees, 2007, p. 15) on the basis that this simple means women being treated the same as men: 'In effect… women can succeed in academic life provided they behave like men'. This gives rise to the issues associated with handling career breaks and getting back into science. Positive action measures can have the same end effect: women being made to behave like men. Becoming more prominent, since the 1995 United Nations Beijing Conference on Women, is the notion of gender mainstreaming where the emphasis is on integrating gender equality into structures and systems 'into the organisation and its culture, into ways of seeing and doing' (Rees, 2007, p. 16). Rees makes the useful point that much of the effort has been expended on getting women into science where much of the difficulty lies instead in retention through academic careers (p. 17). This leads to the introduction of the quantitative concept of the 'leaky pipeline' (see, for example, Morley, 2007). These plots indicate the percentage of women (or any other population group) as a function of educational achievement or academic position. Quantitative data vary significantly between disciplines. In Physics, (McWhinnie, 2013, p. 11) these data show that in 2011/12 female participation reduced from around 20% for postdoctoral researchers to 7% of the professoriate. Different specialities have different profiles, but all show a reduction towards the senior end of the career pathway. This concept plays a critical role in reifying the issue of women's participation in academic science in a number of the projects or groups described.

Etzkowitz and his co-authors (Etzkowitz et al., 2000) take a committed critical realist approach to women's participation in science. Their examples include describing a very organised effort by alumnae of Radcliffe 'to get the administration of Harvard University to increase the extremely low numbers of women with high-level academic appointments at the University, including the sciences' (p. 25), as individuals interact with a structure where

power is of the essence. Indeed, the relative exclusion of women from science is described in terms of the 'hampering effect on the conduct of science' (p. 25). The theme is developed, suggesting that social structures in science are inherently 'male' (in a cultural sense), which means that women find it harder to adapt to the rules (p. 56). The outcomes can be seen in reduced confidence and increased isolation. Women may not find it as easy as men to be accepted at conferences (p. 96) or in small research groups, or in the informal sharing of intellectual ideas (p. 116). Then again, not all women want to be associated with women in science initiatives: there is the 'honorary man' syndrome.

It is therefore against this complex background that the Athena SWAN Charter Scheme operates, principally to address the underrepresentation of women in academia, but also to investigate inequality in a more general context and to encourage better working practices. Founded in 2005, following a previous project, this Charter is a scheme that recognises excellence in science, technology, engineering, mathematics and medicine (STEMM) employment for women in academia. It is one of a series of schemes run by the Equality Challenge Unit (ECU).

The Charter provides a biannual round of awards, and offers workshops, guidance and opportunities to share effective practice on the ECU website (ECU, 2015b). The Charter's Principles are shown in Table 2.4.

'ECU's Athena SWAN principles form the basis of the charter. They relate to the May 2015 criteria and process.

In May 2015 the charter was expanded to recognise work undertaken in arts, humanities, social sciences, business and law (AHSSBL), and in professional and support roles, and for trans staff and students. The charter now recognises work undertaken to address gender equality more broadly, and not just barriers to progression that affect women.

The Athena SWAN Charter is based on ten key principles. By being part of Athena SWAN, institutions are committing to a progressive charter; adopting these principles within their policies, practices, action plans and culture.

1. We acknowledge that academia cannot reach its full potential unless it can benefit from the talents of all.

2. We commit to advancing gender equality in academia, in particular, addressing the loss of women across the career pipeline and the absence of women from senior academic, professional and support roles.

3. We commit to addressing unequal gender representation across academic disciplines and professional and support functions. In this we recognise disciplinary differences including:
- the relative underrepresentation of women in senior roles in arts, humanities, social sciences, business and law (AHSSBL)
- the particularly high loss rate of women in science, technology, engineering, mathematics and medicine (STEMM)

4. We commit to tackling the gender pay gap.

5. We commit to removing the obstacles faced by women, in particular, at major points of career development and progression including the transition from PhD into a sustainable academic career.

6. We commit to addressing the negative consequences of using short-term contracts for the retention and progression of staff in academia, particularly women.

7. We commit to tackling the discriminatory treatment often experienced by trans people.

8. We acknowledge that advancing gender equality demands commitment and action from all levels of the organisation and in particular active leadership from those in senior roles.

9. We commit to making and mainstreaming sustainable structural and cultural changes to advance gender equality, recognising that initiatives and actions that support individuals alone will not sufficiently advance equality.

10. All individuals have identities shaped by several different factors. We commit to considering the intersection of gender and other factors wherever possible.'

(ECU, 2016)

Table 2.4
Revised Athena SWAN principles

The first point to note is that this initiative is at present limited to UK Higher Education Institutions (HEIs), Research Institutes and to academic life. There is no concern for women who leave academia at any particular career stage, after completing a PhD for example. This is a weakness, for it could be argued that careers in science outside academia are just as valuable, perhaps even more so if the overall economic argument for increasing female participation in science is to be believed. The Charter seeks to address both specific issues such as employment contracts and more general structural issues. The argument is that bad practices can damage women's careers more than those of men: good practice can benefit both men and women, although women may benefit more proportionally. Thus departments may frame their Athena SWAN work in terms of improving the working environment for all.

The Scheme provides a series of awards, each valid for four years (ECU, 2015a) which seek to establish the level of response to the challenges in the Charter. Universities and their individual departments can obtain bronze, silver or gold awards, although departments can only apply for awards (at any level) if their university holds at least an institutional bronze award. Four years is not a long time to embed change and demonstrate progress.

The Scheme (ECU, 2015a) uses a system of structured written submissions, of some 10 000 words each. No visits to universities or departments are undertaken and there is no interview process. Preparation of an application is no small undertaking for a department, usually involving the constitution of a working group (often termed the self-assessment team or SAT), representative of all staff in the department. Working groups will often meet in alternate months over eighteen months prior to submission and continue to meet afterwards to monitor the implementation of the action plan (as below). Each submission includes a significant amount of numerical data, from undergraduate entry through to

promotion to professor, charting each step of the leaky career pipeline for women: this is backed up with qualitative and quantitative data from staff surveys. Benchmarking against peer institutions or against the academic field is also required. Commentary is required on these data and the action plan is based on the findings. One key element of the action plan is that targets are intended to be ambitious, and 'specific, measurable, achievable, relevant and timely' (ECU, 2015a). Therefore, the whole self-assessment by the institution (university or department) has to be demonstrated in writing. (Institutions can get support from other institutions or occasional briefing events run by ECU, but this is very much the minor input.) In practice, much of the detailed work for an application is carried out by academic and administrative leads, with the active support of the head of department.

Submissions are then peer assessed by a panel. Each panel is allocated about six submissions. These are sent out a month or so in advance of whole-day meeting in London: panellists are expected to read, comment upon, and score each application under each criterion in advance of the meeting. The panels consist of a mix of those with experience in gender initiatives, equality officers and human resources staff from universities, and academic and support staff in the broad subject area of the allocated submissions. Many panellists may qualify under more than one of these categories. The panels are staffed and moderated by ECU staff. Each written submission is allocated about an hour in the meeting, before a decision is reached. There is also now an appeals process; there are two application rounds each year.

So the additional work created by the decision (whether taken locally or centrally) to engage with the Athena SWAN initiative is not trivial. Although some university-level (or equivalent) support may be available, frequently departments need to find some resources themselves, by, for example, reducing the teaching load on the academic staff member (not necessarily a

woman) chairing the working group.

2.9.   Summary

In this chapter, the research questions have been placed within a theoretical framework and contextualised within the current literature on departments, disciplines, leadership, management and change. The research questions fit within a critical realist ontology, which is consistent with social practice theory. In particular, it is suggested, the layered nature of realist ontology sits well alongside the hierarchical ideas of practice-as-performance and practice-as-entity. From this, if embedded changes in social practice are to be investigated, then indicators of change need to be explored and an ethnographic approach is consonant with the underlying theoretical position. Such an approach, using a broad range of methods, can thus begin the process of answering the research questions and identifying enablers and inhibitors of embedded change: this is described in the next chapter.

Chapter 3 - Method

3.1.   Preview

This chapter develops the methodology of this project which was first introduced in Chapter 1 into the practical methods deployed in this project, building on the theoretical framework described in Chapter 2. This chapter also explains the logic between theory and method. Issues of ethics and insider research are then described, as exposure to the methods themselves allows deeper insight into the ethical issues surrounding this inquiry and the researcher's positioning. Methods are described including preliminary data collection based on a survey, which are followed by a more focused ethnographic study in a department involving interviews, documentary analysis and observation.

3.2.   Methods of ethnography

Chapter 2 introduced the idea that ethnography can be characterised by the use of multiple methods to study the environment in question. In this study, the focus is on the social practices which might be changed (or not) as evidence of the impact of an Athena SWAN initiative and the factors which encourage or inhibit change. Whilst anthropological ethnography may involve prolonged immersion in a specific different culture, perhaps within an unfamiliar, but physically situated society, the sociological approach necessitates some preliminary parameterisation of the space and issues surrounding the environment at the focus of the enquiry. This chapter explains how the ideas of ethnography are used to develop a programme of mutually supportive evaluative interventions, from surveys to interviews, documentary analysis and observation, both actual and virtual.

Figure 3.1 indicates the range of methods and the time allocation in this study.

| Analysis of Athena SWAN applications and Action Plans, existing surveys and data | **First Phase – Survey** Development of survey questions, testing, obtaining approval, deployment | Analysis of survey, development of interview protocol, finalising subject access | **Second phase – Ethnographic** Interviews (2 batches), transcription, coding, analysis, refinement, observation, document analysis | Final analysis and conclusion |

Refinement of process

| 2 months | 3 months | 2 months | 4 months |

Figure 3.1
Outline of project plan and timeline

The preliminary question is whether it is possible to generate a scheme of indicators which might suggest whether a given change is effective, that is whether it is both embedded in sustained change in practice and successful in terms of positive impact in line with the objective of that change. Fortunately, the Action Plan created by each applicant for an Athena SWAN award lists a whole range of customised and localised tactics designed to embed good practice across a whole range of educational and personnel activities, from student recruitment and attainment to staff development and promotion. These tactics can be based on materials produced by ECU (see above) or generated from reading applications from cognate departments in other HEIs, or from data gathered from the department. They include not only the targets themselves but also the means of achieving those targets. So, for example, a programme of mock interviews might be initiated to assist postdoctoral researchers, and women in particular, in obtaining competitive fellowships or tenured

positions: a specific target might be set, such as 30% increase in female success rates within three years. Now the Action Plan itself can be seen as a material (Figure 2.1) in the change in social practice associated with embedding the Athena SWAN initiative. Likewise, the tactics may be seen as scaffolding, seeking to effect permanent change in material, competence or meaning. But the issue is that, depending on the perspective of individuals and groups, both the Action Plan itself and the individual tactics can appear differently, as either scaffolding or inhibitors. Further, the influence of external agencies and structures can be perceived likewise: enthusiastic advocacy by a senior leader in the university may be seen as positive leadership, or negatively as reaction to what may be perceived as excessive political correctness. Therefore, at the outset, the important idea was to establish initial parameters for this inquiry and this was done through a survey, as part of a mixed-methods approach. Browne et al. describe how both quantitative and qualitative methods can assist in exposing the details of practice. Recognising that, as in the case of this project, a long-term longitudinal study within a department would be ideal (Browne et al., 2014, p. 31), these authors argue that a cross-sectional quantitative snapshot can be valuable in exploring practice, particularly practice-as-entity. This can then expose indicators of change at this higher level, which can be explored in a more detailed ethnographic study in the context of practice-as-performance. Browne et al. used clustered analysis to highlight issues which were then explored in unstructured interviews with a sub-sample (p. 36), whilst recognising that it was difficult to incorporate questions relating to meanings on a quantitative scale. Therefore, it can be argued, quantitative methods alone cannot be sufficient to explore my research questions. For this current study, failure to identify indicators at an early stage would have led to a study lacking in direction and purpose, and of questionable validity. Much effort could have been expended following unproductive routes. Following Browne et al.'s argument, in circumstances of constrained time and resource, quantitative surveys can

assist in illuminating change in practice, but are not sufficient as discussed in Section 3.6

onwards.

3.3. Survey

Surveys have a long, rich history within educational research and have been applied to a

wide variety of contexts with different purposes (Cohen et al., 2000, p. 169ff, Andres, 2012,

p. 4ff). Andres in particular emphasises the 'multifaceted and versatile' nature of survey

research (Andres, 2012, p. 17), including the types of question which can be asked, alongside

the sampling and response methods, not omitting the survey's place within the overall

project design. Recognising the limitations of survey usage in terms of reliability, validity and

bias, the approach taken in this project is more limited. Rather than looking for a highly

reliable set of data, with good statistical significance, the goal was to use the survey to

expose key ideas, that is indicators of change in social practice, especially meanings (see

Figure 2.1), which could then be explored through other methods, such as interviews, in the

main ethnographic phase of the study in the departmental context. It was also envisaged

that some small indications may be exposed owing to differences between different steps of

the implementation staircase (Figure 2.2) or owing to gender. This is also consonant with the

model described in Figure 2.3, which has a focus on interventions and their evaluation. The

design of the survey was informed by documentary analysis of successful departmental

submissions from within FenU and by material from the ECU (ECU, 2015a). FenU was chosen

as the site of the study partly for pragmatic reasons of proximity but also since it gave

potential to exploit the benefits of insider research which Trowler highlights in terms of

improved access to implicit meanings and to different types of data (Trowler, 2012b,

Chapter 1, paragraph 5). Whilst there are inherent risks (see Section 3.8), this approach has

attracted considerable support amongst ethnographers (see, for example, Taylor, 2011).

Focusing on FenU ensured that all common elements of Athena SWAN programmes and initiatives within the institution were included in this initial analysis, which would not have been as possible with another institution. That is, by engaging with multiple sources and acknowledging the limitations in the quality of information obtained, the potential for bias owing to selectivity was minimised. Using notes made from these documents, six main themes emerged which then formed the basis for generating a set of questions for piloting. The themes were also cross-referenced against the social practice model (Figure 2.1) to ensure a degree of theoretical integrity and on a dimension of internal to the department or external (a change tactic, scaffolder or inhibitor from the central university or beyond). This is illustrated in Table 3.1.

Theme	Internal	External	Theory link
Communications – reporting, availability of documents, action plans, applications, survey results	✓	✓	Competency, meaning
Knowledge – rationale, meaning of initiative	✓	✓	Meaning
Programmes – tactics for change, staff review and development, academic promotions, workload models	✓	✓	Competency, material, meaning
Data – collection, awareness of issues of student numbers and attainment, recruitment, retention	✓		Competency, material
Leadership – evidence, structures, family-friendly practices	✓	✓	Competency, meaning
Resources – surveys, running activities and courses	✓		Material, meaning

Table 3.1
Analysis of themes

Two issues need to be addressed here. Firstly, the division into these themes is arbitrary: indeed, a specific tactic to encourage improvement in practice could address more than one of these areas. For example, leadership and resources could be seen as overlapping: without committed leadership it is unlikely that resources will be made available. Without adequate resourcing, the effectiveness of leadership may be compromised. Secondly, by identifying themes with particular elements of the theoretical model, this is not indicating any form of exclusivity within the model to particular elements or interactions between elements. This exercise simply acted as a check that the survey was capable of identifying potential sites of change in elements of practice.

From this set of themes, questions were generated, which were appropriate to the institution. Given the limited goals of this survey stage, further clear parameters were established at the design stage. These were that data should be anonymous; the survey should be equally relevant to all STEMM departments within FenU; the questions should be capable of implementation through a computer-based system; the survey should not take more than 15 minutes to complete (to avoid fatigue); and the data should be capable of relatively straightforward analysis to inform the next stages of the project, given the limited resources of time and effort. The principles for question designed were drawn from existing good practice. For example, consideration of accessibility, fairness, audience, difficulty and background knowledge (Welch, 2006, p. 311) in the use of language and format. Andres provides advice on the suitability of different question types (Andres, 2012, p. 69ff) including the use of rating scales. Question design was also informed by previous work (Peet, 1993). The questions were all loaded onto FenU's Qualtrics® platform, using a variety of question formats compatible with the design specification, as discussed.

The target audience for this survey was all university employees in STEMM departments, so the questions had to be as accessible to staff in lower-graded support roles as to senior professors. At this point, it should be noted who the survey, and indeed the project, excluded. Owing to the division of their time, responsibilities and loyalties, academic visitors and employees of other academic institutions who might be research collaborators were omitted owing to potential conflicts of interest as well as the degree of distance from the practices within the department. Further, owing to their particular circumstances and limited experience in time, students, both undergraduate and postgraduate, were also omitted. The mixed student experience between departments (owing to the structure of the FenU course) and with other agencies would mitigate against valid investigation, in particular with issues relating to separating different experiences and meanings from different contexts. Athena SWAN does have clear links to students, but given the particular constraints within FenU, it was felt this precluded these groups from the current study, although they could easily form the subject of separate work. Equally, even if access had been possible, it is doubtful that data from another HEI would have been sufficiently comparable, without the same degree of insider involvement.

The survey was therefore piloted twice given the reputational risk to the whole project of not getting it right first time and the very wide audience. The potential risk leading to a limit on future work was seen as significant. (It should be noted at this stage that no department within FenU had agreed to participate in the second ethnographic phase of the project). The survey was first tested by staff in a specialist section of FenU with experience of evaluation and then with a group of fellow mature postgraduate students researching higher education to provide a research-orientated focus. Revisions included the division of questions to improve accessibility, the addition of 'not appropriate' answer options in some questions and adjustments to the language. Appendix 1 shows the breadth of the questions used,

alongside the raw data. It should be recognised that the on-line survey format does not transfer easily to print.

The survey was launched through departmental Athena SWAN contacts and human resources business managers in the four STEMM units. One of the four units opted out of the process owing to an overlap in timing with their own unit's staff survey. It could be argued that a second survey on similar or overlapping material might have led to a displacement in responses to this study's Athena SWAN survey anyway. The target was to achieve 200 responses: the initial approaches yielded over 300 complete (i.e. finished) responses (a response rate of about 8%) and a further 200 partial answers, where the survey was not finished. Consonant with the questionnaire rubric, and in line with the ethical framework, unfinished responses were discarded. The indicators as exposed by the survey are discussed in the following sections, but were sufficient to inform the next stage of the project, an in-depth quasi-ethnographic study of the research questions in the context of a particular department. As well as standard reports of the responses, cross-tabulation of data, analysing responses by staff within particular units, was the most frequent analytical tool. Given the focus on an individual department, it could be argued that it would have been more appropriate to survey just that department. The potential to deliver more specific information through this tactic is mitigated by the much smaller numbers involved (in terms of potential participants) and associated issues of validity and also of ethics, since individuals might become identifiable through their responses. Therefore, the design decision was to prefer the results from a larger survey which would give indicators more relevant to the practice-as-entity, which can then be explored in the instantiated practice.

3.4.   Survey Outcomes and Results

The raw data from the survey are included at Appendix 1: note this represents all responses. This section reports the outcomes and linking these to the theoretical framework and to the subsequent phases of the study. Thus there are references to the model of social practice, the layers of ontology and the implementation staircase.

The completed responses to the survey came from four of the STEMM units at FenU. The breakdown is shown in Table 3.2.

	Gender			
	Male	Female	Other	Total
Life Sciences	1	7	0	8
Medical Sciences	31	72	1	104
Physical Sciences	52	48	1	101
Technology	64	36	1	101
other institution	11	7	1	19
Total	**159**	**170**	**4**	**333**

Table 3.2
Completed survey responses by Unit within FenU and by gender

All the units responding to the survey were engaged to a significant extent with Athena SWAN, either holding awards or working towards one. Apart from the small responses from Life Sciences (who were engaged in another survey and did not officially take part) and 'other institutions', the overall response rate from the main three units was approximately evenly distributed, in line with the relative size of these three units. The department which is the focus of the interview phase is within Physical Sciences. The precise distributions as shown in Table 3.2 are therefore not important, but it is necessary to establish that the pattern of responses does not indicate any gross potential biases. In this respect, Table 3.3 breaks down further the data of Table 3.2 to show staff type.

Gender		Life Sciences	Medical Sciences	Unit Physical Sciences	Technology	other institution	Total
Male	Academic and Research	1	24	44	53	7	129
	%M	*33.3*	*40.0*	*61.1*	*76.8*	*58.3*	*59.7*
	Professional support staff	0	7	8	11	4	30
	%M	*0.0*	*15.9*	*27.6*	*34.4*	*57.1*	*25.6*
	Total - Male	1	31	52	64	11	159
Female	Academic and Research	2	35	27	16	4	84
	%F	*66.7*	*58.3*	*37.5*	*23.2*	*33.3*	*38.9*
	Professional support staff	5	37	21	20	3	86
	%F	*100.0*	*84.1*	*72.4*	*62.5*	*42.9*	*73.5*
	Total - Female	7	72	48	36	7	170
Other	Academic and Research	0	1	1	0	1	3
	%O	*0.0*	*1.7*	*1.4*	*0.0*	*8.3*	*1.4*
	Professional support staff	0	0	0	1	0	1
	%O	*0.0*	*0.0*	*0.0*	*3.1*	*0.0*	*0.9*
	Total - Other	0	1	1	1	1	4
Total	Academic and Research	3	60	72	69	12	216
	Professional support staff	5	44	29	32	7	117
	Total - all staff	8	104	101	101	19	333

Table 3.3
Staff type

The category 'Academic and Research' consists of all permanent academic and contract research staff at all grades. 'Professional support staff' includes all administrators, technicians and allied roles. Analysis at any more granular level produces very small groupings within a given unit: for example, one of the largest sub-groups is just 16 professors within Physical Sciences. Academic and Research Staff responses are at roughly twice the rate of Professional support staff, which is understandable given the current focus of the Athena SWAN initiative on academic and research staff. Female academic and research staff responded preferentially compared to the percentage composition of the units overall: again, this is unsurprising. Responses from professional support staff tended to be those from higher grades, regardless of gender. Only around 16% of those completing responses had taken part in a departmental Athena SWAN committee: relatively more of

those were female. This is significant in addressing issues of awareness and communication within the department.

Overall, however, there is no evident concern which would reduce the credibility of any indicators exposed by the survey. Nevertheless, the general small size of each subset of the population means that the quoting of percentages in any results is misleading, giving a false impression of reliability. So more general terms, such as 'fewer' or 'most', are preferred.

3.5. Establishing Indicators of change

The sources used to define the survey questions were illustrated in Table 3.1. This classification also forms a useful framework for analysis. The goal here is not to work through the survey question by question, in attempt to elicit statistically reliable results: as explained in Section 3.2, this was not the aim. Rather, Table 3.4 (incorporating the themes of Table 3.1) shows the overall patterns of response, to demonstrate integration across the different methods and foci of the whole project.

Theme	Analysis
Communications – reporting, availability of documents, action plans, applications, survey results	Internal (University, Unit and Department) news stories and information have more significance in terms of awareness raising than external news, with departmental communication making most difference. However, two thirds say they have not even been provided with Athena SWAN documents; but rather more have seen department reports on Athena SWAN-related activity.
Knowledge – rationale, meaning of initiative	Few are aware of national publications / professional bodies work in gender equality and impact is limited. Most are aware of departmental initiative, and commitment is generally positive. University and departmental

	publications and news have a positive effect on understanding. Impressionistic assessment of the difference initiatives are making is neutral.
Programmes – tactics for change, staff review and development, academic promotions, workload models	Most are familiar with these programmes, but fewer associate these with Athena SWAN, unless there is an obvious gender link, e.g. with Equality and Diversity training and lectures, or with family-friendly policies and practices, and use of core working hours. Appraisal, use of a workload model and career development programmes are less associated with Athena SWAN.
Data – collection, awareness of issues of student numbers and attainment, recruitment, retention	Academic (tenured) staff are more aware than support staff regarding gender disparity in departmental undergraduate and postgraduate student numbers; rather fewer aware of gender gaps in student attainment. Academic and Research staff more focused on promotions and academic appointment rates by gender than support staff. Awareness is lower regarding University-level issues than departmental issues
Leadership – evidence, structures, family-friendly practices	The Vice-Chancellor, relevant Pro-Vice-Chancellor and Heads of Unit (with one exception) are perceived as making little recognised impact on the departmental programme. Heads of Department, Chairs of Athena SWAN Teams and Departmental Administrators are viewed as most influential, more than line managers or other teams such as departmental social committees.
Resources – surveys, running activities and courses	Many staff unaware of, or not engaged with, activities such as support for promotion, advice on family-friendly policies, use of an academic workload model. Staff are aware of University policies, but levels of personal relevance are low. In terms of priorities within departments, pressures from the Research Excellence Framework and Teaching

	Excellence Framework dominate over activities such as Athena SWAN and Outreach.
Table 3.4 Analysis of themes from survey responses	

For the next phase, these survey findings were then viewed through the lens of the department's own Athena SWAN activity, as indicated by its applications under the scheme, including the action plans. In theoretical terms, this departmental work is focused on activity at the empirical level.

The data showed that communications form an important element of an Athena SWAN Programme. So it is clear that questions about whether interviewees actually know the specific gender issues which the department are attempting to address, what methods are being employed and whether they have seen the main documents (the Athena SWAN application and action plan) are relevant. In this context, the impact of university-wide communications could also be explored. The lead-in question regarding the overall change in the department led to questions about symbols and practices, the posters and publicity surrounding the Athena SWAN award in the department and what meaning these had for different individuals. The action plan showed that the department was clearly undertaking a broad variety of initiatives, so it was important to investigate the extent to which these were seen as part of the Athena SWAN work, by people in different roles in the department at different career stages. Then the department's action plan showed that particular focus was placed on two material devices. The first was the production of a 'group expectations' document, in each research group, creating effectively house rules of expected behaviours and core hours to frame the running of the group. The second was a programme of leadership training for principal investigators, aimed at addressing some of the poor practice which was perceived to exist. It seemed important to see how these activities were

understood and how they were related to changes in practice. Finally, questions were framed to address explicitly the main research question of what was seen to scaffold and inhibit change in practice. In summary, the questions addressed the issues of managing changing practice in relation to gender, through an Athena SWAN programme, across all the elements of the social practice model: competence (in terms of communication and leadership); materials (courses, posters, and documents); and meaning (how these were all understood and implemented). So it can be seen how this included investigating the ways in which the three components of practice interact and influence each other. The idea that the components are mutually formative is significant in understanding change in practice.

3.6.   Ethnographic Phase

As has been indicated, the methods of ethnography are multiple and diverse, in a contested space (as discussed in Chapter 2), so the choice of method, or methods, in a particular instance requires considerable care to ensure that validity is not compromised from the outset of the design process. There are two significant foci. Firstly, there is the choice of method itself, with consideration of the environment under investigation. Secondly, there is the position of the researcher themselves in relation both to the environment and the research protocols. By the very nature of changing practice, the 'position' of the researcher is not stable, so allowance must be paid to reflexivity throughout the research process, reviewing positions, acknowledging influences of power and modifying both stance and method as necessary. Carspecken argues that 'It is the nature of validity, rather than truth that gives critical epistemology its methodological rigor' (Carspecken, 1996, p.57), so the correct choices in respect of method are vital if any claims of validity are to be justified. In Chapter 2, the logical flow of argument from ontology to methodology was expounded and

discussed: this is now extended to details of the methods employed. Within a department, any sample size of different staff groups would not have been statistically valid, which, coupled with the difficulty of exposing meaning from survey instruments (Browne et al., 2014) and with the need to expose nuance, attempting to 'render the normal strange' (Trowler, 2012b, paragraph 42) confirms the appropriateness of an interview-led ethnographic approach, using other data sources as available.

The primary context was a single large experimental science department within the main science unit at FenU; this was the prime focus of the ethnographic phase of the study. The particular department needed to fulfil a number of criteria to give optimism for successful research. The department needed to be committed to the initiative to the extent that interventions had already taken place which could be evaluated. At the time of the research, this meant it had to be a science department, since Athena SWAN was not yet in place in arts departments; it also had to be large enough to give access to a sufficient number of academic staff, researchers, professional support staff and technicians from which enough volunteers might be drawn. (Indeed, even with a large department, several requests for support were necessary.) This ruled out the smaller biological departments and restricted choice to one or two departments orientated towards the physical science, one of which was in a state of flux and another which was open and willing to participate in the study. A single department gives a less complex context in which to investigate the local power relationships. Given that no two departments are identical in organisational terms, it is questionable whether any comparison, which direct or indirect, would add value to the study, especially as the degree of 'insider-ness' for the researcher will be different. For example, in different departments, the implementation staircase will look quite different, owing to different structures (such as the presence or otherwise of research groups) as well as the different effects of scale. Further, these differences will be reflected in the different

practices-as-performance as departments seek to instigate changes in response to Athena SWAN activity. This would mean that individuals in different departments, and the departments themselves, would bring different competences, materials and meanings to any evaluation of effectiveness, thus providing more complexity rather than potential for clarity in investigating how the practice-as-entity might be changing. Equally, restricting the work to a sub-set of staff groups would have reduced capacity to explore issues affecting the broad implementation staircase and the development of individual practice elements. Again, as with the survey, students were omitted for similar reasons as before. So this focus on the employees of a single major department was chosen as realistic to investigate within the resource available yet still providing rich data for analysis.

The agreement with the department regarding ethics and confidentiality means that the following information is skeletal in places.

The department hosts around 200 postdoctoral research staff (about 35% female), over 250 postgraduate students (40% female), and around 60 academic staff (about 25% female), including newly independent researchers (those, for example, who have been awarded research council fellowships). Within the academic staff, the percentage of female professors is low at 9%, representing two staff. The structure of the department is fairly flat, with the operational unit being the laboratory, or research group, of the individual academic (principal investigator or PI), so there are about 60 of these. Academic staff may align their research activity with one or more of the five 'interest groups', which encourage collaborative endeavour: these groups, however, do not have any direct managerial function. The department contributes to a number of external research centres and interdisciplinary initiatives. Leadership is provided by the Head of Department, assisted by two academic staff members as deputies (all three academic leaders serving for fixed terms) and two (permanent) senior administrators (the central departmental administration team is

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about 10 strong). There is a senior management team which includes these five people and additional academic staff members. This committee sits at the top of a tree of other committees, which at mid-level includes separate groups for Teaching, Research, Resources, Staff Management and Safety. Below these, there are approximately 12 subordinate committees, including groups for each section of staff (research, support staff, etc.), IT and buildings. Oversight of the Athena SWAN programme is through a separate committee: issues arising from the Athena SWAN Committee form a standing item on the agenda of the senior management team. The structure of the department is not therefore unexceptional for a large science department in a research-intensive institution. The department has made two successful applications for Athena SWAN awards, in the five years leading up to this study.

Central to a study such as this is the issue of access whether this is 'overt or covert' and how it develops over time (O'Reilly, 2012, p. 88). Indeed, O'Reilly goes further in describing the process of negotiating as access as integral to the research itself, revealing significant information about how the researcher is viewed (p. 90). Within this, the identification of a 'gatekeeper', an 'actor with control over key sources and avenues of opportunity' (Hammersley and Atkinson, 2007, p. 27), or 'sponsor' (Gillham, 2005, p. 40) is essential. Gillham goes on to point out how it is necessary for the ethnographic researcher to mitigate any feelings of suspicion and to establish trust (p. 40). The power of the gatekeeper can have a significant impact on the research work: access may only be granted to certain parties or contexts, to the gatekeeper's associates, and not to areas or materials of optimal interest. Within the project's overall resource parameters, there may not be the time to seek out alternative gatekeepers and develop access further. However, providing the researcher is honest and straightforward, acting in accordance with ethics procedures, and aware of these

issues, there is no reason why, of themselves, these issues should reduce the validity of the research work.

For this project, first approach was made to a senior academic who was acting as lead for Athena SWAN in the department. The initial approach was successful, as explained below, and from this a proposal was developed for approval by the senior management team. Again, agreement was achieved without issue, allowing the study to proceed. The Athena SWAN Committee in the department were also consulted and access was granted to their meetings and materials. This was courageous: such research is very unusual in this university.

The initial proposal for this project indicated that an interview phase would develop an understanding of the social practices behind the indicators highlighted through the survey. The access granted to the department allowed a range of investigative ethnographic methods to be employed. Access to the meetings of the Athena SWAN Committee afforded direct observation of different members' behaviours, emerging themes and the practice of leadership. The meetings also gave access to papers in addition to the primary documents: the department's two Athena SWAN applications and action plans. These form rich texts for analysis at over 10000 words each. Alongside this, there are obviously public texts, principally the department's website and occasional newsletter.

In preparation for the interview phase, the department's documents were also scanned for particular themes and ideas, that is materials forming key elements of practices, alongside the outcomes from the survey (as described in Chapter 4). Important examples from the documents were leadership training and development, and a process to encourage fair working practices in the research groups (the 'Group Expectations' documents). Simultaneously the Committee Chair sent out an e-mail, separately, to groups of academic,

research and support staff. The first two of these groups are the primary focus for Athena SWAN (at present); the third group forms a key element of support, based within research groups and in separate units (such as Information Technology, (IT)). Taken together, these groups give a skeleton for using the implementation staircase framework within the department. The means of arriving at a justifiable sample are contested. Hammersley and Atkinson, discussing a case study, point to the need to consider issues of time (considering variation in contextual conditions over time), people (in terms of the different groups and characteristics), and context (where people are enacting the social practices under investigation) (Hammersley and Atkinson, 2007, p. 35). Cohen et al. survey the different types of sampling which have been employed in qualitative research from convenience and critical-case to typical-case and extreme sampling (Cohen et al., 2000, p.143f). Braun and Clarke draw attention to the volume of data needed and how this is related to the purpose of the study (Braun and Clarke, 2013, p. 55). In this study, the focus was on the state of a department's social practices at a particular point in time and on interpreting this at different levels of the implementation staircase. Therefore, the design allowed for groups of staff in different positions to be approached and asked for their support. The e-mail message (see Figure 3.2) was sent selectively to a small number of staff (about ten) in each group (academic, research and support staff): the stipulation was that within each group, approaches should be made to both men and women, to those who had close involvement in the Athena SWAN process and otherwise.

> "David Peet (a colleague from <dept> who did a great deal of work on their
>
> successful Gold submission, and helped shock-test our submission last
>
> November) is undertaking research leading to a PhD on the topic of "embedded
>
> changes in social practices in an academic department: and enquiry into
>
> factors which inhibit and scaffold the success of management interventions"
>
> at Lancaster university. As part of this important research he is seeking
>
> to interview members of the department about matters relating to our Athena
>
> SWAN submission, and in turn provide useful information in due course that
>
> will help us in embedding our ongoing work in this area….." (private
>
> correspondence)

Figure 3.2
Introductory e-mail message

Names remained confidential to the e-mail's author. Those approached did not know who else was being approached. From about thirty approaches, eight positive responses were received, broadly distributed across staff groups and the criteria just outlined. Whilst considered insufficient in itself, this number was adequate to both test the design methodology and expose further issues. The potential for reflexive recursiveness, reviewing data and responding to new ideas adds richness to the research process.

This preliminary set of interviews was constructed around a common protocol built on clear foundations using the theoretical framework developed in Chapter 2. The overall tactic was to focus in on issues exposed by the survey and the department's Athena SWAN materials, and to question interviewees using the model of social practice (Figure 2.1) and the layered

nature of a realist ontology. To this end, these important theoretical ideas were included at the top of the interview protocol, as illustrated in Figure 3.3.

Background theoretical ideas

| Empirical |
| Actual |
| Real |
| |
| Enablers |
| Inhibitors |
| |
| What is change like? |
| reflexive |
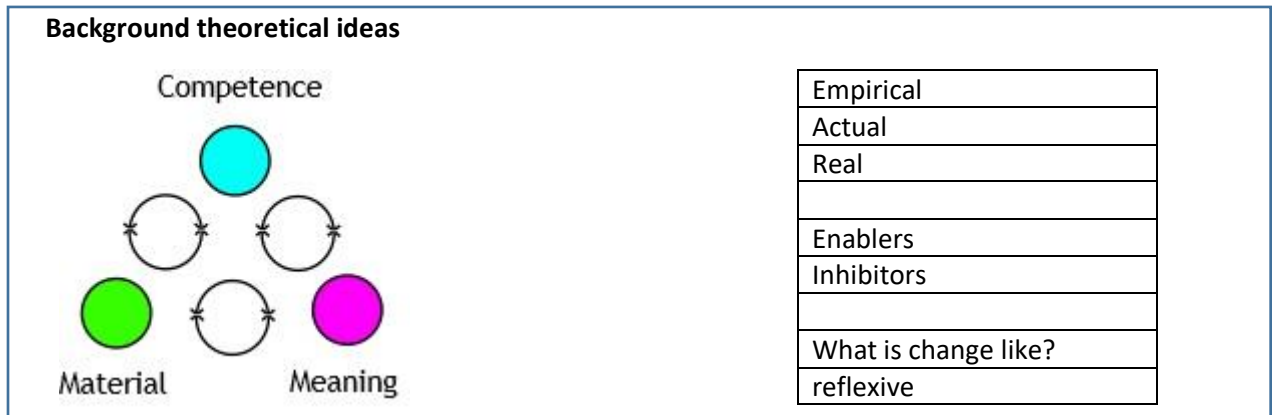
Figure 3.3
Heading of Interview Protocol Sheet

The final version of the protocol used in the first interviews is at Appendix 2 and further detail of how this was developed from the survey and other sources is described in Section 3.9. Thus, the aim was to ensure close integration at the point of data collection with the theoretical framework. Meanings, for example, could be explicitly tested at different ontological levels, both during the course of the interview and analysis. Having these prompts at the head of the interview protocol sheet assisted in developing follow-up questions.

As indicated in Appendix 2, the overall strategy was to use semi-structured interviews, based on a common framework across all staff groups. It has been suggested that unstructured interviews as a method can be useful as an initial exploratory technique (Gillham, 2005, p. 45): in this study, such initial activity was undertaken using the survey as reported above. Alternatively, a structured approach also has much in common with a survey and can be characterised as a 'verbally administered questionnaire' (Gillham, 2005, p. 80). The problem

is that a fully structured approach does not permit the same depth of exploration of personal perspectives as is possible with a semi-structured approach, since follow-up questions cannot be tailored. The semi-structured approach allows for the following:

- 'the same questions (to be) asked of all those involved;

- the kind and form of questions go through a process of development to ensure their topic focus;

- to ensure equivalent coverage (with an eye to the subsequent comparative analysis) interviewees are prompted if they haven't dealt spontaneously with one of the sub areas of interest; (and)

- approximately equivalent interview time is allowed in each case.'

  (Gillham, 2005, p. 70)

Drawing on the indicators derived from the survey and departmental documents, the questions on the protocol were then developed. Care was taken to ensure integration between research and interview questions (Brinkmann and Kvale, 2015, p. 158) and to ensure a balance of interview questions addressing different levels of ontology and elements of practice (King and Horrocks, 2010, p. 37). Importantly, as King and Horrocks point out, this leaves scope to change the interview protocol during the study, to add a measure of reflexiveness, in response to insights from earlier participants' 'accounts of aspects of their experiences' (p. 37).

The first set of eight interviews comprised two academic staff members, two pure researchers, one person at the research / support interface and three support staff (one of these a senior manager). All of the interviews lasted 35-45 minutes and were held at a venue convenient to the participant. Some chose their own office for the meeting: others, particularly those working in shared offices, opted to come to a meeting room at my office.

Quite deliberately, I did not use my personal office for interviews to reduce any influences of power or territorial advantage.

In the execution of the interviews at this stage of the study, two matters are foregrounded: ethics (although this is embedded throughout the study) and the role of the insider researcher, and these are discussed next.

3.7.   Ethics Procedures

The ethics procedure and framework for the whole study was approved in advance through the Lancaster University process: approval was also obtained through FenU's management and with the department concerned. The principle of doing no harm to the participants and to the reputation of the institution had particular political implications.

The initial online survey was conducted anonymously and at a level of granularity which made even reverse engineering of the data all but impossible without substantial work and the use of further data sources (for example, registers of Internet Protocol addresses for all the computers used). No such work was, of course, undertaken. The survey grouped staff only at unit (group of departments) level, thus removing the potential to identify individuals if data had been gathered at departmental level. (The instance may be considered of a single female professor in a department.) Individual respondents were given thus accorded assurances of anonymity. No outcomes are identified with particular units in this work. Data were all retrieved and stored on password protected sites and the raw data kept confidential.

The complexities of the political environment meant that particular care was needed when negotiating access for the interview phase of the work, the exploration of a particular

department. The implications included restrictions on the identification of the institution and of individuals, and assurances on the limitations of publication (essentially, no publication of outcomes). The execution of research projects such as this one is a rarity, perhaps even unique, within FenU, so it was predictable that the proposal generated a fair amount of suspicion and concern regarding potential reputational damage. The department's recent acquisition of a new Athena SWAN award probably allayed some fears, in that there was some external judgement supporting the notion that the department was going things 'right' as far as their Athena SWAN programme was concerned.

The protocol for arranging the interviews involved senior leaders in the department e-mailing prospective participants (as discussed above): this gave official endorsement of the project and explained the department's rationale for participating in the study. Prospective participants were then invited to contact me directly.

Both the department and the individuals concerned completed participant consent forms. Permission was also given for me to take notes at departmental Athena SWAN meetings. The range of documents consulted are in the public domain, although the specific references are not quoted owing to conditions of confidentiality.

At the start of each interview, participants were reminded of the protocols, confidentiality and the options for recourse if people wished to withdraw at a later stage: none were received.

3.8.   Insider Research: the position of the Researcher

An ethnographic study or quasi-ethnographic study (where the degree of embeddedness within the organisation is reduced) within the researcher's own institution, or a part thereof, exposes a whole spectrum of issues generally described as 'insider research' and the

tensions between the emic insider's perspective and the etic of the outsider's view (Patton, 2015, p. 101). Patton suggests that the outsider's heightened degree of detachment may be associated with a higher level of analysis and abstraction. Others suggest that there are benefits to be gained from familiarity with the local setting and knowledge of cultural and social practices within the particular context (LeCompte and Schensul, 2010, p. 123).

In this study, the department at the focus was known to me in quite a unique way, as a department in the same higher education institution, where the senior leadership and management had been known to me for a number of years. Alongside my experience in the Athena SWAN programme at national and university level (as well as my former academic department at FenU), this combination gave a privileged perspective of insight and power; indeed, it would be more than difficult to replicate this set of circumstances even in another cognate department in FenU. Further, since the department's academic discipline, structures and discourses were very familiar, this made both data collection and analysis more straightforward, although the risk had to be recognised that familiarity could have introduced bias or led to the unintentional overlooking of key findings.

As has been discussed, the research questions could have been addressed using a selection of different departments in FenU, but in addition to the previous arguments, for me, the balance of power, lack of familiarity and the difference in the nature of relationships would have made any comparisons difficult to justify in terms of credibility and authenticity.

My position can be explored through the theoretical lenses which have been established for this study. So to take the model for social practice (Figure 2.1), my own scientific background, in the language and structure of undergraduate and postgraduate science education and of scientific research gives a certain competency, which assists in interrogating links between the materials of structures and programmes and the meanings which different groups of people then associate with the particular practice. Then,

considering the framework of the 'implementation staircase', these meanings can be explored with different staff groups: academic staff; researchers; and support staff. Developing this, it becomes clear that the researcher's position may present itself differently, with the different relationships of power and language to these different groups. This can be illustrated through the common e-mail (Figure 3.2) which was sent to different staff groups (as above) at the start of the interviewing process by the chair of the Athena SWAN Committee.

This e-mail was drafted by the department. So firstly, the authorship itself conveys a signal of power and the way this might be received by staff again might vary according to staff status. Academic staff might be more willing to ignore this, than support staff. Secondly, the way that I am described ascribes a certain amount of personal credibility within the Athena SWAN process, which again may be received differently. The e-mail goes on to emphasise the Head of Department's personal support, which again brings in dimensions of power. So whilst reports of ethnographic studies emphasise, as has been described, the role of the gatekeeper, the unintended consequence can be bias in the influence of power. The alternative, to avert the influence of this form of power, would have been to adopt a more covert approach, making approaches directly to department members. Yet this would only have introduced an alternative set of power structures: the issue is one of sensitisation to the particular structure rather than an attempt at avoidance. So without endorsement from the department's management, it is would certainly have increased suspicion from departmental authorities with the potential for stopping the project entirely. This serves to reinforce the political context within which social research often takes place and consequently the judgements which should be made.

Then it is important to note the way the purpose of the research is described 'information in due course that will help us in embedding our ongoing work in this area' (Figure 3.2). So the

driver for supporting the work is expressed as 'help(ing) us in embedding'. The goal is stated corporately (plural) rather than individually, which implies a premise that people might be willing to engage with the interview programme motivated by altruism rather than from the perspective of individual benefit. Alongside this, people may be influenced to different degrees about the form the 'information' so gathered might take: this was covered off in the consent forms. Therefore, the researcher has to be aware not only of issues relating to physical context, but also political influence in both the detailed design of elements of the study. Equally, there will be elements of backstage conversation and discussion regarding the research project about which the researcher has no knowledge. The extent to which individual interviewees maintain confidentiality cannot be assumed to be total. This might be one factor in recognising that the research landscape will change during the course of an ethnographic study and that the researcher needs to be attuned to subtle changes: the launch of a new strand of activity linked to the Athena SWAN Action Plan might well precipitate a step-change in the way a person thinks about the initiative's agenda.

Finally, with the research covering different staff groups, care has to be taken not be privilege any one of them (Trowler, 2012b, Ch 3 (Institutional Etnography)) in the course of both data gathering and subsequent analysis. Cynicism towards academic staff, sympathy for researchers and comprehension of the difficulties faced by stressed administrators and support staff are all possible risks with the potential for displacing views and ideas presented in interview. Lack of awareness of these potentialities could compromise the credibility of outcomes and analysis. Therefore, both as interviews are conducted and transcripts analysed, the power relations and displacement produced by the interviewer need to be considered from the perspective of all the ontological levels and especially in the interpretation of meanings in the context of the social practice model. Equally, these factors

need to be related to specific interviewees given the different status of each individual.

3.9. Further Interviews

Initial review of the first interview transcripts revealed some gaps in coverage at different levels of the staircase. More especially, further views and data from academic staff at the start of their tenured careers and from senior managers were needed, since these steps on the implementation staircase lacked coverage. For the former, the same interview protocol was used as before. For the latter, the protocol was amended to include more emphasis on management and succession planning, on structures and on communication. This reflects the feedback loop in Figure 3.1, which can be understood as a reflexive, iterative approach to the study. The need to retain credibility meant that the progression of time introduced some 'creep' into both the interviews and their outcomes: retaining the same protocol for all but the 'elite interviews' (Gillham, 2005, p. 54ff) assisted in ensuring that this issue was, to some extent, controlled. The elite interviewees were amongst those at the top of the implementation staircase, thus there was an increased focus on the planning and implementation of programmes, leadership and succession planning.

3.10. Meetings

The potential to attend Athena SWAN Committee meetings during the ethnographic phase added an important dimension to the study, as it allowed the principal leaders of the initiative at work amongst key staff and student groups. Meetings can be recorded through a number of channels: for example, video, tape recording or field notes. The technical logistics and unfamiliarity with the people meant that just field notes were used. Also, the influence

of the power of recording technology, displacing discussion, has to be acknowledged.

Meetings can be full of rich data, but it is important to recognise the influences which can

bear upon the proceedings. For example, Davies highlights the relevance and impact of

contextual information (Davies, 2008, p. 233). The potential volume of data from a meeting

may be too much to note, so some selectivity is needed, whilst also being prepared to be

sensitive to emergent issues (Hammersley and Atkinson, 2007, p. 144). This is also a

potential source of bias. Therefore, to ensure some consistency, priority was given to the

same issues as were highlighted in the interview protocol. In particular, it was intended to

capture some of the different meanings attributed to the initiative by committee members.

The displacement effect of the researcher's own position also needs to be explicit, as a

further possible source of bias (Davies, 2008, p. 238).

3.11.   Documents

The Athena SWAN application forms, action plans and other documents, such as meeting

notes and the departmental newsletters, were all written by the senior leaders in the

department. Details of the analysis is in Chapter 4, taken with information from the

interviews. The analysis was informed by ideas such as authenticity, credibility and

representativeness (Davies, 2008, p. 198f). That is how genuine the documents appear, how

reflective they are of authorship and the position of power from which they are written all

influence any ideas which can be drawn from them. Further, the manner in which

documents interact with context (Davies, 2008, p. 200), the idea of integration also needs to

be borne in mind. Hammersley and Atkinson also bring out the notions of how different

documents are written for different audiences, with varying degrees of formality

(Hammersley and Atkinson, 2007, p. 123) which can then instil bias. They suggest that

'sources of bias are data in themselves' (p. 123). Documents can add diversity and richness to the research landscape (p. 126), but all the limitations discussed above impose a degree of caution on the process of analysis. Nevertheless, as illustrated by Hammersley and Atkinson's description of the ethnography of scientific research, often the documents (in this case scientific papers) are intrinsically linked to the activity itself (p. 128). How and why papers are produced is fundamental to the research process. The same is true for Athena SWAN. However much the emphasis is on distinct initiatives and activities, there is a fundamental link to the application form and action plan. So these 'materials', in the sense of the social practice model are both essential to the study, yet also problematic in the dimensions discussed. Therefore, in the analysis both before and after the interviews, the tension in meanings between the documents and interviews was kept to the forefront, and explored through explicit questioning (see Appendix 2).

3.12.   Methodology of interview analysis

The interviews were all professionally transcribed and notes were written on the one interview where consent to record. was not given. Interview transcripts were then printed, read and preliminary comments recorded, against the contemporaneous notes taken during each interview. After each batch of interviews, the raw recordings and transcripts were loaded into NVivo® and the transcripts coded.

The extent and granularity of the coding was developed to ensure a balance exposing the main themes and recording extensive detail, with the one having the potential to compromise the other. Simultaneously, sufficient evidence was needed to justify comments at different steps on the implementation staircase. So whilst holding each interview as an entity in itself (this is one person expressing views in their own particular way, framed by

their own experiences and meanings), there is also the need to draw together sufficient

evidence around what are seen to be the main emergent themes to allow valid analysis. The

model of social practice assists in this, for materials, meanings and competencies form the

basis of natural coding nodes. This however is not ideal, since some important themes such

as communication may be described in terms of both competence and meaning,

emphasising perhaps the interconnections between elements of social practice. The initial

scheme of coding is shown in Table 3.5.

Name	Sources	References
comms methods	3	6
competence	0	0
factors inhibiting and scaffolding change	3	16
leadership	1	1
negative - leadership	11	20
positive - leadership	15	75
meaning	2	2
meaning - both ways	11	32
negative - meaning	13	34
positive - meaning	13	45
method	3	5
other material	6	23
policy	0	0
negative - policy	9	36
policy - both ways	10	22
positive - policy	12	46
Responses and Writing	0	0
R&Wr GoodQuote	3	4
R&Wr Interesting	1	1
SPT and change	1	2
staff groups and change	1	2
staircase	1	1
theory - actual	1	1
theory - empirical	1	1
theory - real	0	0

Table 3.5
Coding nodes

The variation in the distribution of relevant comments reflects the difference in employment position and seniority of the interviewees. Further, some themes and indicators elicited views at interview which were positive, or negative, or a mixture of both: these were coded accordingly as shown in Table 3.5.

Each node was then reviewed against the complete transcripts in an attempt to balance detailed analysis against comprehensive appreciation of each entire interview. The main themes were then traced back through the documents, principally the department's two Athena SWAN applications (from 2012 and 2015). This permitted some further exploration of how themes and elements of practice had been changing, or had been perceived to be changing, over time.

The outcomes from this procedure provide the initial answers to the main research question (see the Preview above), as calibrated against the working definitions related to change, as described in Section 1.7.

3.13.   Limitations

The significant limitation in this design is the tension between comprehensiveness and depth against the resources available. The theoretical framework requires that the research questions are explored at different steps on the staircase of the organisational structure and at different levels, so as to allow analysis against a stratified ontology of the empirical, actual and real. It could be argued that no volume of data would ever be fully sufficient, thus some boundary conditions have to be applied. The question then becomes one of sufficiency. In this study, resolution of these tensions has been addressed through focus on the more significant issues, as evidenced through the outcomes of the interview processes described

in Chapter 4. The use of elite interviews was important in eliciting data relating to dimensions of power and its use in initiating and managing change.

The emphasis on qualitative methods to investigate change in social practice therefore steers the research away from techno-rationalistic quantitative approaches to change management, as would be advocated by management texts, and from those seeking to extrapolate from personal experience into grounded theory. Chapter 5, especially Section 5.4.2, considers the limitations of the project in greater depth and reflects on possible alternative methods.

3.14.   Summary

In this chapter, the theoretical framework has been developed into a consistent schema of practical methods within appropriate ethical and personal considerations. The challenge this presents is to take the data from disparate sources, from the different phases of the study, and integrate these into a valid representation. This forms the focus of the next chapter.

Chapter 4 – Presentation of data

4.1.   Preview

In this chapter, the primary focus is the presentation of the data from the interviews. This is done within a framework of the model of social practice theory (of competences, materials and meanings, Figure 3.3) and the layered ontology of critical realism in mind, although detailed analysis within these frameworks follows in Chapter 5. The object of inquiry is the current practice-as-performance in personnel management especially with respect to gender-related matters in the department and how this is changing as a result of the Athena SWAN programme, seen as a management intervention. The interview outcomes will be reported first, followed by evidence from other observations and data from meeting notes, using information from departmental documents and websites as appropriate. Again, the focus is on the factors which are seen to inhibit and scaffold changes in this changing social practice and in its constituent elements and links.

Chapter 5 takes the analysis further, both at a theoretical level of what the data mean and, consequently, what practical lessons the department could learn from this study.

4.2.   Interview data: distribution and representation

The distribution of the completed interviews across the department is shown in Table 4.1.

Staff group	Number
Academic	5 (2 Female; 3 Male)
Researcher	3 (2 Female; 1 Male)
Professional Support Staff	3 (2 Male; 1 Female)
Academic (Elite)	3 (2 Male; 1 Female)
Professional Support Staff (Elite)	2 (1 Male, 1 Female)

Table 4.1
Distribution of interviews

One further interview was planned with a researcher, but had to be cancelled owing to the premature commencement of maternity leave. Two classed as academics were new in post, having been postdoctoral researchers in the same department, so provide multiple, nuanced perspectives over time. Two of the researchers were in the process of gaining independence through research fellowships.

4.3.   Outcomes

Within each theme, the reporting broadly follows the departmental hierarchy which to a first approximation can be regarded as the implementation staircase. That means starting with consideration of the views of the elite leadership, then other tenured academic staff, followed by researchers and professional support staff, although positioning this last group at the 'bottom' does not reflect their influence, even by quite 'junior' staff, which can extend across all levels of the department.

The data, however, revealed one important enabler of change outside the framework of the staircase, as is described in the next section.

References are made to the number of the interview and the page number of the transcript.

4.4. The significance of a trigger event

The first enabler of change identified through the project is a definite trigger event or mechanism, which serves to *disturb* existing practice elements and associated links. An early indication of such an event in the department can be adduced from the first (2012) Athena SWAN application.

> 'Approximately five years ago the Department lost .. key female <personnel>, both unhappy with the culture of the Department. This prompted employment of a consultant, who surveyed the Department's senior academics and identified a number of key elements of the culture that needed addressing.' (Department, 2012, p. 5)

A series of seven specific recommendations was made by the consultant including one that senior academics should undertake anti-bullying training.

Again,

> '(They …) left complaining about being bullied and harassed in the department …..
> (One) complained to the vice chancellor, … (She) said she'd go to meetings and nobody would pay her attention. (Interview 17, p. 2)

Reference to these departures was also made in at least two other interviews. The departures and the reasons for them stand as empirical evidence of a problem needing addressing, but these statements reveal more. One clear point is the role of external agencies in stimulating disruption of the existent practice, with the involvement of senior university staff and external consultants. Also in the external space, there is the matter of reputational damage, with the potential impact upon research partnerships and funding. The theme of how conflicting priorities and practices impact change will be discussed

further, but the quotations demonstrate the power behind particular events and how this can be leveraged. These staff departures could be viewed as precipitative in this particular instance, although counter arguments could also be made for the influence of external drivers. The consultant's series of recommendations could not be ignored: there were issues of external accountability. Whether a trigger event such as this, be it internal or external, is essential, useful or a hindrance will be discussed in Chapter 5, but the data suggest that its role, in this case, is important: changes in meaning led to new actions and awareness. This certainly provided the grounds for the first convenor of the Athena SWAN working group to commission surveys within the department and to build the case for change. She used specific questionnaires to elicit information from different staff groups, to draw attention to specific problems in the department (Interview 17, p. 3).

4.5.   Leadership as an enabler

This section explores two particular dimensions to leadership within the context of changing practice.

4.5.1   The importance of 'Elite' Leadership

The survey results (Table 3.4) indicated that the leadership roles of senior departmental staff were perceived as an influential enabling *competence* in the Athena SWAN process. This was explored primarily under topic 4a of the interview protocol (Appendix 2). This section interrogates the data in respect of senior leaders in the department, their views of each other and the views other departmental staff hold of them. It should be noted that with the commitment to a 'bottom-up' approach to leadership and management embedded at FenU, there is little formal oversight of departmental heads, so gaining an external perspective on the behaviour of top departmental leadership is not feasible.

The key interviewees at this stage were the five identified as 'elite' (three male, two female (Table 4.1)) and a former head of department (male). These individuals are, or have been, closely identified with leadership of the initiative. Other interviewees also contributed significant perspectives.

At the outset, it is important to understand how the Athena SWAN change initiative has been understood in the department by senior leaders:

> 'I've been very lucky to work under both head of departments, (…..), whose view has always been we're doing Athena SWAN because it's going to make the place a better working environment to do research and for everyone to work in, and if ….we don't get the next step (i.e. award), …. it's not the end of the world. An internal reflection to sort of make sure that we're doing the right thing is important. Those who are not on board, it's about making the case so strong to them, and really making the arguments so compelling that they cannot but agree with it.'. (Interview 14, p.3) (Academic)

The view that the process, addressing gender differences, was the significant driver for change, rather than merely gaining an award, was also highlighted by another senior professor:

> 'I mean (previous head of department) said that in a sense it doesn't matter whether we get a bronze or a silver or a gold, what really matters is that we actually think that this is something that's worth doing and we should be trying to do it. I believe that that's the way that most people in the department have taken this on. That's to say there is an increased recognition, certainly if you came back as a worker in a research group, I think there would be much more recognition that Athena SWAN issues matter to us, that we need to do things which are positive in terms of different genders, differences.'. (Interview 16, p.5) (Academic)

It is unclear how this had become embedded within the leadership culture, but the evidence from other interviews suggests that this meaning has become established over time. There is high dependence on the competent agency of leaders, combined with relevant material structures, to preserve this. In the department, the initiative leaders had arrived in their

roles by different routes. The senior administrator had been appointed through a traditional route of external advertisement and interview and (at the time of the research) has over 8 years' service. The first convenor of the Athena SWAN group, according to a senior academic, '... stepped in and said, 'Yes, I would like to help.''(Interview 2, p.8). The current convenor arrived in the role through the more usual academic appointment route at FenU.

> 'The process of course is, in that (in FenU) there's no advertisement. … when I was approached I wasn't sure whether I should be flattered or they just got desperate at the end, but …. the then head of department … said that he'd consulted a number of people and they felt that I had the right skill set to do this job, …(which)… he said it was with assistant (and) other professional staff, to make sure that the academics weren't remote and that we were doing proper career progression, we're taking care of our academic staff at all levels and Athena SWAN. So that was considered an important part of the job.'. (Interview 14, p. 2) (Academic)

The sense here is that appointees emerge through informal soundings rather than as the outcome of a formal process. Indeed, there are similarities with the appointment of the current head of department, the fourth elite interviewee:

> 'I had a sabbatical leave, …. and when I came back it was when people started to say well you could be head of department. This was not an ambition that I'd ever had, but I got my arm twisted so for the last academic year and a couple of months I've been head of department.'
>
> '…. I was persuaded that it might be in the best interests of the department if I put my name forward, and yeah I actually enjoyed it very much.'. (Interview 16, p.3)(Academic)

Open competition, or external advertisement, is not the usual process (only a few academic leadership roles at FenU are atypical in this respect) and such academic leadership roles are generally not seen to be attractive, partly owing to the high degree of responsibility involved, the lack of opportunity to effect change and the low level of additional remuneration.

However, it is the outworking of this leadership, as a competence within the changing social practice which is of more interest. The external influences reported by these leaders were diverse: one indicated the significance of the Vice-Chancellor's championing of gender equality issues; another to the enthusiasm from the bottom up in the department, from other academics. The arrival of the Athena SWAN award scheme at 'just the right time' (Interview 15, p. 4) was also reported as a motivator.

Ethical considerations require that the views these leaders have of each other are described with caution. The commitment to changing social practice is evident, but there were diverse reports in the interviews of the support and actual activity of individuals which was occasionally contradictory. Administrative drive to maintain momentum is seen as a vital enabler, as is the necessity of ensuring that the initiative does not reduce to a solo activity, dependent just upon one individual's skills, abilities and motivations. Attention was also drawn to the gender of the Athena SWAN Group chair, with another academic, outside this elite leadership group, reporting that:

> '...the best thing that the previous head of department did was to put a man in charge of it (Athena SWAN), because it made it a collective issue, a collective problem to be solved, not a women's issue, and it became more of a diversity issue in general rather than, a diversity and work life balance rather than specifically about women.'. (Interview 8, p. 3)(Academic)

This was alongside comments endorsing the skills of the current convenor, in terms of trust, confidence and integrity.

The way that these senior staff practised leadership in the context of this initiative also warrants examination. One emphasised collegiality:

> 'I mean my style of leadership is very inclusive, so what I did was I set up a working party, we called it a working party and I was convener, formerly convener of that working party. What I ensured was on that working party we got … we got proper representation from across the department.'. (Interview 17, p. 3)(Academic)

Another, whilst again looking to involve as many people as possible, recognised the importance of personal commitment:

> 'The person element is I think I work very hard at it, and you've got to be very careful that anything you don't do does not become ad hominem. My great fear in anything that I would have done is that if I get hit by a bus tomorrow that the whole system doesn't collapse. … I'm also very centred in that I want to use my colleagues, I want what we do to be transformational but long term rather than fancy fireworks now and if I disappear it just dies. So that's my personal bit of this, how institutionally I want to make sure that we can bring as many people along as we possibly can.'. (Interview 14, p. 3)(Academic)

Again, others emphasised the need to be visible at important meetings, for example at a discussion with undergraduates about the gender difference in examination attainment. Also, basic administration should be carried out efficiently, in terms of organising meetings, setting agendas, writing minutes and driving the initiative forward, including following up actions.

So these leaders demonstrate commitment, visibility, the importance of background administration, and inclusivity to quite different extents. It could be argued that all these facets are necessary if change is to succeed, but whether they are sufficient for change to be effective (as defined above, successful and embedded) is more debateable, and the extent to which the different aspects are integrated. The scaffolding of change is therefore lacking coherence and stability. Indeed, this inconsistency may inhibit change. The next section discusses how this leadership is understood in the context of changing practice within the department.

4.5.2   The significance of Leadership in practice

This section critically appraises the role of the departmental leadership, as understood by department members at different stages of their careers, at their different positions on the implementation staircase. From a theoretical perspective, this examines how meaning is attributed to the competence of leadership, and helps establish how leadership scaffolds change.

Senior academics outside the current departmental leadership recognised both the need for appropriate structures and for people with the right skills. The creation of a senior management team, some years previously, was reported as an important means to attract research-active academics into senior roles of influence, rather than seeing there as dominated by administration with no time for science (Interview 2, p. 2). Another academic recognised:

> '.. because of the fairly flat management structure in the department, yes, people are in charge of specific projects need to have strong leadership skills in order to be able to pull those projects forward, so yes, who is in charge of those things really matters.' (Interview 8, p. 3)

The issue of structures and their role in effecting change is discussed in Section 4.6 but at this point, the perceived linkage, in a somewhat compensatory sense, is noteworthy. Again, in response to a question about leadership, a new lecturer focused on the high level of activity and the way 'the leadership have been championing the process… kind of leading from the front to pull everyone around' (Interview 9, p. 6). Perhaps through being a more recent appointment, this lecturer did not relate on the same personal level to the departmental leadership. Conversely, another new lecturer, made significant reference to the positive support she had received from the current Athena SWAN group convenor. She also referred to how the roles of an individual leader can apparently be contradictory

between support through the Athena SWAN programme on the one hand and their role enforcing rules 'like a police officer' (Interview 12, p. 9) on the other. The disparate meanings ascribed to are quite evident.

Moving down the implementation staircase, postdoctoral researchers view leadership through their own particular lenses, focused more locally within the context of the research group (Interview 1, p. 6), at a very general level of e-mails being circulated by leaders (Interview 7, p. 3) or on the highly personal. In the latter case, a research fellow in the department, employed by a partner organisation, was highly displeased at the response from senior leaders when addressing matters relating to her forthcoming maternity leave (Interview 10, notes). Although her research was based within the department, her access to support from university sources was limited, owing to her employment status. Her perception of the response of senior departmental leaders was not positive. Issues relating to childcare and transport were problematic. She had come to the view that she did not believe that anyone could make a difference and that the department was a 'jungle, with everyone for themselves'.

For the professional support staff, the interviews revealed less engagement with the leadership, one interviewee even asking 'Don't really know, who is the head of department?' (Interview 3, p. 5). Whilst the question might not have been totally genuine, judging by the context, it did raise the questions of what professional support staff understand by 'the department' and what meanings are attributed to leadership, from their perspective. Others recognised the efforts senior leaders in the department were making to communicate and to make initiatives such as Staff Review and Development (Appraisal) effective (Interview 4, pp. 3, 6). Equally, the necessity for enthusiastic senior leadership 'leading from the front' was seen as 'vital' (interview 5, p.5). Again:

> ' (is) the kind of person if you're having some issues you can go and talk with him confidentially, even his Athena SWAN role aside he would be the sort of person who

would give time to this and then help people out with problems. He's like… so I don't know how much of that is just him as a person or connected to his Athena SWAN role, but he's certainly an asset to the department.'. (Interview 11, p. 5)

Overall, through the actions of leaders, involvement with the Athena SWAN programme in the department has heightened awareness of gender inequality in science, at the least at the actual level. How much can be directly attributed to Athena SWAN at a deeper ontological level is more debatable. Leadership as a competence and the meanings associated with it are critical to understanding how change is scaffolded.

4.6.   The role of departmental structures

Investigation of how leadership is practised within the department leads on to consideration of staff groupings and structures and how, as a material, they can influence change in practice-as-performance. Again, the analysis will use the staircase model and draw on data from across the interview protocol.

Senior academics had clearly experienced a change in structure over recent years. One said, of the head of department role:

> 'And so I was very conscious that … I didn't want it to become a job which would be filled only by people who are not interested in research. I didn't want an administrator, sort of thing, and it seemed to me that that was only going to happen if many of the roles within the department could be designated to people, and those people given reasonable authority to make decisions… (with) what I believed to be a clearer structure of delegated authority. So there was a Head of Department who was advised by the, what was called the Sector Head Senior Management Team, and on the Senior Management Team would be the Heads of the first level of committees, so there was Safety, Finance, Research, Support...'. (Interview 2 , p. 2)

Facilitated by an early retirement scheme, this structure was introduced and is broadly that which is in place currently, as evidenced by the Athena SWAN Application forms (FenU

department, 2012, 2015). This structure created deputy head of department roles and the capacity to engage with the Athena SWAN initiative which at that time was rolling out across the science departments of the university. The creation of overarching groupings for the research groups, each with a designated chair, has met with mixed success from an organisational standpoint: one professor reported that in practice these chairs have little power to impose change and another that there was variation in how well the groupings were perceived to work. Conversely, at a more informal level, there was indication that the arrival of a senior female academic had encouraged a 'more collegial spirit' that reduced threat and competition in a particular area. This may have been facilitated by the way in which physical space was arranged rather than management action. A new lecturer reported structuring his own group along the same lines as his previous group leader in the same department.

For researchers, the picture is again mixed. The staff member who was having difficulties with maternity leave arrangements (Interview 10) found that structures were of no help, with a principal investigator who did not engage. Another felt that the group structure did not facilitate training: he had to look for development opportunities on his own initiative (Interview 1, p. 7). He did not see much direct impact of Athena SWAN activity in his group. Two staff reported awareness of the postdoctoral staff committee (another material structure) but were less informed and aware about what it was doing, its impact and what this all meant at a deeper ontological level.

For professional support staff, the experience of the change in structures was more positive. Senior administrators saw the commitment to Athena SWAN of the Senior Management Team as an important instrument in effecting change. The staff meetings for different groups were seen as important for a for both dissemination of information and discussion (Interview 6, p. 2), with one administrator emphasising that consensus is seen as the

preferred approach to change in the department (interview 5, p. 7). For more junior staff, the committees, including the Athena SWAN working group, have given more opportunities to contribute and provided conduits for improved communication. There was a report though that people did not tend to know much about what other groups are actually doing, in a general sense, not just limited to Athena SWAN. Chapter 5 pursues this discussion of how material structures and associated meanings scaffold and inhibit change of practice.

4.7. Departmental Policy interventions

In this section, data are presented regarding a number of different actions from the department's 2012 action plan and the response to them. This broadly falls within items 3c and 4c of the interview protocol. Within the social practice model, these interventions are considered as materials, although, as with the competence of leadership discussed in the previous sections, the interactions with meanings and competences are important to the analysis and discussion.

4.7.1   Changing behaviours in research groups

One of the central interventions to the department's Athena SWAN initiative was the introduction of an 'expectations' document, broadly defining expected behaviours and 'rules' in each research group, that is each entity under the leadership of a principal investigator who was usually a tenured member of the academic staff. This means that postdoctoral researchers and postgraduate students fall within the coverage of this process, as do a few technicians specifically attached to research groups. The majority of support staff, however, lie outside the scheme at present. The goal of this particular intervention is

to use the document as a material to change practice to improve the working environment, by, for example, encouraging more family-friendly behaviour.

There is no single view evident from the interviews as to the origin of this policy initiative but it appears to have been an extension of existing practice in the group of a senior academic:

> 'So then we were able to say, oh can we adopt it, can we borrow it, can we change it? That's what we did. So once you get a senior academic with that policy then why can't the rest of you do it? This person can be successful and still run a lab in a nice, friendly, cooperative manner with a work/life balance…' (Interview 15, p. 8)(Senior manager)

So the tactic was to expand a practice, based on something already happening and to embed this more widely. The reasons for doing this were complaints from researchers regarding their inability to get permission from their group leader to take annual leave, about the expectations of weekend working and about a long working hours culture. Interestingly, the template document puts these ideas about working conditions firmly in the context of maintaining a world-class reputation for research and excellence in the discipline. The document also highlights the idea of core working hours (9 am to 5 pm), the expectation that a break will be taken during the day, the obligation to attend group meetings, the expectation that group members will be encouraged to attend conferences and that annual leave will be taken. Some of these expectations come with caveats and these attracted mixed responses from interviewees, but the thrust of the initiative from the perspective of a senior manager is clear from the quote above.

In terms of process, the idea was that each group leader discussed a draft document with their group and then each group member had to sign it once finalised. The document is reviewed each year and returned to the department's administration, so in that sense the

initiative is embedded. The question is the extent to which the use of the document is successful.

Reactions from staff were mixed. This was the view of one new lecturer, starting his own group, regarding the process of developing a document:

> 'I think actually, I don't know whether it's just also part of my personal development kind of becoming more aware of that, but it's (the introduction of an expectations document) coincided with these structural changes and so actually I think that sort of document which formalises some terms and conditions of what we think is acceptable or what we think is unacceptable has been really useful for people with children, and carers for children.' (Interview 9, p. 3)

This shows that the purpose of the exercise is clear to a group member, along with the benefits. Further questioning about continuing impact revealed that the document had not been updated and, rather than being a 'living document', it was unclear even where it was stored. The extent to which this process scaffolds change is questionable.

One other new group leader simply modified another group's version:

> 'and I just changed his name to mine. I mean it said stuff about core working hours I think, which I don't even remember… what the core working hours are.'. (Interview 11, p. 3)

A third new principal investigator expressed similar uncertainty (Interview 12, p. 5).

Whilst the senior managers reported high levels of compliance with the requirement to complete and return these documents, there is some evidence of pseudo-acceptance and questions over impact.

Descending the staircase once more, the views of researchers and support staff within groups add a further dimension. Here are a set of comments from one postdoctoral researcher.

> 'The way the wording was put in the lab expectations document was it sounded like they were encouraging us to work longer than that (contracted hours)…… It was

something like many people want to work more and we encourage you or something like that. I pointed out that we're not paid to do more than that and you want to be careful about making it look like you want us to do more than that, especially if you've got kids and you can't do more than that. So I think it was changed slightly to be there's no obligation to work more than 37½ hours a week but if you do, please remember that after six in the evening you need a key. It was more to do with safety in the building but the wording wasn't particularly great there.'

….

'Also, my main issue with the lab expectations document was the core hours requirement. Core hours, in the department…., are 9am to 5pm. Now 9am to 5pm are completely useless core hours for people with children.'

….

'I mean in the group, the core hours were changed to 10am until 4pm, which is better although of course, that was more when <name> was at private nursery and other people's children were at private nurseries and staying later was better. Now everybody is going to be having kids going to school, suddenly 4 o'clock is too late anyway so maybe saying 10am until 4pm is bad.' (Interview 1, p. 4)

It would seem from this researcher's position that efforts, using this process, to try and instil expectations of a better work-life balance, had misfired, sitting orthogonal to his personal views regarding contractual and core hours. Meanings were confused.

Another researcher expressed distanced views of the process:

'I do remember vaguely something about group expectations which probably said things like you're expected to do this and if you want to do science communications stuff you do it as long as it doesn't interfere with your normal work and things like that. Yeah, I think that all happened while I was on maternity leave so I should maybe look back and find it.'. (Interview 7, p. 3)

She did suggest that her group had a good record historically, so there were no real issues which needed addressing: this was in contrast to the researcher employed by the partner

organisation, whose principal investigator was not engaged and where she was unaware of the whole process (Interview 10, notes).

A technician embedded in a research group had been involved with the initial creation of the expectations document. Although he did not see any association with Athena SWAN, he did have a clear idea of the aim of the initiative:

> 'What we particularly wanted was...
>
> ...it really was for people to work as a team rather than individuals and I think it's through the frustration of people working as individuals and then perhaps acting badly that this expectations document was created.' (Interview 3, p. 6)

But his observation as to whether the document had delivered change was 'not really' and not giving people much permission to raise issues. Conversely, another technician reported that the process had made group meetings a regular occurrence, so that people now knew what others were doing, within a reportedly informal environment, but again no reference to impact.

Overall, the senior leaders reported a positive reaction from the research groups, based on the idea of extending good practice: there was some surprise at how seriously groups took the exercise. But there was push-back: principal investigators did not like being told what to do, with the overtone of being policed by the department. This was countered by explaining the wider context:

> 'Even the last couple of weeks we had to remind colleagues that if you don't do something a particular way they and their groups are at significant risk, financial, institutional and then they'll often sort of say, yes I can see the argument (for doing the process).'. (Interview 14, p. 4)(Senior leader)

That is, senior managers needed to deploy a range of arguments to ensure that the change became embedded at the real level, even if not effective. The extent to which this particular intervention is indicative of common meaning is questionable and will be pursued in Chapter

5.

4.7.2   Impact of Leadership Training

A second department initiative in implementing its programme associated with Athena

SWAN was a major programme of leadership training. Now whilst some of this was in

response to central university policy to undertake equality and diversity training, the

particular focus of this section relates to a departmental initiative. The thinking was that by

increasing the level of competence in leadership this would scaffold efforts to manage and

embed change. Recognising that, within science departments, group leaders or principal

investigators exercise considerable power, a programme of leadership training was included

under the department's 2012 Athena SWAN action plan. This quote from a senior leader

gives a sense of the background:

> '… it seemed to me that ()… the really important people are the group leaders. In the
> science department group leaders have huge power and during this time I'd also
> been deputy head in charge of people and I'd had people coming into my office and
> crying about the way their group leader was treating them……. So I think the most
> important thing that we did was we initiated training for group leaders, ….. we spent
> a year trying to find appropriate trainers. We then found <…> who was working for
> the Leadership Foundation and we interviewed many different people, we
> developed a leadership training course that she ran; the department and the
> university put in money for all of that. We now still run it, we run it as second
> tranche…. leadership training for the staff. So now they felt they were getting
> something and we sold (it) on the Athena SWAN thing as well, specifically aimed at
> helping group leaders be better leaders of people.'. (Interview 17, p. 5)

This quote highlights the broader issue of the need to address poor behaviours, and the

extent of such, following on from the trigger event described in section 4.4. The reference to

other enablers is discussed in Chapter 5. The leaders certainly acknowledged the risk of

introducing the training programme, as seen in the time it took to develop the course. If it was not constructed right, group leaders would reject the message and the presenting issues would remain unaddressed. The ready availability of both internal and external resources is also significant, as an enabler: the 2015 Athena SWAN application quotes a sum of several thousand pounds per participant. But most importantly, the goal ('helping group leaders be better leaders of people') gives the initiative a clear focus and a deeper ontological perspective. This was reinforced by another senior academic: '… we felt that some of the younger people needed to be told how to treat people with respect' (Interview 2, p. 5). Reporting will return to the senior leadership's evaluation of this training initiative, but first the views of some of the participants will be considered.

Fourteen group leaders have participated in the programme to date and two of these were amongst the interviewees. One new lecturer said this:

> 'the department's leadership course was five modules which was a mornings or afternoons, spread out across 12 weeks or 10 weeks or something, which was nice because it meant you didn't have to give up three days and you could kind of learn from the module and try and modify what you do as you go along. I don't think you will create better leaders through five three-hour sessions, and I think it's a continual process, and I think actually the most important thing is for people who want to become better leaders to surround themselves with good leaders.'. (Interview 9, p. 7)

So although he thought this programme to be 'good' (and he had been on another leadership programme, also 'good', so had a comparator), he actually looked beyond the specific training to look at how leadership was being modelled by more established leaders around him. Now he did not have all the history (Section 4.4) and the context, so perhaps did not recognise the need for a step change in behaviours in some areas of the department. He also had limited opportunity to put the training into practice owing to the current small

size of his research group, which may have implications for the timing of this training in relation to the start of the appointment.

The other newly appointed academic had a more negative experience of the department's training course, comparing it unfavourably to that provided by an external sponsor: she found the role playing with actors 'ridiculous' (Interview 12, p. 7). She had not recognised the investment the department was making in this training. For her, the benefit of the alternative provision was the presence of her mentor at the same course, which allowed direct feedback, which was 'priceless'.

Other interviewees were disappointed that this training was not currently available to those senior postdoctoral researchers who are in roles with a management element within research groups. Another found that there was simply not the time for training, when in the transition to research independence from a postdoctoral position (Interview 10).

The interviews with research staff did not provide any specific evidence of impact of the programme on the leadership of their groups, which is unsurprising given the small overlap in numbers between interviewees and group leaders who had undertaken the training. At a higher level, senior leaders certainly reported in their interviews that the training had been effective: one paraphrased the response of a group leader on the course like this.

> ''For the first time it made me stand on the other side and see how people would respond to these problems. Now when I have a meeting I think of the role-playing and it makes me think very differently about how I deal with whatever came up in those role-playing sessions'' (Interview 14, p. 7)

This leader also said how surprised he was at this response, pre-supposing that academics would respond poorly to role-playing activities. He also pointed out that the second cohort had responded less favourably to the same course, suggesting that the participants (all relatively new appointees) might already have a very different mind-set from those in the first cohort, although all of these were also recently appointed group leaders. One senior

administrator felt that there were fewer incidents of postgraduate students complaining about their supervisors and that the place seemed 'happier' (interview 5), as a consequence of the changes. Another senior leader, commenting on the evaluation of the leadership training said:

> 'but when we then did our re-evaluation for our Athena SWAN silver things had got a lot better and .... things within groups and the sort of support that people think they're getting from their research leaders have improved. We haven't had the comments like 'we're not allowed to go on conferences' and 'really unsympathetic to me taking hours out' and so forth.'. (interview 17, p. 5)

Finally, one leader did point out that unless this sort of training was going to be made compulsory, those who most needed it were unlikely to volunteer.

The data would suggest that there is some evidence that the training programme has been an enabler of change in practice in terms of behaviours related to the Athena SWAN initiative. A specific causal link is impossible to establish. Also, it may well be that there are some second order effects which have not been exposed: the very fact that the department was investing in this form of training might have encouraged those group leaders who were not participating directly to review their leadership and management practices. Nevertheless, the disconnect between expectation (by senior managers) and experience (by the participants) is marked and will be discussed further. There are indicators of empirical benefit but whether this has developed to be effective change at a real level is questionable.

4.8.   The importance of different modes of communication

The department is using the following primary modes of formal communication regarding the initiative, as an enabler of change and covering a range of materials and linked meanings.

- A display in the main entrance to the department's main building

- Framed posters in the stairwells and on noticeboards

- Staff meetings

- Departmental e-mails

- Departmental website, including the publication of Athena SWAN applications and Newsletters

Reference is also made by some interviewees to the main FenU website of HR policies and equality initiatives. Data are derived from a range of topics on the interview protocol, but principally items 3d, 4b, 5 and 6 (Appendix 2). The focus is on whether these instruments change staff views and what impact this has on scaffolding this intervention.

Senior leaders in the department put an emphasis on communications through structures:

'Obviously it comes through the SMT, senior management team meeting. They get slot on faculty meetings about once a year, maybe slightly longer, slightly more often.

'On SMT and the <group> chair meetings you've got a member from each … group. You've also got somebody from the post-doc committee.

They're supposed to cascade any information.'. (Interview 15, p. 7) (senior administrator)

This interviewee also referred to communication through the assistant staff committee and through the departmental website: 'We have our own little webpage.' (Interview 15, p. 7). An extract of this webpage, which is directly accessible from the department homepage, is shown in Figure 4.1.

Here are just a few of our goals:

- Improve the proportion of women Undergraduate and Post Graduate Students.
- Introduce a mentoring system for research staff.
- Support flexible working hours and arrangements; ask groups to schedule meetings in core hours; tackle any culture of excessive hours.
- Ensure women's representation in Departmental decision-making.

- Increase the number of women applying for academic positions: have credible female candidates on all shortlists, and identify and encourage suitable candidates from within the Department and externally to apply for vacancies.
- Monitor PhD to Post-Doc and Post-Doc to research transitions and use the exit data to identify how to recruit more female Junior Research Fellows.
- Ensure staff promotion and recruitment processes are fair and transparent.
- Improve support provided to staff starting or with an existing family, and those with additional caring responsibilities
- Gather intelligence on why more women than men leave the Department to take up non-academic roles.

Figure 4.1
Departmental webpage extract

This extract is illustrative only; further details would compromise ethical undertakings with respect to individuals. It also includes links to the action plan and other documents relating to departmental practice and provision. One member of the senior management team was, however, still unaware of these issues from the action plan three months after the latest award had been announced and had little input into the generation of that plan (Interview 5, p. 2). Another academic staff member still emphasised the significance and effectiveness of Athena SWAN issues being discussed at the senior management team meetings, whilst also referring to electronic communications (e-mails).

Outside the senior team, awareness of the main challenges the department is attempting to address is uneven.

One established professor running a large group, with an evident internal structure, 'couldn't be specific (about the issues)' (Interview 8, p. 8), beyond references to the fraction of women at each career stage, from undergraduate onwards. This unawareness of specific issues was repeated by one of the newer group leaders (Interview 12, p. 8). For another professor, it was a matter of prioritisation:

'And it's not that, I don't want you to go away thinking, well nobody's telling us, I'm not looking for it, or I might even get an email and not read it. And it's not lack of interest, it's just prioritising things ….'. (Interview 2, p.7)

As a senior professor expressed it, 'people want to know what's going on, but don't want their time taken up' (Interview 2, p. 3)

For researchers, the interviews reflected a lack of awareness both of future departmental plans and how other research groups were approaching Athena SWAN issues (Interview 1, p. 10). Another researcher expressed vague awareness of issues recruiting to tenured positions, but had not become aware of any outcomes. That researcher was also unaware of issues regarding students (gender imbalance in in numbers and attainment) (Interview 7, p. 6). Another researcher, transitioning to independence, reported similarly (Interview 10).

For support staff, there was similar lack of knowledge of the important goals. One technician on the Athena SWAN Working Group says they 'never saw the final submission' and 'I haven't got hold of it', this in response to a question asking whether they had seen the action plan (Interview 3, p. 9). At a more general level another technician was aware of activity:

'..when you go onto the web page for the department it's there straightaway you see the symbol and also the links to information for Athena SWAN and the people that are working.' (Interview 6, p. 3)

For them, the logo signifies a degree of activity and an awareness of an unequal gender balance, numerically; prompting was needed to elicit awareness of student issues. A member of the IT staff had not seen the main Athena SWAN documents, although was aware that an action plan document existed.

From the perspective of the leadership of the Athena SWAN programme in the department, meetings, electronic communication, the monthly induction events for postdoctoral

researchers and the activities of the various staff groups all aid communication of the priorities (Interview 14, p. 6), but the effect and impact appears variable. Thus the current communications strategy and tactics may not be optimal in scaffolding change and may even inhibit it.

Another significant part of the communications effort has been the display of posters throughout the department and a major item (one of three or four) on the rolling projected display in the department's main entrance hall, where the physical Athena SWAN award is also prominently placed. Again, there were a range of responses. A member of the support staff was positive:

> 'Well I guess reception is where everyone comes in so I guess the point is we're committed to trying to change the culture which is probably a good… Well it is a good thing obviously anyone coming in not just visitors that people who are coming into employment or perspective employment can see that the department is committed to trying to make a change so I guess that's very positive actually.'. (Interview 6, p. 8)

This reflected a higher-level concern over changing culture. For another member of the support staff, the significance of the posters was more superficial 'I just see pictures of women… doing tasks' (Interview 3, p. 3). A new principal investigator was positive about the message the posters and display conveyed:

> 'I think it's a positive message, most people in the UK would know what Athena SWAN is, I don't necessarily know if anyone from outside the UK would know, I mean it's a bit of a cryptic name….'. (Interview 11, p. 4)

The reference to international currency is pointed, but national recognition is important, given the rising popularity of the scheme in recent years. Preliminary feedback to the department on the ambiguity of the messages conveyed through the posters has led to a

review of the content, with an emphasis on communicating specific achievements: this feedback was positively received.

The departmental newsletter is primarily aimed at departmental alumni. There are no references to Athena SWAN prior to the spring 2013 issue, which contains a significant article highlighting the main gender issues within the department, including behaviours, support for postdoctoral researchers, the transition to independent research and more general lifestyle matters. The thrust of the article was that world-beating science and a healthy work-life balance are entirely compatible. Subsequent issues report achievement of the first bronze award, and the preparations for the upgrade of the award to silver three years later. The more recent editions report the achievement of the silver award, some information of recent activity and give publicity for future equality and diversity events. Interviewees made no reference to this communication channel.

The data indicate that a wide range of communications channels are being used in the department. Awareness and meaning are, however, variable across all staff groups. Indeed, the main message seems blurred: whether the departmental leadership is attempting to communicate a programme of activity or an accreditation scheme. The implications for communication as an enabler of change are discussed further in Chapter 5.

4.9.   The significance of personal benefit and profitability

Many of the interviewees made reference to issues which were very personal to their own circumstances and which fell within the orbit of the Athena SWAN programme and encouraged change in practice. In this section, the focus is on research staff and support staff outside the leadership chain, at the lower levels of the implementation staircase. The question is the extent to which individuals attribute positive meaning to the Athena SWAN

programme through their personal experiences of support as a result of the programme's initiatives, and thus whether this personal profitability is acting as an enabler for effective change. Data from conversations around topics 3d, 4c and 5 in the research interview protocol give good insights.

Interviewee 10 had 'given up on the department' (Interview 10, notes) and saw no personal profitability from the different Athena SWAN initiatives. Dissatisfaction with formal procedures included lack of a formal maternity leave policy from the employer (not the department) and limited access to appropriate childcare. Poor mentoring and line management support were also issues which influenced this researcher adversely.

Other researchers reported distinct positive personal benefits. One, who had a number of children and had recently taken shared parental leave was appreciative:

> 'Actually, once we realised that <the university> are doing full pay for 16 weeks of shared parental leave, not including the two weeks for paternity leave, then that really did affect things. I think that's a really positive thing that <they> have done because then there isn't a financial argument for people not to take it and I think that's really important…. It's really amazing that that's done…'. (Interview 1, p. 9)

He acknowledged that the main information about this had come from the central university human resources team, rather than the department and the link to Athena SWAN was unclear. But he noted that the issue of 'core hours' for meetings, 10.00 to 16.00, can prove problematic when it comes to arranging meetings and trying to get to the school gate for 15.30. He went on to note how the design of new buildings had not considered the need for extra meeting rooms to accommodate increased demand in core hours (Interview 1, p. 6). A member of the support staff working in IT (at the same level as postdoctoral researchers) also noted the limitation arising from the core hours stipulations, but conversely found encouragement from the central university website in finding out information for a

forthcoming maternity leave (Interview 4, p. 4). Better organised and useful staff review and development (appraisal) was mentioned by two researchers as a distinct benefit. One saw no connection to Athena SWAN activity. The other researcher made a positive link: 'I'm guessing that of we weren't doing Athena SWAN maybe the whole initiative would not have come about.'. (Interview 7, p. 4f). The same interviewee did not, however, recognise the link between Athena SWAN activity and the benefit she had derived from the Returning Carer's Scheme (which provides financial support to staff returning from an extended period of caring leave, such as maternity leave). The availability of good nursery provision was a critical factor for one ex-researcher now setting up his own group, but did not really see the link to Athena SWAN (Interview 11, pp. 6, 9). For another academic, a relatively new group leader in the department, the initiatives to introduce mock interviews for fellowship applications and the good mentoring provision were especially influential (Interview 12, p. 5, 9). Again, a new group leader drew attention to training regarding new recruitment practices which was seen as a positive development (Interview 9, p. 6).

Support staff noted benefits of the Athena SWAN programme such as, rather altruistically, better understanding of working hours and greater ease in taking holiday by researchers. They also highlighted the seriousness with which the senior leaders took the initiative (Interview 3, p. 10f). Another highlighted better dissemination of information regarding family friendly and flexible working policies (Interview 6, p. 6).

Senior staff viewed the impact of some of these changes with mixed reactions. One senior administrator, with responsibility for graduate students reported fewer complaints from these students regarding their studies and supervision, attributing this to the impact of leadership training and the group expectations exercise. Statements regarding core hours had also given more permission for staff to leave meetings at 5pm (Interview 5). For one professor, Athena SWAN had just created more administrative work, since she was being

placed on more committees, particularly selection panels, to meet obligations for gender balance. This work went unrecognised in workload models and caused overstretch (Interview 8). To mitigate this, strong management practices had been implemented in her research group, using the skills of senior postdoctoral staff to provide oversight of individual projects. This professor also highlighted how female colleagues in another department had reduced their formal contractual hours to legitimise space for family life, whilst in practice continuing to work excessive hours: this was perceived as unfair. The root cause was seen to be the overly individualistic and competitive dimension of academic life, which Athena SWAN was not addressing. The same dominant theme of scientific excellence was echoed elsewhere (Interviews 9 and 11, new group leaders).

These views show a significant variation in how individuals have reacted to different Athena SWAN initiatives, whether they recognise these as such or not, and the meanings they attribute to them. They also demonstrate disparities in the perceived source of benefit, whether the department or the university, and speak about the integration of policies and initiatives, and the communications thereof.

4.10. Data from meeting observations

Some perspectives are now reported from observation of the department's Athena SWAN Working Group meetings. The establishment of such a group is an integral part of the Athena SWAN award scheme: the group is fundamental to the delivery of change, using the departmental action plan. The group forms an important material, in social practice terms, and links to the competence of leadership. The meanings attributed to its activity, and the activities themselves, contribute to the degree of scaffolding of change. Three meetings were observed, each lasting about one and a half hours, held at termly intervals (thus covering a full year).

As researcher, my role was generally passive unless specific questions were directed to me: group members were aware of my role, within the department's agreement to the project. The meetings were held in a committee room in the round, with staff from all groups represented, from undergraduates to the Head of Department; attendance averaged about 15. Within the Athena SWAN process (see Section 2.8) the group acts as an organ for self-assessment and monitoring of the action plan. It is however the meanings revealed in these meetings which will be a particular focus. The membership of the group is relatively stable, with some members serving since 2012, but with a predictable turnover of student members. The group is planning a significant rotation of membership in the coming year. The meetings are organised by a senior administrator, but chaired by an academic.

The experience of the group working together was illustrated by the active participation of members from all constituencies. The postgraduate student members challenged academic staff on the all-male composition of a question and answer panel at a recent postgraduate open day for prospective students, and raised important questions regarding the impact of doctoral training centres on the gender distribution of applications and admissions. This led on to a significant discussion on data collection, communications to students and the effectiveness of careers guidance throughout the undergraduate and postgraduate courses. At another meeting, the openness with which the gender attainment gap for undergraduates was discussed was very evident.

The group also took steps to establish sub-groups to own elements of the action plan, drawing in further staff and students into the process and increasing buy-in. This programme was estimated now to involve directly about 10% of the permanent academic and support staff in the department. Local involvement and commitment was contrasted however with apparent disconnection from the broader university Athena SWAN programme which was seen as remote. This may signify a communications gap.

The care with which future training packages were discussed and developed was noticeable. It was recognised that choosing the wrong package for training on unconscious bias could produce a negative reaction with impact on the whole programme.

Whilst acknowledging that most members of the working group were enthusiastic volunteers, the seriousness with which they approached the task of implementing and monitoring the programme was impressive, across all staff groups. The notion of embedding successful change, 'effective change' within the current definition, was very much to the forefront of the group's thinking. Issues, such as undergraduate attainment and mentoring, for example, were reviewed in successive meetings and not simply passed over after a single discussion.

4.11. Inhibitors of change

The data so far have reported mainly on the potential enablers of change identified by the interviewees, the aspects of the Athena SWAN programme which are seen to be scaffolding change. Indeed, the research protocol emphasised this to a degree. Explicit questions on inhibitors produced few explicit themes: in many cases the inhibitor was the lack of a specific enabler or lack of effectiveness in its deployment. (No explicit evidence was recorded of widespread resistance or opposition.) The matters reported included lost group expectations documents, meeting times creeping outside core hours and posters not conveying a clear message to everyone. As reported, the Athena SWAN programme in FenU's department has created more work for senior female staff, which appears not to have been fully recognised in workload allocation. One senior female professor reported on the impact on her workload:

> '..so I am on five University committees, which compared to the department
> average is roughly, well, it's more than five times more, and there is no dispensation

within a department to have less teaching or examining as a result of being on extra University committees.' (Interview 8, p. 2)

She also reported on the difficulty on reconciling childcare with full-time working and capacity to meet promotion criteria. Athena SWAN has not addressed the 'big issues', the conflict between Athena SWAN initiative and the demands of the long hours needed for world-leading research and promotion. (Interview 8, p. 4). This reflects the view of one new male principal investigator, who did not take up any option of parental leave when a child was born:

> 'We didn't take that up. I mean I did consider it but we didn't feel it was like absolutely necessary, and also I'm at the stage now where I'm trying to build up my research group and it's quite a pressurised time because I only have five years and then I've got no permanent position at the end of this. (Interview 11, p. 6)

The pressure to meet academic expectations was dominant. The cost for academic (research) success is clear. Others recognised the potential cost for their team: one senior academic said:

> 'Another of my post-docs has now done two significant paternity stints which was interesting, more in the sense that he's quite a (key) member of the team, and he's off and so I had to think quite hard about this. Obviously it was his legal right first of all, so I understood that but you're still thinking, "Does he have to do…" '. Interview 16, p. 6)

Another new group leader reflected the view that success did require dedication above that of a 'normal job' and this had to be recognised (Interview 12, p. 3). These comments combine to indicate a very significant tension between an initiative to try and improve working and gender-related processes and the drive for world-leading research success, a tension which is explored further in Chapter 5.

The lack of flexibility of structures was reported by one senior leader (Interview 17). A lack of physical space meant that new staff did not have the resource to establish a research group

of their own and achieve independence. Equally, the allocation by the university of a fixed

number of permanent posts to the department limited the rate of appointments. The

department reported no anticipated vacancies for about the next five years: with about 50

posts in total, no significant change in gender balance of staff was going to happen quickly.

Therefore measured progress is going to be limited.

The negative views on the programme expressed by one interviewee (10) illustrated how

poor personal experiences can inhibit progress, whether or not these relate directly to the

department's actions.

Exposure of inhibitors is influenced by the population sample of the interviewees: the effect

is discussed in the next chapter.

4.12. Comparative data

Finally in this chapter, two successful applications for Athena SWAN gold awards from

research-intensive science departments are briefly analysed. These comparisons are

included not in the sense of comparing two departments at a similar stage in the Athena

SWAN process, or with FenU's department under study, but rather in the sense of providing

a qualified sense of historicity of changing practice. The choice was based primarily on the

record of the two departments in the Athena SWAN scheme: by achieving this highest

standard over more extended time periods than the department at FenU, the departments

were demonstrating sustained, embedded change in practice-as-performance. These two

successful application documents are in the public domain.

Given the goals of the scheme, a high level of commonality in both analysis and action

planning is to be expected. For example, both make reference to a need to increase the

number of female applicants for academic posts (Imperial College, 2013, p. 8 (Action Plan),

University of York, 2015, p. 76) and to the need to improve support for academics seeking

promotion (Imperial College, 2013, p. 10 (Action Plan), University of York, 2015, p. 80). The more significant element of the applications, in terms of identifying enablers of change, is to explore the different elements of social practice which are seen to be significant for these departments and the relative priority these appear to be given. Of course, it has not been possible to investigate these claims beyond the written applications which does restrict credibility. The Imperial application places significant emphasis (p. 3) on collaboration and working well together: Athena SWAN is not seen as an activity to its own ends, but as an integrated part of a strategy 'to be the first choice for the most able students, to be the first choice employer for the most talented staff and to be the first choice research provider for research funders and industry' (p. 3). The success of this holistic approach is demonstrated, the department claim, in the high (40%) rate of collaborative research grants, increased research volume (£13M per annum, up over 50% in five years) and increased measures of staff satisfaction in surveys (Imperial College, 2013, p. 9). For the other department, again the focus is on an integrated strategy based on mutual support, transparency in decision making and finances, and openness in discussing promotion and equality issues across the full range of departmental fora (University of York, 2015, p. 16). Their long-term success measures include the high percentages of women at different career stages (40-50% at lecturer level (p. 25)) and good undergraduate student destination statistics, following on from the distinctive features of the undergraduate course (p. 15).

Athena SWAN work is long established in both departments, with strong leadership in each case from successive heads of department. Alongside the integration of equality work within each department's overall strategy, there are indications in the document that heads of department have significantly more ability to effect change than is the case at the department at FenU, where a more consensual, collegiate approach has been reported. At Imperial, this is reflected in the more hierarchical, managerial approach to staff appraisal

and to applications for personal fellowships (management selection of the strongest cases),
changes to the departmental administrative support structures to improve workload
management and a statement in the Action Plan that reference to mentoring must be
included in all grant applications (Imperial College, 2013, pp. 28, 33). At York, the same
theme of line management is evident (University of York, 2015, p. 40), with clear
departmental processes to support carer development (pp. 41, 61). The recruitment process
has an equality dimension embedded within it, with unconscious bias awareness
foregrounded (p. 33).

The implications of these differences are explored further in Chapter 5.

4.13. Summary

This chapter has reported the outcomes of the interviews and set these alongside other
evidence from meetings, communications and comparator departments. These have been
reported, where relevant, at different levels of the implementation staircase and aligned
with the broader theoretical framework. The focus has been on how materials and
competences, have been introduced or changed to scaffold the implementation of the
Athena SWAN programme in the department. Chapter 5 discusses and analyses these data
in greater depth and draws out indicative lessons for the management of change as well as
critiquing the methodology.

Chapter 5 - Analysis, discussion and critique

5.1.   Preview

This chapter has three objectives. Firstly, to analyse and synthesise the data presented in Chapter 4, drawing out some preliminary conclusions from the project in terms of answers to the research questions. Secondly, to discuss issues of credibility and dependability (Yilmaz, 2013, p. 9f) regarding both the project's outworking, and therefore the findings. Thirdly, to evaluate critically the theoretical framework, methodology and method of the project.

References to publications are not repeated from Chapters 2 and 3.

5.2.   Analysis and synthesis of data

Chapter 4 presented the data using both the theoretical ideas of social practice theory and critical realism, and practical tools such as the implementation staircase. Analysis and synthesis begins with the research questions. The main question was framed thus:

(1) 'What factors inhibit and scaffold changes in social practices subsequent to a management intervention in an academic department?',
with subsidiary questions asking

(2) 'What materials, competences and meanings encourage and are perceived as encouraging the embedding of change?' (Shove et al., 2012, p22);

(3) 'What experiences and opinions do different staff groups associate with success in this form of intervention?'; and

(4) 'How can effective changes in practice be defined, articulated and assessed?'.

Alongside these questions, successful, embedded and effective change were defined and theorised in the terms shown on page 10; in particular, the capacity for effective change to alter practice-as-entity.

Changes to the elements of social practice and the links between them are also explored using the stratified ontology of critical realism, at the empirical, actual and real levels. Thus the dimension of power relations and impact within the study's context can then be drawn out.

5.2.1   Analysing the trigger event and associated activity

In Chapter 4, the significance of the trigger event, which disrupted existing practice-as-performance in gender equality in the department, was described. This allowed a senior leader to develop further initiatives in the form of surveys to provide more data to make the case for change. This can be theorised along a number of dimensions. Firstly, the locus of power is clearly at the senior level, influenced by external pressure from central university bodies. It is not clear whether technicians, or those distanced from the senior leadership, were aware of the detail underlying this trigger event, but the deeper reality and impact cannot be denied and this stimulated the initiative to change gender equality practice. Secondly, for political and reputational reasons, this reality was only evident to senior departmental leaders: for other department members, the seeds of the initiative were made evident through the surveys of staff attitudes initiated by the first working group leader and the subsequent results. This then built the case and, as reported in Chapter 4, the notion of building a compelling case for change through evidence-based argument remains an important tactic for the department's Athena SWAN initiative. The layered nature of the

meaning of these events is significant. At different steps on the implementation staircase, the perception of reality is influenced by power, in this case of *knowing* certain information. The impact of this series of events in this case of change is evident, but the question is whether such this particular event was both necessary and sufficient. It can be argued that another trigger would also have precipitated this initiative: a general expectation from the scientific community or the university to engage with Athena SWAN, for example. Whether the trajectory of the initiative, in the way it became embedded in the department, would have been the same cannot be judged, nor whether such external pressure alone would have been sufficient to initiate prolonged, extensive action. Therefore, extending the condition of the need for, or circumstances of, a trigger event from one practice-as-performance to change in practice-as-entity is problematic. It may be sufficient to simply note that disturbance of practice-as-performance is a necessary condition for change in the elements of that practice, and the links between them, before change in practice-as-entity can even be considered. Sufficiency can only be judged in hindsight, as a change programme develops. In this case, successive heads of department have committed to the initiative, enthused by colleagues, thus sustaining momentum and embedding aspects of change. Deeper analysis, which includes consideration of other enablers and inhibitors, is needed to explore effectiveness, within the current definition.

5.2.2   *The impact of leadership tactics*

The disruption of existing practice has also been seen to be influenced by the practice of leadership as a competence at different levels within the department. This is linked to the role of departmental structures, discussed in the next section, but the leadership practices and programmes require separate consideration along two main dimensions.

The first is the way in which *senior leadership* operates. The data indicate that the system of appointment, whilst following a traditional academic process of people being 'approached', does not necessarily guarantee effective implementation of effective change. Short-term appointments may encourage the adoption of limited planning horizons which consequently impact longer term change initiatives, such as Athena SWAN. The current leadership in the department has been, as the data describe, an effective enabler in implementing this initiative. This has worked at a number of levels, including head of department, leader of the Athena SWAN working group and senior administrator: indeed, these parties working in a mutually supportive manner has been, and continues to be, a major element in the scaffolding of this initiative. Despite this shared commitment to the process, it is not entirely clear that position is stable. Another new head of department might not be as enthused from below and supportive; another new deputy head might not maintain the momentum of the Athena SWAN working group; and a new administrator might prioritise other activity. Thus senior leadership commitment cannot be seen as a permanently embedded practice and thus the potential for effective change is limited. The necessity for and means of achieving leadership in the terms described by Middlehurst (Chapter 2) is worthy of further reflection and action if change is to become effective.

Leadership practice amongst *principal investigators* forms the second dimension and the data show this to be more variable. A primary illustration of this is the actual need for leadership training itself: senior leaders saw that principal investigators needed more support in their work, as they built research groups. Despite meeting with mixed success, principal investigators have, in places, derived some benefit, but within a conflict of practices. Although the aim was to change behaviours in a positive direction consonant with the Athena SWAN initiative, the pressure to establish independent research activity in a competitive environment can be seen to sit counter to best management practice. The way

in which groups were managed through the group expectations process exposed some of the tensions with researchers and the lip service paid to it by some principal investigators, just 'changing names' on draft documents. Conversely, the department's evaluation recorded improved views of support from group leaders and fewer negative comments about flexible hours and prohibition on conference attendance. Therefore, as with senior leadership, whilst group leadership can be seen as acting as a scaffold for change, the evidence does not point towards the competence being fully embedded, or change being effective in terms of its outcomes as envisaged by the initiative, particularly the element of the leadership training programme.

For support staff, the role of leadership has been reported as more ambiguous, from questioning who the head of department was, to appreciating the contribution of leaders to the improvement of processes such as staff review. Distinction was also drawn between the role of the current Athena SWAN initiative leader and their personal characteristics. There is therefore limited sense of the leadership of the initiative *per se* being embedded in practice from the perspective of this group.

This discussion of the effect of leadership invites reflection on themes developed in Chapter 2. Spencer-Matthews suggested that the level of legitimate power of the change agent and their personal credibility was a more significant scaffold than techno-rational processes. The data indicate that the personal influence of senior leaders has been central to embedding change through the Athena SWAN initiative. Following Gibbs' classification, the presence and effect of certain elements such as intensifying the problem, creating a rationale for change and supporting the change process are quite evident: the department set much store, shared across senior leaders, for creating a compelling case for change. Similarly, the approach that the department took resonates with Ashwin's notion of situating change in the context of current conflicts: the customised surveys at the start of the initiative located

the issues of gender equality within the departmental context reinforcing the case for change. In terms of Wieman's lists of factors facilitating or inhibiting change (Table 2.2), the enabling effect of a succession of supportive heads of department has been evidenced, together with broad support from academic staff members and support staff. Less evident has been active promotion of the initiative by all the research group leaders, although there has been no evidence of active pushback at this level. Reward has been identified with the awards themselves rather than at an individual or group level.

The consideration of leadership as a scaffolding competence reveals complex insights. Reflection on its different dimensions (Knight and Trowler's leading, leadership, management and administration) may assist a department in focusing activity and resources. Equally, Middlehurst's emphasis on the articulation and representation of values by leaders gives weight to the notion of providing a thorough underpinning of the reasons for change. The associated link between leadership as a competence and its meaning has been shown to vary according to the different steps on the implementation staircase. This has ontological implications as well, for it suggests that understanding of the 'real' is limited and results in disparate meanings and activity at the higher levels, actual and empirical. There are also practical consequences for analysis of the impact of managerialism in the department, for the data have shown how, in this department, the desire for consensus and the power invested in the research groups can act as inhibitor to effective leadership.

5.2.3   Structural scaffolds and inhibitors

In this section, the data relating to mainly physical structures are explored for their impact on the effectiveness of the change initiative.

The first element to be recognised is the Athena SWAN scheme itself. This is reflected not only in the very existence of the scheme and its focus to address issues of gender equality, but also in terms of methodology and its outputs, particularly the use of the action plan. The stipulation, as reported in section 2.8, of processes such as the self-assessment team (the working group, within this study), the requirement for broad representation on that team and the need for consultation, provide a structure which gives capacity, if not capability, for effective change. Further, the scope of the Athena SWAN principles puts can be seen as a constraint on scope and activity, as one of the environmental pressures impacting on practice. The lack of explicit requirements within the scheme to consider the wider practice of teaching and research may be seen as a deterrent to examine the broader issues. The compensatory nature of Athena SWAN is therefore emphasised.

Whether the scheme scaffolds effective success is determined by the local practice-as-performance. In FenU's department, it has been seen that there is an embedded working group, meeting regularly, with a balance of continuity and change in membership, supported by effective administration. As such, there is a potential scaffold, but it is the meaning associated with this material that can yield effective change: if the department does not share the same meaning as the team members themselves about the initiative the effectiveness of any change may be limited. Divorced meanings could lead to an isolationist perspective on behalf of the self-assessment team with potential to *inhibit* effective change. This is discussed further in the context of communications. The self-assessment team can point to some embedded success: the introduction of the core hours policy across the department is one example, but, as has been reported, success has not been unqualified, since this has produced difficulties for some researcher staff coping with both seminar scheduling and childcare responsibilities.

This Athena SWAN structure sits alongside the other departmental committees and groups. Support staff have noted how new groups have improved communication, not just about Athena SWAN-related matters. The senior management team regularly review the initiative and Athena SWAN plans are presented at staff meetings: there is clear commitment to the process of addressing gender issues, rather than just gaining an award. There is evidence from the data that in some areas such as teaching within the department, the Athena SWAN work is more embedded, as disparities in the classing of student examination performance were exposed independently of the activities of the Athena SWAN group. The Athena SWAN structure provided a platform from which to develop further action, through its presence and the discourse it enabled.

The dominant structure in FenU's department, however, is the research group, led by the individual principal investigator. The success of management initiatives therefore depends considerably on the meaning which principal investigators ascribe to the proposed changes in practice, the use of associated materials and the competences deployed. The department's Athena SWAN working group identified the pivotal role of principal investigators and noted training needs, which were addressed: evidence indicates that response has been generally positive, but with more negative evaluations in the second tranche of the course. The impacts have not been systematically assessed by the department: indicators of change include reports of fewer complaints by postgraduate students and of a happier atmosphere. It is not possible to establish causal links. The data show that the response of principal investigators to elements of the change initiative have been variable. The department has emphasised the role of the expectations document in each group as a core tactic. Again, actual return of these documents from each group to the department is an indicator of change, but there is some evidence of tokenism by principal investigators and pushback from research staff (over working hours, for example). This could

be evidence of street-level bureaucracy (Lipsky, 2010), with the initiation of local changes to policy to assist domestication. So the presence of research groups within the departmental structures can be seen as both an enabling scaffold and an inhibitor. The controlling influence therefore seems to be the meaning which the principal investigator attaches to the initiative and how this impacts on practice when addressing gender- or family-related issues with staff members and introducing change. The basis of power within the department is concentrated at this level: micro on the scale of the university; meso on the scale of the department. It is possible therefore to view the intended changes as a result of the Athena SWAN initiative at departmental level as being constituted by changes in practice in an assembly of practices-as-performance at research (or equivalent) group level. This adds further complexity to the analysis, owing to the different historicity which affects each group. The data have been drawn from a variety of groups at different stages in their lifecycles, from those recently established by new appointees to those of staff at the point of retirement. This can only add variation to the meaning associated by the group leader and group to a change initiative.

This questions the ideas of what constitutes a department, which were outlined in Chapter 2. Current challenges to traditional ideas of a department included, as discussed, increased pressures for collaboration and interdisciplinarity, often beyond the physical bounds of any department or institution. Thus Shattock's idea of the department as the fundamental building block of universities and Becher and Kogan's of the 'basic unit' may now be becoming superseded by the idea of interdisciplinarity and less defined disciplinary boundaries. Taken alongside Trowler's idea of a discipline as both research and as curriculum, the space occupied by a department can be envisaged as multidimensional. The interviews bore out the fragmented nature of the individual research groups alongside the variable success of creating larger themed groupings, each grouping under a separate chair.

This would suggest that structures such as research groups cannot be treated as uniform entities and therefore attempts to scaffold change must recognise and address this, otherwise structures may act as an inhibitor to change. For example, research staff may have contracts of only a year or two, depending on funding, so turnover is higher than for professional support staff. This may limit socialisation within a large department and encourage a more limited focus on the research group. Therefore, the tactics employed in change, such as in this case, the establishment of a separate postdoctoral research staff committee, may counter this. Similarly, for professional support staff, separate tactics may be needed to introduce and develop change, especially if the focus is not on their particular area of work: meaning, at a real level, needs to become established.

One further structure which had an impact on change is the overall university human resources practice and Athena SWAN activity. A number of the interviewed postdoctoral staff found personal profitability within the university policy and provision in matters of maternity, paternity and shared parental leave and the availability of childcare, rather than in specific department activity. This creates a tension between structures: parts of the whole organisation are perceived as lacking integration, compromising meaning and scaffolding effect. Equally, as reported in Interview 10, micro-aggressions regarding apparently minor matters can have a disproportionate inhibiting effect on change.

In summary, this discussion of structures, as a material within the social practice model, exposes a range of issues at different levels. One primary question is whether the *department* is the appropriate unit of analysis, or whether the work group forms a more credible alternative. The department as a whole might appear more appropriate as this is the external unit of assessment for the Athena SWAN award and the source of change initiatives; but the work (research) group is where more detailed practice is worked out in performance, albeit within departmental parameters. So, whilst instruments such as the

group expectations document may have effected change at one level, the deeper reality of change has not been evidenced through the interviews. Although senior leaders perceive some benefit in this initiative, this is at a relatively actual level (the documents are returned to the departmental administration annually) and the impact has not been assessed further down the implementation staircase or at a deeper ontological level. Developing this idea indicates an emerging theme in analysis of *integration of practice* across the levels of the implementation staircase. Differentiation in meaning and other elements of practice in research groups may inhibit change, as the same interventions may have disparate effects, as the data indicate with issues surrounding the introduction of group expectations documents, the use of core working hours and the impact of university policies.

5.2.4   Communication as an enabler

Integration as a theme can also be used in the analysis of the data regarding communication, as a material and meaning within this intervention. In Section 4.8, it was noted that awareness of the main priorities of the Athena SWAN programme was uneven, at a number of levels within the department, from senior leaders to technical staff. Although there were structures in place (such as reporting at different meetings, the website and posters around the department), these held diverse meanings for staff. The posters, for one interviewee, just (at the actual level) represented women doing scientific work: any real understanding linked to the Athena SWAN work was lost, it seemed. For another, the message was more positive, assigning commitment to gender equality and recognising the currency of the scheme within the UK Higher Education community. Further, the priorities listed on the website (Figure 4.1) can be interpreted as standalone goals, without any overarching statement of ambition which recognises the value of collaborative, diverse teams in achieving excellent science. Interestingly, it was only in the early edition of the department's

newsletter which put the intervention in a broader strategic context.

The communication channels seem to be delivering inconsistent messaging on several dimensions. One is whether the working group are wanting to communicate something about an award (the posters and the foyer display) or a process (the website goals). Another is whether the process or award is just about gender equality or about improving the working environment for everyone, with the goal of doing better science. Lastly, there is inconsistency in whether the communications strategy is there to deliver basic information or more than that, in the deeper meaning of change within the department. Taken with the lack of awareness of the contents of the action plan and associated documents shown by interviewees in senior positions or on the working group, the overall communication plan does not appear to be delivering a clear and integrated message, which therefore leads to real contradictions or inconsistencies in meaning as far as the departmental programme is concerned. This may help explain why individuals, such as the researchers interviewed who were approaching maternity or paternity leave, tended to look to the university provision, rather than the department, for information in the first instance, irrespective of links to Athena SWAN. It suggests that whilst communications initiatives are established and embedded, they have not necessarily demonstrated success. Further, the links between the initiative and benefits to research are occluded, leaving the case for change weakened. So the theme of integration has been expanded to not just between different strands of the initiative (leadership, structures and communications being significant elements) but also between the initiative and other departmental strategies. Trowler's notion of congruence (Trowler, 2008, p. 158) with other practices at these different levels also warrants deliberation: linking with profitability (Section 5.2.5), the impact of changing practice in the gender or family spheres on other practices needs to be recognised and explored (Section 5.3.1).

5.2.5   *The effect of personal profitability*

In Section 4.9, data were presented regarding the influence of personal benefit on the interviewees in response to the management intervention of Athena SWAN in the department. It is clear that the benefits were understood to originate from a variety of sources with mixed results. The inconsistency of provision between the university and an associated body negatively impacted on one individual (Interview 10): the individual issues derived from material policy combined to give a very negative overall meaning with disengagement from the whole process. Other individuals found tensions between different policy elements: for example, the same person saw parental leave provision as good, but the restrictions of core working hours as problematic, even though the intentions behind both tactical interventions were positive from a legal or management perspective. Increased representation of women on committees was viewed positively: the additional administrative workload for those women actually involved was seen negatively. Another interviewee spoke positively about the financial award she had received to support her return from maternity leave, yet found the timing of seminars within core hours problematic if there was a reception afterwards which conflicted with childcare arrangements. The re-invigorated appraisal scheme received both positive and negative comments.

Coherent synthesis of this disparate set of views is complex. The sources of the benefits and frustrations are diverse: some originate within the department as part of its intervention; others are matters of university policy and provision. Some respondents see a link from different tactics to Athena SWAN either as a process or as an award; others do not recognise this, except with prompting in some instances. Within this state, and within this project's theoretical perspective of social practice, it is important not to permit the view of the individual to dominate analysis over the significance of practice as a whole. The overall meaning draws attention to the potential influence of seemingly minor factors, tactics or

materials within practice and how these can displace practice-as-performance in particular contexts: reactions to these can act as trigger events. This suggests a notion of whether a monochromatic set of meanings can be constructed in describing a practice-as-performance, or whether the theoretical model is even appropriate for the investigation of this form of research question at the meso-level of the department. This is discussed more in Section 5.4, but as Shove et al. note in their discussion of snowboarding, emergent differences in elements are fundamental to the evolution of practice-as-entities (Shove et al., 2012, p. 101ff). Therefore, this diversity in personal profitability might need to be held in tension with, and as a constituent part of, the particular practice-as-performance. Salience (Trowler, 2008, p.158) appears to be a diverse phenomenon across the levels of the implementation staircase and such difference may inhibit effective change.

5.2.6   Significance of observational data

Section 4.10 recorded data on the meetings of the department's Athena SWAN Working Group, as an embedded material within the intervention, its operation being part of the formal requirements of the scheme. Whilst committed and relatively stable, the group is, at present, limited to the delivery of the current action plan which is in line with the Athena SWAN principles. Through the sub-groups formed to develop particular elements, the group is able to draw in more people to the initiative but currently this is the present limit of reflexivity in the process. Therefore there is a risk that introspection and 'group think' within the working group may inhibit change owing to a lack of responsiveness to changing external influences. That said, the constraints on the group's activities were evident in their consideration of the political sensitivities in the introduction of further training packages for academic staff: the sense of needing to initiate change by consensus is strong.

The potential to change elements of practice therefore seems to be constrained by other environmental pressures and priorities. Finally, there was little discussion of the relation of the department's activity to that either of the university or of cognate departments: there was little sense of feedback from or to the broader science equality forum or to university groups. Although I brought some external perspective to meetings, my role was principally as researcher.

5.2.7 Comparisons with other departments

The activities of the other departments with higher Athena SWAN awards were described in Section 4.12. The limitations on these data were also outlined, but there is value in reviewing these alongside the analyses of other data. The Imperial College application form described the integration of practice relating to equality with that of the wider research enterprise. Success in terms of increased research grant income and collaboration is strongly linked to the changes in culture; the Athena SWAN programme's influence has extended from reorganisation of the department's administration and redevelopment of the framework for staff development to the review of grant applications (all of which now require provision for mentoring), the introduction of new prizes and feedback into the university Athena SWAN processes. This type of linkage is more developed than at FenU's department. At York, the equality programme has extended beyond gender to other protected characteristics and, as at Imperial, to changes in management structures. The application form not only shows effective integration with other strands of departmental policy (for example, in appointments and career development) but also the extent of the department's influence and interaction with the central university policy making and activity. There is a sense of pervasiveness in their approach to change in practice.

At both Imperial and York, there is greater evidence of integration both with other practices within the department and the wider university context.

5.2.8   Summary of analysis

In this section, some answers are suggested to the research questions and comparisons made with the benchmark departments.

The lines of enquiry were informed by the Athena SWAN principles as embodied in documents from FenU's departmental submissions and from ECU itself (see Section 3.2). These were developed into the survey: in turn, this was instrumental in the design of the interview protocol for the departmental ethnographic phase, emphasising the significant issues raised by the survey output (see Appendices).

The main research question focuses on factors inhibiting and scaffolding change in social practice. Informed by the outcomes of the survey and analysis of the department's documents, the responses to the interview protocol drew out the views of departmental members on leadership, practice in research groups, including training, and communication, as well as more general impact from the Athena SWAN intervention. Although this is discussed more in Sections 5.3 and 5.4, this demonstrates a consistency in the data, in terms of its provenance, from which conclusions may be drawn.

The analytical tool of the 'implementation staircase' has been deployed to useful effect in examining the views of different staff groups and providing insights in answer to the third research question, whilst noting that the idea of hierarchy has to be questioned.

The responses to the subsidiary questions (Section 5.2) combine to inform a response to the main question, so will be considered first.

The second question focuses on Shove et al.'s model of practice, the elements of practice themselves and the links between them.

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Senior leadership, as a competence, may be seen as successful, since elements of departmental practice and policy have been changed in line with the initiative's aims. New structures, such as the working group, have been introduced. Over time, the intervention has benefited from the commitment and expertise of consecutive heads of department and chairs of the working group. The data showed that specific individual competences and motivations varied, but the overall effect has been to develop the initiative into a long-term programme. This senior leadership has been supported by excellent administration as well as some limited integration into the management and communication structures. Further data indicate that this senior leadership is appreciated by other principal investigators, researchers and members of the support staff and can thus be associated with positive meaning. For the time being, the effects of senior leadership can also be viewed as embedded, owing to the commitment of those currently holding senior posts. Thus overall change in behaviours and policy could be seen as embedded. Tentativeness arises owing to the power associated with these positions: outside the core activities of teaching and research, these senior role holders have considerable influence over discretionary initiatives such as Athena SWAN. A change in their strategy could lead to reversal of change. Senior leadership is a vital but fragile enabler: change from this source cannot be deemed fully effective.

Leadership, with respect to the Athena SWAN initiative, from principal investigators in their individual research groups has been shown to enjoy less success and is less embedded. Some research groups have strong organisational and management structures through which good behaviours associated with Athena SWAN have become embedded. In others, a degree of tokenism has been evident. Although this variation has been acknowledged by senior leaders and addressed through the training programmes, the evidence suggests that success has not been uniform and implementation compromised by competing practices

associated with research. Competition between practices is discussed below in Section 5.3. The emphasis on independence in research and funding mechanisms (grants to individual principal investigators) act to reinforce the position of power occupied by the principal investigator, which may act as an inhibitor to change.

This links to the role of structures in scaffolding and inhibiting change. The survey showed a remoteness, from the staff perspective, of the central university Athena SWAN activity and this was reflected in the notes taken from the observation of working group meetings, although not in respect of individual profitability from the initiative. This lack of integration was not explored in detail, but staff resourcing and motivation for networking at university level, as well as communication, could be significant factors. Provision of information alone is insufficient to act as an enabler of change. Conversely, the departmental Athena SWAN structures can be viewed, from the data, as effective. It has been successful in drawing up and implementing a plan for action, demonstrated in their progress to a higher award within the scheme. It can also be described as embedded, with continuing activity and support from senior leaders. With the same limitation as previously (the risk from changing priorities of a new generation of senior leaders), the departmental structure can be seen as an enabling material, linked to positive meanings amongst staff. The structure of individual research groups demonstrates characteristics of both enabling change, where initiatives have scaffolded improved behaviours, and of inhibiting change where initiatives such as the introduction of the group expectations document has shown elements of tokenism and where leadership training has not been well received. Pressures from elements of practices perceived as being in competition with the initiative, such as the research agenda, may act as inhibitors. Therefore it is not possible to reach a definite conclusion regarding the impact of research group structures on change. The structure can as easily scaffold effective change as inhibit progress. For individual staff members, especially researchers, there seems to be

more evidence that university and departmental structures can scaffold effective change, as in the cases of promoting good practice in maternity, paternity and shared parental leave. This is almost regardless of the practice in individual research groups, although most of the interviewees report positively on the reactions of their group leader to proposals for such leave. One interviewee, the non-employee, was more negative reflecting her different contractual provision, but for others, the strong elements of personal profitability seemed to occlude the potential negative influence of group structures. Demonstrable personal profitability is an enabler of successful change of practice, although the degree of embeddedness is a function of staff turnover which, for researchers, is high. A high rate of staff turnover may inhibit longer term effectiveness.

Inherent in the success regarding personal profitability is the communications strategy. The data demonstrated that the current tactics have met with a mixed response. The specific Athena SWAN communications, such as the posters and staff meetings, have conveyed a range of meanings, but which lack the elements of personal profitability and coherence. More usual communication channels unconnected with the initiative have been the major source of personal profitability: discussions with the senior administrators and information from the university human resources website. The current strategy, although embedded, has limited success and therefore effectiveness. Whilst not obviously inhibiting the initiative's progress, the current communications strategy is not acting as an enabler either. The impact of the trigger event is an embedded meaning for many of the staff presently involved in the initiative and for senior leaders, but may have limited life expectancy. Although the trigger event focused on one or two individuals, the issues this raised in the department have been more widespread in terms of personnel management practice and the staff groups included. This element of historicity may be lost as staff change. But the importance may be replaced by other successes which spur on the initiative.

The third research question focuses on the experiences and opinions which different staff groups associate with success. The sense from the data is that whereas senior staff and leaders tend to view the initiative in more managerial terms (the use of the group expectations documents and leadership training), further along the implementation staircase, the experience of personal profitability comes to dominate, in terms of the perceived benefits (and otherwise) of flexible working and core hours, and the provision of maternity, paternity and parental leave. Notwithstanding this difference, there was little evidence of tension between group leaders and their research staff, rather an acknowledgement that change was positive. But again, any issues were related to the tension between change associated with the Athena SWAN intervention and the pressures of research, with the need to establish independent research reputations (Section 4.9). For members of the support staff, currently at some distance from the primary focus of Athena SWAN, appreciation of the benefits to the academic programme was clear and for themselves there had been benefits in terms of better communication and involvement in the department's work. This variation in views and opinions across the implementation staircase would all suggest that in planning and implementing initiatives, leaders need to consider these differences, and how they interrelate, if the initiative is to produce effective change in practice.

The impact of different views across a fragmented organisation, with the power resting in research groups means that the definition, articulation and assessment of effective change (Question 4) is similarly multifaceted. Consistent evidence is difficult to distil from the data, across the broad spectrum of interviewees. At the micro level of the individual, personal profitability ranks highly, as does the inverse where policy is perceived to act against personal benefit. At the higher level of the department, the evidence is more nebulous and is expressed in terms of fewer complaints, the impact of training and changed procedures

and a happier atmosphere. This could be contrasted with the benchmark departments where the Athena SWAN initiative has been linked more closely to other central elements of policy such as research (Imperial) and personnel practice (York). Increases in research grant income and female appointments are articulated as representative of effective success of the Athena SWAN work in those departments.

From this analysis of the subsidiary questions, the argument can then be developed to suggest ideas to answer the main research question.

Materials such as the principles and structures behind the initiative (Athena SWAN national resources, in this case), supported by university policy and resource form the basis for scaffolding departmental activity, as environmental factors. However effective the departmental leadership and organisation might be, these currently have to operate within existing structures which may inhibit success, given that real power lies at the level of the research group and not with the central departmental bodies. The notion of consensus leadership across all academic staff was referred to by several interviewees. Initiatives to support change consonant with the Athena SWAN programme in the research groups have met with limited success and the tensions against the need to succeed in research have not been explored. Practices therefore stand in competition: this may limit effectiveness. Equally, the significance of a material event to disrupt existing practice, however voiced or constructed, needs careful attention if it is to exert positive leverage on a practice. Scaffolding for the initiative may be enhanced by either integration of practices (such as between Athena SWAN and research) or at least the articulation of areas of tension and addressing these.

Competences in leadership and communication (the latter also has a material component) form essential scaffolding. The current senior leadership practice is focused on the department alone and may be enhanced and become more embedded for the longer term,

given the turnover in senior leaders, if this was more integrated with university activity. Equally, the communications strategy has been shown to be less effective as a scaffold as it might be. The meanings associated with particular elements have varied across staff groups: messages of achievements have not been universally well received. Consideration therefore may be given in both areas to better integration with the broader environment of the initiative and segmentation of the communication tactics to ensure that messages of success and change are targeted effectively and meaningfully to different staff groups.

The argument so far has indicated that the data illustrate a breadth of meanings across the department. The elements of personal profitability are strong, although improved reputational and managerial meanings are also evidenced. The concept of improved research (or teaching) through the success of the Athena SWAN programme was not vocalised: again, this demonstrated a lack of integration of practice, or a lack of a corporate sense of profitability. Trowler (Trowler, 2008, p. 128ff) expresses this corporate responsibility in terms of domestication, as a shared meaning and a means, in Shove's terms, of adapting practice-as-performance. He also argues for the necessity of reflexivity *across a department* as a condition for scaffolding change, although, as discussed, the effectiveness of such is highly dependent on departmental structures and power distribution. This lack of integrative thinking across different practices or activities in the department, including teaching and research, may be considered to act as an inhibitor to change.

These scaffolding and inhibiting factors accord with Trowler's ideas (Trowler, 2008, p. 135ff) regarding perceptions of an initiative's source, the resources allocated to it, the meanings carried, threats to power structures and the theory of change. Likewise, similarities can also be drawn with the factors identified by Wieman et al. (Table 2.2), although this current initiative does not include an element of local departmental reward. (It has to be noted that both Trowler and Wieman et al.'s work refer to the rather different context of teaching and

learning.) Although he uses some of the same language such as profitability, Levine explores the scaffolding or inhibiting of initiatives in terms of changing boundaries and overlaps (Levine, 1980, p. 16ff). The strict schema which he develops follows a more techno-rational high-level approach, which does not sit easily with the meso-level social practice study, but some of his ideas relating to profitability at the individual and organisational level resonate with the findings of this study. When an innovation becomes 'deviant' from current norms and values, effective change may be inhibited.

Reference has already been made to the historicity of practice in the department with regard to gender initiatives, including the long-term impact of the specific trigger event. However, the data have shown that much is dependent upon sustained commitment of senior leaders and succession planning: data do not suggest that the latter is under active consideration at present. Whilst continuing external support from the university and national bodies help to provide continuity, this may not benefit the local practice unless the department optimises links, demonstrating benefits and profitability.

This leads on to the whole space surrounding *integration* of practice, or practices. This study has focused on change in one department of practice-as-performance as an Athena SWAN programme has been implemented over a period of years. It has taken a snapshot, through ethnographic study, of how change has been realised and perceived at different levels of meaning and of the organisation. The data point towards some successes at individual and organisational level, although not without negative experiences for some staff. The current model can be recognised as Phipps described (Section 2.8) as compensatory in the sense of making adjustments and giving support. The model does not reflect the thinking propounded by Rees (Section 2.8) of the need to mainstream gender equality policy into the entire workings of an organisation, a strategy which the comparator departments appear to have adopted to produce effective change. Thus, at a policy level, this lack of integration of

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practices may be seen as an inhibitor, which can then cascade down the implementation staircase in a form which lacks the force of an integrated plan and opens up the potential for dilution and street-level bureaucracy. Indeed, the elements of this, in the practices within individual research groups, substantiate this. Therefore it could be argued that the scaffolding of change could be enhanced and the success of individual tactics made more effective by ensuring that at least the tensions with other practices are articulated and, where possible, resolved in harmony. This could mean, for example, that the pressures to establish strong research records in high-pressure environments are tensioned against the impact of initiatives such as Athena SWAN, where it might appear, for example, that flexible working practices mitigate against scientific success. If these can be seen to be working together, rather than in tension, developing along the direction suggested by Rees, then the reinforcing effect of scaffolding may be increased.

Scaffolding is therefore a multi-dimensional and multi-layered phenomenon and practice-as-performance has to be considered within its particular environment at a particular point in time, whilst acknowledging historicity. These ideas are developed further in the next two sections as the data are evaluated, and the research methodology and theoretical framework are critiqued.

5.3.   Credibility and dependability

The qualitative paradigm of case study research and the methods used point away from the use of terms such as validity and reliability, usually associated with quantitative work. Instead, this section follows the schema described by Yilmaz (Yilmaz, 2013, p. 319ff) and focuses on the ideas of credibility and dependability.

Firstly, credibility can be described in terms of how context-rich and detailed the descriptions of the case study are. This immediately raises two points: the sampling strategy and, consequently, data selection from those data. Resource constraints are significant here, in terms of limited time and budget, as well as access. Chapter 3 described the various phases of the project and how the survey, combined with a reflexive approach to the interview schedule, were used to optimise the gathering of data within these constraints. Multiple sources and a semi-structured interview protocol assisted in providing a rich background for the analysis of Section 5.2, as well as some confirmation of findings, such as the importance of leadership. Further, the explicit criticism of the initiative from one interviewee, as well as negative comments from others, helped to ensure a more balanced view of practice. Nevertheless, the processes both for obtaining responses to the survey and to requests for interviews are both open to bias, with the potential for preferential participation by enthusiasts or the opposite. The survey's purpose was to expose potential indicators of change and this purpose was achieved: statistical reliability was not a goal. Further, with the exceptions of the impacts of the local phenomena of the trigger event and the group expectations document, no significant variation was detected through the design and execution phases, from the survey design and analysis to the two cycles interviews, demonstrating a degree of consistency, or triangulation, in the competences, materials and meanings under exploration and in the attitude of the participants. This consistency extends to theoretical framework which permeated the process: the model of social practice, coupled with the layered ontology of critical realism, informed the different stages of design, execution and evaluation, alongside the use of practical tools such as the implementation staircase, reinforces the integrity of the study. This theoretical model was also outlined to interviewees to give an indication of context and methodology. There is no evidence of bias originating from this act of description in the interview data.

The scope of the factors investigated, in the broad space of people management, are those which form the basis for most Athena SWAN interventions. That is, issues of recruitment, retention, training and development, together with the implementation of human resources policies are central. These form the practical outworking of the Athena SWAN principles (Table 2.4). The study has not investigated other factors which could be germane to the equality and diversity agenda, including the distribution of financial resources and space. Interestingly, apart from one reference to an overall shortage of departmental space (and therefore limited opportunity to accommodate new research groups), none of the interviewees made any reference to these factors, including senior female group leaders. One reason could be that they have no impact on the equality and diversity agenda of Athena SWAN; another could be that this is just a current perception, but is still worthy of further investigation, particularly if the theme of integration of the practice of the Athena SWAN initiative with wider teaching and research practice is pursued. The structure of Athena SWAN itself may therefore constrain this investigation of the broader issues of addressing gender inequality in higher education. Whilst, as Table 2.4 indicates, the principles are very specific at some points ('4. We commit to tackling the gender pay gap.') at others the lack of specificity is occlusive. An example of this is principle 9, with its reference to 'making and mainstreaming sustainable structural and cultural changes to advance gender equality': this statement gives no indication of where such changes might be located or the means of achieving them.

Developing this theme of comprehensiveness may suggest that the main research instruments, the survey and the questionnaire were deficient.

In the case of the questionnaire, asking additional questions to develop breadth might have limited effectiveness in terms of a lower completion rate as respondents became bored and gave up, or, in respect of depth, if the cost of asking about more topics was superficiality.

Issues such as resource allocation only pertinent to some groups of staff on the implementation staircase: the construction of different questionnaires for different groups may have affected the credibility of the outcomes regarding common items. As indicated above, the response to the questionnaire seemed to provide a good range of views and indicators to inform the interview stage.

For the interviews, similar tensions become evident between breadth of coverage and depth, constrained by access to a finite number of interviewees for a finite time. An inherent liability within part-time unfunded research is dependence upon goodwill which is a limited resource. Therefore, some selectivity is needed and by focusing on the indicators exposed in the questionnaire, some important themes were then explored. Further, the semi-structured format of the interviews did allow some deviation from the main topics and allowed more time to be spent discussing any of the issues especially pertinent to the individual, in their local context (research or support group). So, for example, parents might have wanted to say relatively more about nursery provision compared to those nearing retirement.

The finite number of responses to the survey and number of interviewees prompts discussion of the sampling methodology. The principles were outlined in section 3.4, but here it is noted that within ethnographic studies no sample can be fully representative across multiple dimensions (Silverman, 2014, p. 58ff). Important in this study was the idea that people at different levels of the implementation staircase might have different perceptions of the initiative to change practice. A purposive sampling method was used to ensure that views were solicited from interviewees across these different levels. Despite this approach, fully understood by the department, data collection was still dependent on the volunteers from those approached. The extent to which this represents a credible sample can only be answered by considering the data for their consistency. Whilst many of the same

issues were raised, whether from a positive or negative viewpoint, this method of sampling has the potential to introduce bias, from extreme responses from one end or other of the scale. Whilst this polarisation may place issues in greater contrast, the qualitative paradigm would indicate that credibility is ensured by recognition of this source of bias (and others) rather than by any attempt to control the effects (Yilmaz, 2013, p. 316). This form of research is highly unusual at FenU, if not unique, so the process for gaining access and ethical approval was delicate and political. Supportive senior leaders were a great asset in providing openings for interviews, but this did limit approaches to staff and the reservoir of goodwill. This could be seen as a significant limitation on the study.

Secondly, dependability forefronts ideas of robustness: how the research is structured through the research questions; whether the theoretical concepts and models are clearly specified; and whether the researcher's own position, and its impact on the research activity, is explicit (Yilmaz, 2013, p. 319). One feature of this project is that only one researcher was involved, so matters of inter-rater compatibility do not arise. Trowler identifies a number of issues associated with dependability and ethnographic research (Trowler, 2008, p.161 ff). Firstly, there is the issue of amalgamation of the views of individuals into a composite picture. Critical realists would agree that qualitative research will always elicit different perceptions of reality, but would nevertheless assert that such a reality exists. How many individual views are needed to allow understanding to converge to this reality is an open question; acknowledgement that tools like the implementation staircase assist in reconciling apparently disparate data is one means of reconciliation. Again, consistent with the model of social practice theory, there are issues of what data are captured, especially implicit meanings within a specific context. Within a case study, especially one based on insider research, this resolves into what background and contextual information is taken for granted, what assumptions are made regarding shared use of local

language (Carspecken, 1996, p. 61ff) and then how this information is selected, distilled and communicated. Personally, from the perspective of the insider researcher, there was risk from prior familiarisation with the department and a common scientific background, which aided accessibility to language and structures (for example, of research groups, funding and teaching). The impact of any potential bias is not easy to establish: the main response needs to be one of recognition and then a process of acknowledging that findings have to be viewed through this lens, with a slightly different focus on the same reality, but nevertheless with the potential for important ideas to become occluded. This can develop further into the dilemma of 'simplicity versus nuance' (Trowler, 2008, p. 163), in a quest for generalizable statements that can be unwarranted, in the face of relevant subtleties evidenced from local practice and through the lens of insider research. Finally, it is consistency of data and the themes and indicators explored throughout the study which gives overall dependability to the outcomes.

5.4. Critique of the theoretical framework, methodology and method

This section works through the design and theoretical basis of the project and critiques these elements in the context of the outcomes described in Chapter 4.

5.4.1 Theoretical framework

The study's theoretical framework was outlined in Sections 2.5, 2.6 and 2.7, based on a critical realist ontology and social practice theory.

Archer's morphogenetic interpretation of critical realism has been taken as the ontological foundation for this study. The notion of 'double morphogenesis' accounts for changes in the agent as well as social order over time. This study has demonstrated this form of change in departmental working practices and in the behaviour of staff at different stages of the

implementation staircase. Change has not always been at the same rate and perceptions of change, led by ideas of personal profitability in some cases, have differed, whilst pointing to a deeper reality of change in practice-as-performance in response to the Athena SWAN initiative. An alternative subjective ontology, as discussed in Chapter 2, sits uneasily with the emphasis, as deployed, on social practice, on shared meanings and competences, rather than focusing solely upon individualistic responses and views. Whilst personal profitability was an important factor in the initiative for some staff, the important dimension from the perspective of this study is what this means at a deeper ontological level, at the 'real' level of critical realism. This is demonstrated in the meaning of 'permission' to give and take parental leave, for example.

Shove et al.'s model of social practice (Figure 2.1) has proved a useful framework in transforming research questions into a research protocol with interview questions. Chapter 2 described how such a model diverts attention from the individual to practice and its different dimensions. Whilst individual reaction to an initiative is important, it can be limited by time (the duration of the employment contract, for example) and little can be drawn out in terms of impact on the organisation. Another advantage of Shove et al.'s model is communicability: it can be explained relatively straightforwardly to non-specialists, in contrast to other formulations such as Bordieu's habitus, field and capital. Its structural highlighting of the links between elements is also significant, especially in areas such as communication where there is obvious intersection. There are two matters which are problematic. Firstly, as indicated in Chapter 2, models of social practice do not explicitly incorporate *time*. It obviously takes time for practices to change and for an initiative to become effective, but what is not so obvious is that elements of practice may change over different timescales, at different rates, and could even, as with leadership, regress in time.
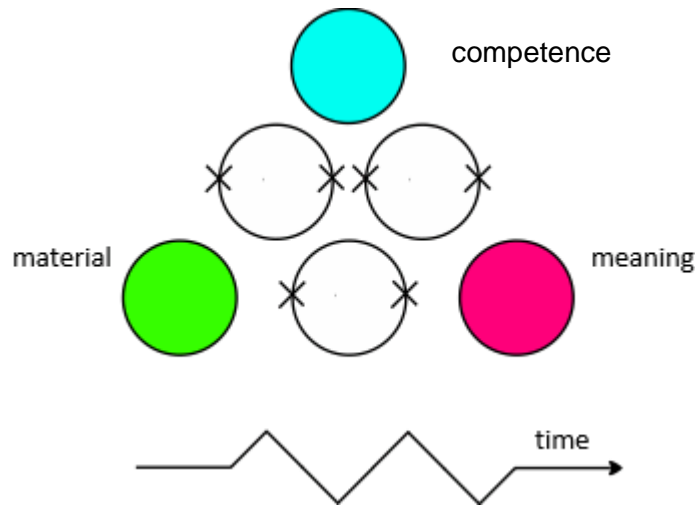
Figure 5.1

Time dependency

Figure 5.1 shows a revised model, with discontinuous time axis indicating that change over time is non-linear. A material, a policy for example, might change but its meaning to different staff groups may change over different timescales; not just due to communication issues along the implementation staircase, but also to factors such as personal profitability. This, however, has been shown to be insufficient, for the model does not address the issue of competing practices, referred to above. In the interviews, it was evident that both group leaders and researchers comprehended a tension between elements of the Athena SWAN initiative and its impact on gender and family-related practice and the development of world-class research activity. Flexible working and the idea of core hours did not, in some cases, fit with expectations. Structurally the department was being viewed as contradictory: encouraging meetings in core hours, but then not releasing additional space for all the necessary meetings to take place in a more constrained timeframe. The model also does not recognise the importance of power relations. The discussion has demonstrated that within this science department, the fundamental unit is more correctly the research group rather

than the department and that these groups have considerable power. A top-down power

structure is an inadequate description of influence in this department at FenU. Therefore, a

further modification to the model is proposed, indicating that any practice-as-performance

is constrained by environmental influences which both impact on the practice in question

and are impacted by it. External funding pressures and evaluative processes such as the

Research Excellence Framework may be considered as environmental influences, but this is

dependent upon the level of analysis of the practice and returns to the notion of layers in
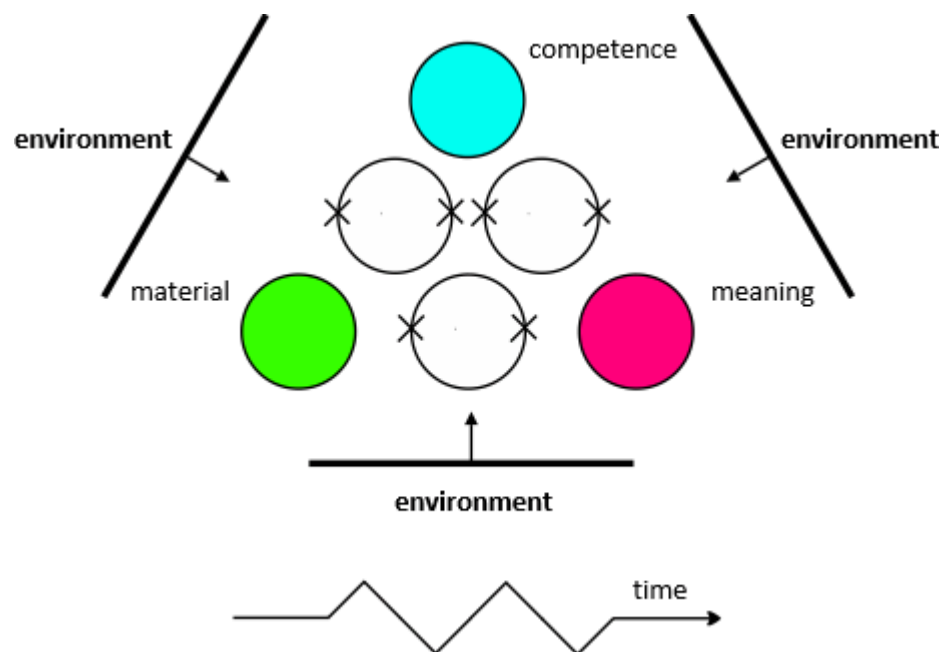
practice, implementation and ontology.

Figure 5.2

Environmental factors

Figure 5.2 shows the impact of these environmental factors. For clarification, this is not the

same as the direct sharing of elements between practices, as described, for example, in

relation to driving by Shove et al., where the meaning of driving is present in the practices of

both car driving and car repair (Shove et al., 2012, p. 36f). It could be argued that Shove et al.'s focus on practice-as-entity obscures some of the problems associated with adapting their model to the exploration of practice-as-performance. In the foregoing analysis, the tension between high output of world-leading research and change in gender equality practice has been highlighted. Use of time and the meaning of 'working hours' can be seen to be different. A response could be to articulate the tensions between elements of both practices and to address contradictions: the prior example of demand for meeting space against core working hours is relevant here. For the goal should be to see elements of practices in each context as reinforcing, or integrating with, one another, rather than being in competition: as one interviewee expressed it 'Because I think (for) something like Athena SWAN, to be successful, needs everything else to be successful.' (Interview 2, p. 6). Shove et al. express this in terms of practices collaborating rather than competing (Shove et al., 2012, p. 89). This collaboration may then be pictured as a double-stranded helix, with tensions between elements acting as the bonds between the practices.
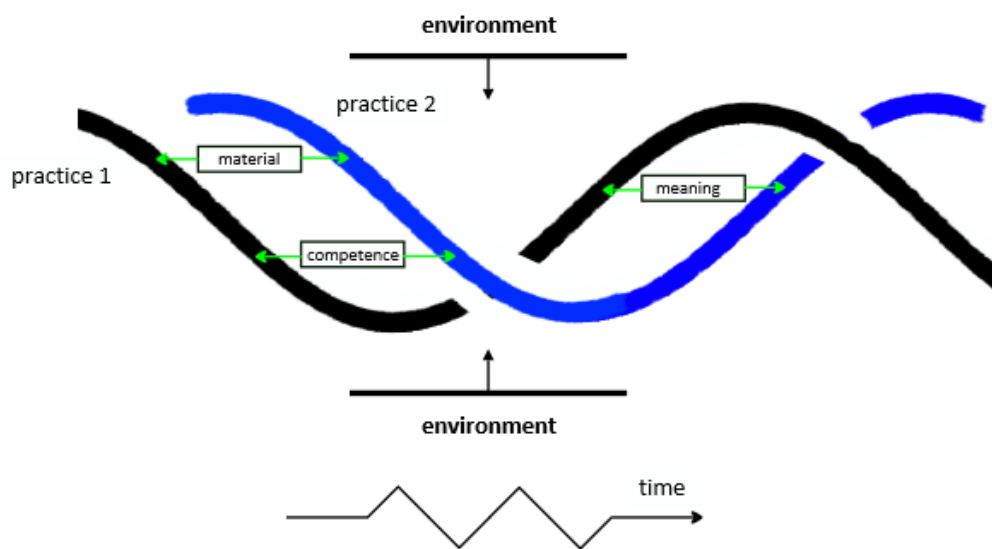

Figure 5.3

Competing practices

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Figure 5.3 illustrates this idea in the context of an instantiated competing practices-as-performance. This study has indicated that structures, as a material, may be in tension between the practice of research, with powerful group leaders in control, (perhaps the 'dominant practice' (Shove et al., 2012, p. 78f)) and the practice of change processes associated with Athena SWAN. Articulating and resolving this tension has the potential to be mutually beneficial. Nevertheless, this model, still indicating change over time and external environmental pressures, cannot be pressed too far: any notion that this could be used for the intersection of three or four practices, for example, cannot be entertained, since it is obvious that the multiplicity of links would not be resolvable into credible data and conclusions. The value of a model is in distillation into the manageable not as an aid to confusion. This proposed model embodies the theoretical themes emerging from this meso-level study, and it could be testable in similar contexts. The question then arises as to whether such a model is relevant to practice-as-entity and to micro- or macro- contexts. Practice-as-entity is considered in Chapter 6: whether macro-level practices such as consumer behaviour fit the same form of direct competition is questionable. Equally, this analysis problematises the notion of defining what is 'meso-level' in a given context and where the boundaries should be drawn. As has been indicated, a 'department' can be considered at a number of levels, depending on the focus of the research. Investigation of practice-as-performance may suggest, using the model of Figure 5.3, more of a focus on the empirical and actual ontological layers, owing to the more obvious presence of competitive practices, with practice-as-entity demonstrating or exposing more of the real.

Data from the comparator departments bear out this integrative approach of explicating the tensions between practices and seeking reconciliation: the success of the Imperial department, in terms of research grant income and collaborations, is seen as a result of the

Athena SWAN activity working in concert with other practices. Therefore, further scaffolding of effective success could be realised by greater articulation and investigation of this model. The tensions between gender issues and research have been highlighted in the 2016 ASSET survey (ECU, 2017). Female academic staff reported feeling at a disadvantage in the allocation of resources related to professional development (mentoring, feedback and involvement with promotion decisions) and 'markers of esteem' such as invitations to conferences. Women also reported more teaching, administration and pastoral responsibilities than men (p. 1). There was also a gender gap, in favour of men, in training (p. 3) and in the perceived benefit of informal networks (p. 30). The ASSET report only covers academic staff and this departmental study has argued the important role of all staff, including permanent professional support staff, in instantiating practice-as-performance and being involved in change. Some commonality between staff groups is evident in FenU's department in matters such as access to training; the potential for relocation may be more pertinent to academic staff. These issues are worthy of further exploration in a wider constituency within the department.

Of the tools deployed, the idea of the implementation staircase was very useful, but again with limitations. The notion of structuring analysis around different staff groups (senior leaders, researchers, professional support staff) helps to synthesise data and outcomes in a manner which may impact practice-as-entity. What is evident that the staircase as an organisational model does not fit all parameters. For example, it is not the case that support staff are 'down' the staircase from researchers. Their power and influence is significant. Developing the dimension of power, the concentration of power with the group leaders (principal investigators) has been shown to be considerable, in their influence over group expectations documents and working practices. A top-down staircase model of power is not consonant with the structures evident in the department under study. Therefore the

staircase has to be interpreted on a number of dimensions, not restricted by organisational structures alone.

This analysis therefore suggests that the model of social practice proposed by Shove et al., and the statement of Reckwitz (section 2.4) requires some development to recognise practice not just as 'a routinized type of behaviour which consists of several elements, interconnected to one another…' but also *constrained by environmental pressures, developing asynchronously over time*. This gives a richer definition of practice, which incorporates historicity whilst, it can be argued, maintaining compatibility with the ontological framework of critical realism. The inclusion of these factors of time and environment suggests a realisation of Archer's notion of double morphogenesis with repeated interaction and change between agent and structure. The focus on social practice emphasises the linkages.

5.4.2   Method and methodology

The basic model of Figure 2.1 was realised in a single-case ethnographic case study deploying multiple methods. The first question is what further insights could have been gained by using multiple departments, if access and resources had permitted. In practical terms, more departments might have indicated further ways in which change in practice was being scaffolded or inhibited; in theoretical terms, the single case has demonstrated both the usefulness and limitations of the social practice model. Further the environmental pressures on different cases or departments (Figure 5.2) would limit capacity for comparison. The implications for practice-as-entity are discussed in Chapter 6. The next issue is whether an ethnographic case study was the appropriate framework. On a theoretical basis, this has been argued in Chapters 2 and 3 to be ontologically consonant, alongside the use of social practice theory. On a practical level, the use of multiple methods

to explore the different dimensions to the success of this change initiative has undoubtedly highlighted issues, such as the trigger event, which would have remained hidden in a single-method quantitative survey, which also, given restricted numbers, would have proved unreliable. Increasing credibility, the use of multiple methods within the department, such as interview, documents and some limited observation added richness to the data and some triangulation. The other strength of an ethnographic study is that evolution of design and method is possible over the timeframe of the study, in line with the developmental approach to evaluation (Patton) identified in Chapter 2. This allowed some iterative development of the interview protocol over time to explore more relevant issues with senior academic staff, later in the research schedule, such as the impact of senior leadership and leadership training. In an experimental study, with a control group, such change would reduce validity, as well as the issues of accounting for different environmental pressures and ethics. The study could have been enriched by a slightly different structure, taking a vertical slice down through the department, focusing on one of two research groups only, perhaps using repeated group interviews and long-term observation of group meetings and activity. This would, however, have excluded some groups, such as technicians and administrative staff, who were outside the mainstream research groups and thus, again, limit the scope and the validity of the study. One of the themes of this work has been that practice in a department has to be seen as more inclusive of all staff, not just academics. A similar argument could be deployed regarding the involvement of students, especially postgraduates, in the study: the time-limited nature of their experience is an important factor and the restricted nature of their experiences. Within resource constraints, it was unrealistic to extend the study to include them.

Taking a step further back, the model of social practice as a structure of knowledge for the inquiry requires critique. Other frameworks could have been considered as candidates.

Engeström's Activity Theory model is one such, but does not give the same capacity to differentiate between workers unless multiple models are created (Engeström and Yrjo, 2001, p. 135). Whilst such models could have yielded insights into power structures, differences in contents and potential outcomes would have presented analytical challenges. Nicolini highlights the issues of accounting for this 'multi-voicedeness' (Nicolini, 2013, p. 114). Equally, a pure constructivist approach, with an emphasis on the individual, would have sat in contradiction to the notion of integrated change and problematised the role of structures and materials.

Further consideration of potential future work is outlined in Chapter 6.

5.5. Summary

This chapter explored the multi-faceted nature of change in a department, consequent to a management initiative such as Athena SWAN, the different competences, material and meanings at different levels of the implementation staircase. The initial model of practice has been shown to have some weaknesses and limitations, especially at the meso level. An alternative model has been developed, within the constraints of the data's credibility and dependability and of the research design, methodology and resources. Chapter 6 considers the implications for practice-as-entity and the potential for further study.

Chapter 6 – Conclusion

6.1. Preview

This chapter has four goals. The first is to summarise the answers to the research questions from Chapter 5. The second objective is to use the project's findings to formulate advice for the future for FenU's department. The third is to discuss issues surrounding extension of the findings from practice-as-performance to practice-as-entity. Finally, some suggestions are made for further work.

6.2. The research question answered

Section 5.2.8 provided a broad summary of the answers to the research questions primarily in the context of the change in practice-as-performance of gender- and family-related issues in one department as a result of their Athena SWAN initiative. In this conclusion, from a summary of the findings, suggestions are made as to their relevance to other instances of performance.

The data and analysis have indicated that effective change can be scaffolded through a range of competences, meanings and materials. The existence of an initial disturbance and its continuing meaning had a significant impact. Whether this disturbance is local, as in the case of the department at FenU or national, as with medical research funding (Davies, 2011) does not seem important: the effect is in local and continuing meaning. Leadership has been shown to scaffold change, but its effect can be limited by short-term vision and competence, especially where positions of senior leadership change regularly and support for the initiative may be lost. Shared senior leadership, between academic staff and administrators, can be a significant scaffold through enhancing continuity and collaboration. Variation in commitment and competence in implementing the initiative at different levels of the organisation can act as an inhibitor. Although this may raise uncomfortable ideas of

managerialism, without good integration of the initiative across the implementation staircase, success may be less effective. Leaders should consider the reactions and meanings of all staff groups (and potentially students) in the domestication of the initiative, recognising that a high level of personal profitability can scaffold change but that the cumulative effect of microaggressions can be an inhibitor.

Sound structures across the different levels can scaffold success. The data have shown that good structures at top departmental level are an asset, providing those involved do not become isolationist, but that good integration is needed with university and national policies, structures and frameworks, for optimal benefit. Distributed structures, such as research groups, can act as both scaffold and inhibitor, depending on differences in competences and meanings within them. Good resourcing of staff time and training can act as effective scaffold. Above all, where conflict or contradiction exists between practices, these need to be articulated and addressed, to promote collaboration across the organisation. Good communication of the initiative's work, segmented for different staff groups as appropriate, may be seen as essential in developing shared meanings and competences.

The study has shown that a basic model of social practice can be utilised to articulate and assess the effectiveness of change, but that this has limitations, largely owing to the lack of explicit incorporation of the variation in elements over time, and the impact of environmental pressures. Highlighting the impact of these on performance gives a fuller description of activity.

The next two sections develop this thinking.

6.3. Advice for the future

The department has made significant progress towards effective change in response to the Athena SWAN principles in the way it organises and structures departmental working practice. Using the ideas from the revised social practice model (Figure 5.3) and the previous section, the department needs to recognise further the impact of external environmental pressures (university and national initiatives) but also to leverage best benefit from them. Disconnection acts as inhibitor and potential benefits are left unrealised. Equally, the department should identify areas which are changing at different rates over time and recognise the issues this presents. An example is the lack of potential to change the gender balance of the permanent academic staff owing to the limited number of posts becoming available. The department might wish to explore different options, such as fund raising for long-term fellowships. The effective use of leadership has been shown to be influential, but there is a risk from a lack of long-term strategy and a lack of succession planning in key posts. The department may wish to examine these areas. The material structures within the department are acting as both scaffold and inhibitor. The departmental Athena SWAN structure itself, with the working group supported by strong administration, helps scaffold effective change, although there is risk from lack of continuity. The evidence from research groups is less consistent, showing that the high levels of power within research groups may inhibit change. Individuals derive much benefit from personal profitability, often derived from university policy, and this has scaffolded effective change. Dissemination of the benefits has not been as effective, and the materials, competences and meanings surrounding communication have not been fully developed as the change process has evolved. In this context, as well as others, the notion of the implementation staircase may be particularly applicable. Understanding of the goals and priorities of the intervention was inconsistent, both in terms of depth and of the different appreciations in different staff groups. Particularly as the Athena SWAN criteria expand to include professional support staff

more explicitly, the department may wish to consider how it addresses different needs in a segmented manner. The largest challenge is to address what one interviewee described as the 'big issues', that is the competition between practices of achieving world-leading research and of adapting the working environment to promote gender equality, better working practices and a better work-life balance. The data showed considerable tensions: at a high level, regarding potential for promotion and workload monitoring; at a lower level, the micro-aggressions associated with parking. In tension, these practices may inhibit effective change; resolution into collaboration might scaffold change, as comparator departments appear to have demonstrated. Where the overall initiative principles (in this case those of Athena SWAN) do not explicitly recognise such tensions, the work is more complex.

6.4.   Practice-as-entity

In Chapter 2, the model of social practice was described in terms of a practice-as-entity instantiated as practice-as-performance. In the context of this study, gender-related practice as formulated within the Athena SWAN principles (Table 2.4) as an entity, was explored as a management intervention in a particular instance, FenU's department. This was framed as a meso-level study of practice-as-performance, for the focus was not on the initiative at a macro policy level, as an entity, comparable for example, to the adoption of green energy alternatives by consumers, but rather on a constrained sub-organisation. Neither was the focus on the individual or micro level, except in so far as their views contributed to practice. Shove et al. suggest that the 'contours of any one practice depend on changing populations of more and (sic.) less faithful carriers' (Shove et al., 2012, p. 64), especially where participation in the practice 'is in any sense voluntary' (p. 69). The question is what features of a change in practice-as-performance can transfer through 'carriers' into entity and at

what level. Indeed, in the case of Athena SWAN the widespread availability of resources

(ECU, 2016) suggests that the sharing of 'good practice' is one means of carrying elements of

practice from one instance to another: such good practice ideas are often more

representative of empirical and actual ontological events, than the real level to which they

point. At the generic or macro level, it may be feasible to relocate more generic and

transferable elements of practice: transparent academic promotion criteria and the

application of maternity or parental leave policies are transportable, in theory at least. This

project has suggested that the characteristics of a generic initiative cannot be instantiated in

a finite locale without some form of domestication, that is a response to environmental

pressures on the local context, as indicated in Figure 5.2. Indeed, Shove et al. suggest that

carrying practice is transformative both of practitioners and practices (Shove et al., 2012, p.

73). Developing this idea, it suggests that the basic model of social practice used at the

outset (Figure 2.1) is too simplistic for use at the meso level with practice-as-performance

and that the more sophisticated models of Figures 5.2. and 5.3 are more applicable. Social

practice theory *is* relevant and appropriate to meso-level studies, but has to be applied

within context. The challenge is to attempt to draw distinctions between the characteristics

of a practice which constitute practice-as-entity and those which relate to practice-as-

performance. As has been indicated, the Athena SWAN principles can be seen as forming

part of the generic formulation for practice-as-entity in this instance, but controlling ideas

and meanings of power will be a function of local structures: arts departments in HEIs do not

tend to have research groups in the same way as science departments do, or the same

number, or proportion, of professional support staff. Therefore, there are limitations as to

the elements of the findings from this study which can be transferred or seen as part of

successful change in gender-related practice at the level of entity. It could be argued that

long-term strategy, effective leadership, resources and succession planning are all useful,

but *how* this is applied in other cases would be highly dependent upon environmental pressures. For another given department, the richness and applicability of these findings is found by understanding them within the local context of the department in this study and then using them to formulate questions within their own environment which seek to address their own concerns. These may be very similar, but, as has been described, vary considerably with discipline: many departments of nursing would need to consider the under-representation of men.

In summary, this study would seem to indicate that transference from practice-as-performance to practice-as-entity is non-trivial. The layered nature of practice elements, both ontologically and practically, the availability of resources, the impact of environmental factors, and power, complicate the process and constitute a filter through which practice-as-entity, and changes therein, emerges. If, as Watson suggests, 'practice theory is inherently about power, if power is seen as the capacity to act with effect' (Watson, 2017, p. 171), then the influence of power structures alone will refract ideas as they move from practice-as-performance to practice-as-entity.

6.5.   Future work

This study has demonstrated how ethnography can usefully be deployed to study change within a social practice model. It has been shown that the layered nature of reality and of organisations has significant impact on whether change is effective. Such change requires that any initiative is considered over all these dimensions, viewed from multiple perspectives, using tools such as the implementation staircase, and consolidated within long-term strategy. Section 5.4 introduced more sophisticated models for social practice, and for practice-as-performance in particular. One study which could follow on from this work would therefore be to test the models of Figures 5.2. and 5.3 in different contexts, with

a view to refining them. The undergirding theoretical framework of critical realism and the associated ethnographic methodology would also need testing. The problem of multiple (more than two) competing practices has not been addressed. University departments are subject to multiple initiatives and a study using the introduction of the Teaching Excellence Framework requirements could be instructive. In the case of Athena SWAN, the compensatory nature of the intervention could be explored within a wider practice, drawing in materials which are not explicit within the current Principles, such as financial resource allocation, the use of technology as an enabler, space and equipment usage, along with addressing issues of social networking. These all form important links between practices (Figure 5.3) and have not been explored significantly in this study. A new inquiry, with a remit broader than just the Athena SWAN principles, may have the potential to advance gender equality and work-life balance rather more, in the context of practices being seen as collaborative and not competing.

Ultimately, all models are just that: approximations which point towards a reality. The critical issue is to know the boundary conditions, where the models start to fail.

This study has also considered the power structures within the department. A lack of coherence has been demonstrated between the organisational, hierarchical structure and the power structure, with real power concentrated at lower levels with research group leaders. Whilst there are implications for how change can be delivered, a more interesting question for investigation might be to consider what the meaning of 'the department' comprises in research and teaching in the current environment, including the impact of managerialism. Previous work by Becher, Trowler and others (Section 2.3) may need updating in these times of interdisciplinary research, the power of the principal investigator, the establishment of more research institutes (physical and virtual) and internationalisation.

These ideas may therefore combine to begin to consider more detailed study of change initiatives and their impact at research group level, through an extended longitudinal study, group interviews and exercises, alongside individual interviews. This may reveal more of the nature of the power relations within groups and expose alternative views of effective change. There could be further implications for the practice and influence of managerialism in higher education at this lower level and throughout the implementation staircase. Alternatively, this current project has not pursued the research questions *up* the implementation staircase (Figure 2.2) to consideration of the influence of central university bodies, which could be construed as significant carriers of practice across the university and outside. These two studies would require more resource than has been available within this project, but would both add to the context of the current findings.

6.6.   Summary

Social practice theory can be construed in a number of different forms, as was outlined in Chapter 2. This study has illustrated that, within limits, social practice theory, supported by critical realist ontology, can provide the basis for useful study of change phenomena. Nevertheless, the simplifications inherent in models have been highlighted and the limitations of current definitions of social practice discussed. Issues of historicity, differential change over time and the impact of environmental factors all combine to influence change in practice-as-performance. Further, the layered nature of reality, organisations and power make the extraction of elements of practice-as-entity complex and challenging.

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Appendix 1

Raw Data Report

Some details and names have been changed to preserve anonymity.

Please state which <Unit> of the University you are employed in. (Select from drop-down list)				
#	**Answer**	**Bar**	**Response**	**%**
1	Life Sciences		12	2.60%
2	Medical Sciences		144	31.17%
3	Physical Sciences		139	30.09%
4	Technology		132	28.57%
5	other institution		35	7.58%
	Total		462	100.00%

Which level of Athena SWAN Award does your Department (or Faculty / Unit) hold?

#	Answer	Bar	Response	%
1	None		30	6.49%
2	Bronze		181	39.18%
3	Silver or Gold		133	28.79%
4	Don't know		118	25.54%
	Total		462	100.00%

Please state your gender

#	Answer	Bar	Response	%
1	Male		224	48.48%
2	Female		231	50.00%
3	Other		7	1.52%
	Total		462	100.00%

Which best represents your staff group and grade?
[Please choose the best fit. All Academic-related and assistant staff roles are coded under 'Professional Services Staff']

#	Answer	Bar	Response	%
1	Academic - Lecturer		28	6.06%
2	Academic - Senior Lecturer		8	1.73%
3	Academic - Reader		23	4.98%
4	Academic - Professor		50	10.82%
5	Research - Research Assistant (Grade 5)		31	6.71%
6	Research - Research Associate (Grade 7)		101	21.86%
7	Research - Senior Research Associate (Grade 9)		37	8.01%
8	Research - Principal Research Associate (Grade 11)		9	1.95%
9	Research - Director of Research (Grade 12)		2	0.43%
10	Professional Services Staff - Grade 1-4		33	7.14%
11	Professional Services Staff - Grade 5-7		91	19.70%
12	Professional Services Staff - Grade 8 and above		49	10.61%
	Total		462	100.00%

Have you been, or are you currently, a member of an Athena SWAN Self-Assessment Team in your Department?

#	Answer	Bar	Response	%
1	Yes		60	12.99%
2	No		402	87.01%
	Total		462	100.00%

Through which of these channels have you been made aware of the Athena SWAN scheme?

#	Question	Yes	No	Response	Average Value
1	National publications and news stories	84	263	347	1.76
2	Publications and initiatives from professional societies (e.g. Royal Society of Biology; Royal Society of Chemistry; Institute of Physics)	73	267	340	1.79
3	University publications, e-mails and news stories	303	65	368	1.18
4	E-mails and other communications from the Unit in which you work	307	66	373	1.18
5	Departmental reports and news stories (e.g. report on a Unit Staff Survey)	278	87	365	1.24
6	Formal updates on your department's Athena SWAN activities	246	119	365	1.33

How has your understanding of the purpose of the Athena SWAN scheme in your Department been changed by information received through each of these channels?

#	Question	Decreased understanding		No change		Increased understanding	Response	Average Value
1	National publications and news stories	4	5	146	21	28	204	3.31
2	Publications and initiatives from professional societies (e.g. Royal Society of Biology; Royal Society of Chemistry; Institute of Physics)	3	5	135	18	31	192	3.36
3	University publications, e-mails and news stories	7	7	136	85	104	339	3.80
4	Departmental reports and news stories (e.g. report on a Unit Staff Survey)	7	4	103	87	126	327	3.98
5	Formal updates on your department's Athena SWAN activities	4	6	113	58	130	311	3.98

Which of these documents have been provided to you, have you read and have you given feedback on?

#	Question	Provided only	Provided and read	Provided, read and given feedback	Not applicable	Response	Average Value
1	Your Department's Athena SWAN Submission	43	50	48	232	373	3.26
2	Your Department's Athena SWAN Action Plan	35	56	52	229	372	3.28
3	A summary of your Department's Athena SWAN activity	41	91	48	195	375	3.06

#	Question	1	2	3	4	5	Response	Average Value
	On a scale from 1 (low) to 5 (high), please rate the impact of these different leaders on the progress of your Department's Athena SWAN programme, as you understand it.							
1	Vice-Chancellor	45	12	16	10	13	96	2.31
2	Pro-Vice-Chancellor <>	45	11	20	8	12	96	2.28
3	Head of Unit	31	15	23	31	26	126	3.05
4	Central University Athena SWAN Committee	19	14	31	42	32	138	3.39
5	University Gender Equality Champions	20	18	41	42	29	150	3.28
6	University Equality and Diversity Section	16	19	40	39	41	155	3.45
7	Unit Gender Equality Network Champions	18	18	31	33	27	127	3.26
8	Head of Department	13	27	29	68	72	209	3.76
9	Chair of Department Athena SWAN Self-Assessment Team	11	8	19	42	87	167	4.11
10	Departmental Athena SWAN Self-Assessment Team	9	12	21	44	90	176	4.10
11	Departmental Administrator	17	25	40	48	63	193	3.60
12	Your line manager	42	20	35	32	39	168	3.04
13	Other team of staff in the Department, e.g. social committee	32	20	37	25	27	141	2.96

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				Department			
#	Question	Unaware	Aware	Aware and understand the need for action	Aware and believe no action required	Response	Average Value
1	Gender differences in student numbers	128	46	127	49	350	2.28
2	Gender differences in student attainment	176	39	96	37	348	1.98
3	Gender differences in Postgraduate numbers	128	62	112	47	349	2.22
4	Gender differences in researcher numbers	117	59	136	35	347	2.26
5	Gender differences in appointments to academic positions	95	47	190	18	350	2.37
6	Gender differences in promotions	145	34	131	37	347	2.17

Athena SWAN programmes are driven by data highlighting gender differences in populations at different career stages (postgraduate, post-doctoral researcher; tenured staff), in application rates for appointment and promotion and in student attainment.
Please rate your own awareness of these data at the levels of your own Department and of the University.

#	Question	Unaware	Aware	Aware and understand the need for action	Aware and believe no action required	Response	Average Value
	University						
1	Gender differences in student numbers	190	34	73	31	328	1.83
2	Gender differences in student attainment	213	34	58	22	327	1.66
3	Gender differences in Postgraduate numbers	203	34	63	26	326	1.73
4	Gender differences in researcher numbers	189	35	82	21	327	1.80
5	Gender differences in appointments to academic positions	152	37	128	12	329	2.00
6	Gender differences in promotions	168	34	113	13	328	1.91

#	Question	This does not happen in my department	This happens and I have benefited personally	This happens, but is not relevant to me	Don't know	Response	Average Value
1	Staff Review and Development	40	151	65	77	333	2.54
2	Career development events	60	80	108	90	338	2.67
3	Support for promotion	59	73	91	114	337	2.77
4	Equality and Diversity lectures	70	78	70	115	333	2.69
5	Equality and Diversity training	26	175	57	76	334	2.55
6	Use of an academic workload model	72	13	34	213	332	3.17
7	Advice on family-friendly working practices	64	57	82	134	337	2.85
8	Use of 'core hours' for meetings	64	90	58	125	337	2.72

Departmental Athena SWAN Action Plans and Programmes often look to hold events and training courses, and to improve the use of schemes such as Staff Review and Development (Appraisal). Please rate your experience of the following activities in your Department.

Which of these activities do you specifically associate with your Department's Athena SWAN programme?

#	Question	Yes	No	This does not happen in my department	Response	Average Value
1	Staff Review and Development	125	159	33	317	1.71
2	Career development events	118	145	51	314	1.79
3	Support for promotion	105	167	42	314	1.80
4	Equality and Diversity lectures	148	113	53	314	1.70
5	Equality and Diversity training	204	87	27	318	1.44
6	Use of an academic workload model	49	174	85	308	2.12
7	Advice on family-friendly or flexible working	135	124	54	313	1.74
8	Use of 'core hours' for meetings	130	127	54	311	1.76

#	Question	Unaware of policy	Aware of policy but it is not relevant me	Aware of policy and it is relevant to me	Aware of policy and I have personally benefited from it	Response	Average Value
	The University has a number of policies and practices which aim to improve the working environment for all, but women in particular. From your knowledge and experience, please rate the relevance to you of each one.						
1	Flexible working policy	80	120	56	75	331	2.38
2	Provision of childcare	91	167	48	24	330	2.02
3	Returning Carers Scheme	77	214	26	13	330	1.92
4	Shared Parental Leave policy	94	199	35	3	331	1.84
5	Nurseries Salary Sacrifice	99	162	28	42	331	2.04
6	Working from home policy	166	76	42	46	330	1.90

Departments are exposed to a wide range of initiatives and pressures from a range of external and internal agencies. Please rank the following in order, from the viewpoint of your perception of your Department's priorities. (1 = highest priority) (Drag each statement up or down to adjust the rank order.)

| #	Answer (Rank)	1	2	3	4	5	6	7	Responses	Mean
1	Research (RAE / REF)	236	35	9	2	2	1	0	285	1.25
2	Teaching (TEF)	15	114	69	32	26	15	14	285	3.14
3	Educational Outreach (Office for Fair Access)	1	12	53	51	65	70	33	285	4.79
4	Commercialisation of research and development of research impact	7	65	55	51	39	37	31	285	4.00
5	Improving the working environment and culture for all	15	24	39	47	53	51	56	285	4.67
6	Provision of new buildings	9	23	32	41	29	56	95	285	5.13
7	Athena SWAN	2	12	28	61	71	55	56	285	5.02
	Total	285	285	285	285	285	285	285	-	-

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To what extent do you agree with each of these statements?

#	Question	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Response	Average Value
1	Staff in my Department are aware of the Athena SWAN programme	19	28	49	156	77	329	3.74
2	Staff in my Department are committed to the Athena SWAN programme	20	33	141	112	22	328	3.25
3	The Athena SWAN programme is making a significant positive change to the working environment in the Department	33	48	155	71	22	329	3.00
4	Athena SWAN has had a positive effect on me personally	55	62	156	42	13	328	2.68

Appendix 2

Research Interview Protocol

Background theoretical ideas
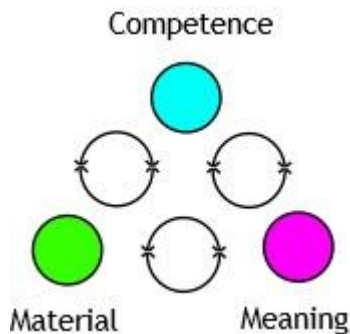
Empirical
Actual
Real
Enablers
Inhibitors
What is change like?
reflexive

1. Ethics / recording reiterate confidentiality
   Initiatives and how they become embedded
2. Opener
   a. Can you tell me a bit about your role, how long you have been in the Department?
   b. Can you tell a bit about what your involvement has been in Athena SWAN in the department?
   c. Can you tell me something of your experience has been of Athena SWAN?
3. AS in Dept
   a. How do you think the department has responded to AS?
   b. How would you describe any change to an outsider? Enablers / inhibitors
   c. Are there any symbols, practices or ideas that have appeared or changed?
   d. What do they mean to you / your group?
4. Survey data indicate
   a. Importance of HoD / SAT chair – your view? Who leads, how? Line managers – less significant?
   b. Issues – what do you see as main gender equality issues in Dept? Do others think likewise?
      (Numbers / pipelines / appointments / promotions) What helps / hinders?
      Does knowing about University issues influence your thinking?
   c. Practices. Survey indicates that FF policies, E&D training and core hours are associated with AS; SRD, training and workload less so. Why?
      - Group expectations
      - Leadership training
5. What else would you see as success as far as AS is concerned? What supports? What inhibits?
6. How committed do you think individuals/ groups / dept are?
   -What does this look like in practice?
    - street level bureaucracy; pseudo-acceptance