



The
University
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**“Faffing about”: Open Access, technology and researcher
engagement in the United Kingdom**

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“Ed Balls” (Balls, 2011)

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ABSTRACT

Open Access to research (OA) is of increasing importance, and while availability of outputs in OA is now at its highest, there seems to be a problem getting researchers to engage with it. This thesis therefore investigates researcher attitudes and behaviours concerning Open Access (OA) policies, processes and technologies, and also librarians' effectiveness when engaging researchers to participate in OA.

The study uses an interpretative qualitative methodology; using connective ethnography (Hine, 2007) to combine multiple data collection methods and research sites to understand complex work and technological environments. I collected data via interviews, online participant observation and the Visitors and Residents (Lanclos & White, 2014) model. I used a heterogeneous approach to sampling and 18 participants are represented in the study. The data were combined and analysed using thematic analysis.

My findings reveal that researchers who are not invested in Open Access as a topic in itself do not think of OA as a priority and were not interested in Green OA in particular. There is a fundamental mismatch between librarian and researcher professional attitudes towards OA and most researchers just see OA as another administrative requirement that is difficult, time-consuming and unimportant: "faff". Open Access policy has worked well in the UK in terms of increasing Open Access to research but very badly in terms of making researchers care about it more than other priorities and the library's Open Access systems are not designed for how most researchers work. Take away the policies and the high rates of compliance would disappear.

Not only is this study one of the first to substantially engage with *both* researcher and librarian responses to the UK's REF Open Access policy, it is also the first to understand where OA-related technologies fit in with the other tools and services used by academics and the first to try to understand academic attitudes and behaviours in their full context. The study brings a new methodology to LIS and scholarly communication research in Visitors and Residents and suggests developments to the model.

My main recommendation for practice is for librarians to consider changing systems, processes, workflows and language to engage with arts, humanities and social sciences academics more directly, for whom the drivers and benefits of OA and the systems around it are not as clear. The methods and insights of this study could be applied to other areas of Open Science policy and process implementation, which are less established.

DECLARATION

I, the author, confirm that the Thesis is my own work. I am aware of the University's Guidance on the Use of Unfair Means (www.sheffield.ac.uk/ssid/unfair-means). This work has not been previously presented for an award at this, or any other, university.

PUBLICATIONS ARISING FROM THESIS

- Andrews, P. C. S. (2020). The Platformization of Open. In *Reassembling Scholarly Communications: Histories, Infrastructures, and Global Politics of Open Access* (pp. 265–276). Massachusetts: The MIT Press.
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- Andrews, P. C. S. (2019). The compliant environment: conformity, data processing and increasing inequality in UK Higher Education. *Online Information Review*, 43(6), 1063–1079. <https://doi.org/10.1108/OIR-09-2018-0284>
- Andrews, P. C. S. (2018). “Putting It Together, That’s What Counts”: Data Foam, a Snowball and Researcher Evaluation. In P. Moore, M. Upchurch, & X. Whittaker (Eds.), *Humans and Machines at Work* (pp. 203–229). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-58232-0_9

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1. INTRODUCTION

1.1 CONTEXT

“Open access (OA) literature is digital, online, free of charge, and free of most copyright and licensing restrictions.” (Suber, 2012)

Open Access (OA) to academic research is simply defined (S. A. Lawson, 2019; Suber, 2012) and yet its interpretation and implementation is highly complex and contested. For readers, the benefits are simple: OA frees published research from the paywall (Rogers, 2017) that either completely blocks the reader from accessing the work or adds unnecessary friction to the process. It allows the reader to find, access, read and use – thanks to the removal of restrictions – the research they want and need (Eve, 2014) to do their work, engage in their interests, improve their health conditions and live their lives. The authors who publish that research are told that they can increase the audience, readership and citations (Archambault, Côté, Struck, & Voorons, 2016) and speed up their impact of their work by making it available OA.

However, policies, mandates, licences and permissions are much more difficult to explain, and the benefits of OA are not evenly distributed. In some disciplines authors usually publish in journal articles and conference papers and it is easy to see how the world would benefit from greater access to research that drives innovation in biomedical sciences and industry and improves knowledge and outcomes in healthcare and education. These outputs are relatively simple to store, preserve and disseminate. For other disciplines where physical books or artworks are the main outputs, often requiring image permissions or negotiations with trade publishers and organisations outside academia, it is more difficult and expensive. The benefits are also more difficult for researchers to perceive. The audiences for their work are not so easily found among the general public, funding is harder to find, and impact looks very different. These disciplines are more resistant to policies and open licences (Boshears, 2013) that take away their control over the rights in their work and make bureaucratic demands on their time.

SHERPA (Securing a Hybrid Environment for Research Preservation and Access) project was founded in 2002 by Stephen Pinfield. The project was set up to support OA institutional repositories in UK universities. 2002 was also the year that the Budapest Open Access Initiative (Budapest Open Access Initiative, 2002) made a public statement of principles relating to Open Access to research literature, seen by many as one of the defining events that established OA, and JISC (formerly the Joint Information Systems Committee) announced its FAIR Programme (Focus on Access to Institutional Resources) in the UK. The digital requirement of OA put technologies squarely at the heart of its implementation, from specific OA tools like institutional repositories (for collecting, preserving and disseminating outputs) to general purpose tools used to write, support and share research like email, social media

platforms, office software and journal websites. Many of the technical, cultural and managerial issues raised by SHERPA (MacColl & Stephen Pinfield, 2002) in 2002 in relation to OA takeup still have not been resolved in 2021.

Intermediaries such as librarians take on the role of promoting and administering OA and offering training on OA policies, processes and technologies but often researchers do not seem to be using these services or be aware that they exist. In the past, library roles were more focused on advocacy and support than policy compliance and managing OA funds. Academic libraries rely on statistics to prove the need for their services and staffing levels, which creates a looming problem. The “change advocates” of MacColl and Pinfield have been so successful in policy change that cultural change has fallen by the wayside. OA is booming in the UK but the library is invisible and the boom is driven almost entirely by policy.

The UK is in a special position in relation to the rest of the world when it comes to OA. Both the funding councils (collectively UKRI) and the quality-related funding allocated via the Research Excellence Framework (REF) have policies that require research to be made OA, with other funders maintaining their own OA mandates and policies. The UKRI policy was announced in 2012 and came into force in April 2013. The REF policy was announced in March 2014 and came into force in April 2016. Both policies are currently under review, but they are well established and compliance levels are high (Fraser, Hill, Snaith, & Taffs, 2018). These policies have put the UK well ahead of the rest of the world for the proportion of publications produced by the country that are OA (Robinson-Garcia, Costas, & van Leeuwen, 2020). The funder policies were preceded by over a decade of OA advocacy initiatives, institutional mandates and software projects that created the environment for monitoring and compliance with OA policy and discovery and promotion of OA outputs. Open Access can therefore be said to be mature in the UK. Many jobs, software tools and other resources have sprung up to support it. The conditions are present to achieve 100% OA to UK outputs, and yet this is not the case. All the infrastructure is in place and yet hearts and minds are not won.

All of this is happening in the context of changes in higher education, the role of technology in relation to business processes and the increasing use of private sector management and monitoring techniques in the professions. Open Access is often discussed in isolation, as if decisions are made in a vacuum, and the context I provide is vital for understanding researcher attitudes and behaviours. Context is, of course, constructed and contested (Seaver, 2015) – but I am transparent about the decisions I have made.

1.2 RESEARCH QUESTION

In this context, there remain unanswered questions about why 100% OA has not been achieved in the UK, how different disciplines experience the policies and technologies, how OA fits in to the bigger picture of academic lives and what the role really is for librarians in this context. This leads to my research question:

What are the attitudes and behaviours of researchers concerning Open Access policies, processes and technologies and what are the challenges and opportunities for librarians who want to engage with researchers effectively?

This breaks down into three separate questions:

1. What are the attitudes of researchers concerning Open Access policies, processes and technologies?
2. What are the behaviours of researchers concerning Open Access policies, processes and technologies?
3. What are the challenges and opportunities for librarians who want to engage with researchers effectively?

I am looking at these questions in the context of the complex academic, technological and professional landscape discussed above in order to understand the bigger picture for Open Access.

1.3 RESEARCH AIM

To describe the attitudes and behaviours of researchers concerning Open Access policies, processes and technologies and to investigate the challenges and opportunities for librarians who want to engage with researchers effectively.

1.4 RESEARCH OBJECTIVES

1. To investigate through discussion and observation how researcher attitudes and behaviours towards Open Access relate to each other.
2. To describe the technology context in which Open Access tools and services are situated
3. To understand the challenges and opportunities for librarians who want to effectively engage with researchers on Open Access

1.5 DELIVERING ON OBJECTIVES

The fieldwork for this study began in June 2017, just over a year after the REF 2021 Open Access (OA) policy (Research England, 2021) had come into force in April 2016. This situates the research in the middle of the census period for REF2021. My participants were researchers across a range of disciplines and career stages and librarians from different types of institution (research-focused, teaching-led and Oxbridge). My connective ethnography aimed to capture their attitudes and behaviours concerning OA and any conflicts between the two. I also asked participants about all the technologies they used in life and work in order to understand how OA tools fit in to this landscape.

1.6 INTENDED CONTRIBUTION

In this thesis, I aim to make empirical contributions related to the relationships between both researchers and librarians and researchers and technology, and a better understanding of the experiences of academics in relation to OA policy and practice. I also intend to make a methodological contribution, as the visual method I have used is new to the LIS discipline, and to make practical recommendations. The contribution is discussed in more detail in section 6.3.

1.7 DEFINING TERMS

This thesis explores a number of concepts that must be defined in order to reduce ambiguity. These are discussed in more detail in Section 2, the Literature Review.

- **Academic/Researcher:** used interchangeably but in this thesis, they are always employed in a UK higher education institution, while acknowledging that independent researchers and researchers employed in other contexts exist.
- **CRIS:** Current Research Information System. Otherwise known as a research information management system, a system that is used to store, manage and exchange metadata related to research activities and outputs. Often used as a front end for researchers depositing outputs in the IR.
- **Gold:** research outputs published as OA by an OA or hybrid (also publishes closed research) journal or book publisher, sometimes requiring the author to pay a charge to the publisher.
- **Gratis:** OA that removes the price barrier only (the most basic level described above).

- **Green:** research outputs published in closed access books or journals but made available OA via an institutional or subject repository or the author's website.
- **Institutional repository (IR):** a set of services that a university offers to members of its community for the management and dissemination of digital materials created by the institution and its community members such as journal articles, book chapters, full monographs, conference papers and dissertations.
- **Librarian:** a library worker, with or without a librarianship qualification or a job title containing "librarian" or "library", employed by a UK higher education institution in a role related to Open Access.
- **Libre:** OA that also removes other restrictions such as copyright and licensing.
- **Open Access (OA):** at its most basic level, research that is (permanently) free to read online and download without limitations. Some only consider it to be true OA if other copyright and licensing restrictions are lifted.
- **REF:** Research Excellence Framework. The main research assessment exercise in the UK, which is used in determining the dissemination of "quality-related" funding from the government to universities.
- **Subject repository:** as IR but offered by a subject, discipline or subdiscipline.
- **System:** a software application or set of applications designed to work together.
- **Technology:** used as an umbrella term for tools, systems and services, mostly digital but sometimes analogue in the case of e.g. a physical notebook. A librarian can also be a technology.
- **Tool:** a discrete software application.

1.8 STRUCTURE OF THESIS

This thesis opens with a thorough review of the literature (chapter 2), before detailing the methodology for this study and ethical concerns (chapter 3). I then go on to present my findings (chapter 4), before discussing the significance of my analysis of my data (chapter 5). I conclude with my contributions to knowledge, methodology and practice and my recommendations for future research (chapter 6).

1.9 CHAPTER OVERVIEW

This chapter has introduced the thesis with an overview of the context from which the research question emerged and the period in which I carried out my fieldwork. I

then shared the research question and the aims and objectives arising from it, before briefly explaining the structure of the thesis as a whole. This naturally leads to Chapter 2, the Literature Review, which explores the context for the research and where I situate this study in more detail.

2. LITERATURE REVIEW

2.1 CHAPTER INTRODUCTION

This chapter critically examines and discusses literature on the topics of Open Access (OA), the infrastructures and policies that support it. It also introduces my participant groups: academics and librarians. First, I define openness and other relevant concepts. I go on to discuss issues around policy, platforms and professional identity. I draw from a range of disciplinary and interdisciplinary sources to provide much needed context on UK academia and academic librarianship. I finish with an introduction to the theoretical concepts that have informed my thinking, which I also use in the Discussion chapter.

I present a wide range of literatures, aiming to give a rich understanding of the context in which researcher and librarian attitudes and behaviours have developed. From research assessment, managerial trends and changes in professional status of librarians to academic precarity and the big debates in Open Access and scholarly communication – all these major themes informed my interview questions and choice of methods. I chose to include background on technology development because historical decisions have shaped researcher and senior management attitudes towards the services that support OA policy and processes and therefore the policies and processes themselves. The theory helped me to see participants as more than just social actors in the systems of UK higher education and OA policy implementation. They are part of the infrastructure, intimately connected to the services and technologies they choose and are compelled to use.

Quotations are used liberally throughout this review, as are grey literature sources, trade magazine articles, websites and social media posts. This is a fast-moving field, which takes some time to be reflected in the peer-reviewed literature.

2.2 OPENNESS

Open Access to research outputs is most commonly defined with reference to the Budapest Open Access Initiative's statement:

“Free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity

of their work and the right to be properly acknowledged and cited."
(Budapest Open Access Initiative, 2002)

This definition covers both the freedom from paying for access, which most researchers agree with, and the freedom from other restrictions around reuse and repurposing, which is more contentious as many researchers would prefer to have more control over what happens to their work. There is a spectrum of options for OA, ranging from "gratis", where only price barriers are removed, to variations of "libre", where additionally some permission barriers are removed (Suber, 2008). In the case of the Green route to OA, the access provided is usually gratis rather than libre, as sharing of outputs is usually dependent on permission from the original publisher (Björk, Laakso, & Welling, 2013). In the case of the Gold route, the access may be either gratis or libre and a range of Creative Commons licences are used which leads to a great variety in the permissions available to the reader. The terms "gratis" and "libre" were borrowed from Free and Open Source Software (FOSS), which is not without issues due to what Boshears (2013) calls "a parasitical arrangement" between intellectual property law and software engineers: FOSS software development is motivated by either service to the community (thereby increasing the developer's reputation) or service to the developer's future career (to build a portfolio for seeking future work). Outside of institutional and funder OA policies, arguments for OA and Open approaches to research are similarly either moral (Kowal et al., 2014) – Open is a public good, sharing research is a service to the community (Scherlen & Robinson, 2008) – or instrumentalist (Kansa, 2014), where being Open benefits the individual researcher and their career (McKiernan et al., 2016).

"Open access to scientific information started at the grassroots, with projects and initiatives to adopt the new Internet and Web technologies to satisfy some of the scientists' interests and needs, such as rapid and direct communication of selected (reviewed) content, large access, preservation and retrieval. 25 years later, the key drivers of the open access movement are no longer the scientists themselves but research managers, publishers, information professionals and politicians." (Schöpfel, 2015, 2016)

It could be argued that from its roots in the grassroots initiatives Schöpfel talks about and radical change (Cahill & Irving, 2015; Delfanti & Nico Pitrelli, 2015; Neylon & Poynder, 2013; Veletsianos & Kimmons, 2012a), OA has become domesticated into a comfortable role within the capitalist economy it sought to disrupt (Bates, 2013; Pinfield, 2015) and is now beset by bureaucratic obligations (S. A. Moore, 2019). Some critics of Open believe that OA is a distraction from wider issues of accessibility, such as poor writing and insufficiently selective publishing (Osborne, 2015).

Implementation of Open Access has been traditionally discussed in relation to the "two routes" to Open Access (OA): Gold (OA publication in journals) and Green (deposit in OA repositories) (R. Johnson, Pinfield, & Fosci, 2015; Pinfield, 2015).

Some scholars (Baruch, Ghobadian, & Özbilgin, 2013) argue that a commitment to Green OA can restrict publishing venue due to copyright restrictions and factors other than cost and ease of access to research are more important to usage: such as modes of dissemination, information literacy and the gap between academia and industry concerns. It is dependent for its content on the continued existence of academic publishers and publisher policies that allow author deposit. A recent study of the past 12 years of green OA shows that the SHERPA colour coding that was intended to indicate the level of publisher commitment to green OA is no longer as meaningful (Gadd & Troll Covey, 2019) and publishers continue to increase restrictions and embargoes on green OA and article processing charges for gold OA.

The literature shows that there are many different approaches to openness; some of which are in conflict with each other, and some complement each other. These approaches often reflect the context in which the actor finds themselves. In this study, “plural” refers to perspectives of reality, whereas “multiple” refers to performance or enactment of reality (Mol, 1999). Plural perspectives can exist of the same single, unchanging, object when viewed by different people. “Enactment” of reality explains how reality is not just experienced from different angles or by different observers but is fragmented and can present differently in different sites. A disease can present in multiple forms in the same body or several different bodies and still be recognised as the same disease. Similarly, the same person can experience the reality of openness in different forms in different circumstances.

As Mol (1999) says, *“if realities-performed are multiple this is not a matter of pluralism. What ‘multiplicity’ entails instead is that, while realities may clash at some points, elsewhere the various performances of an object may collaborate and even depend on one another.”* The different ways academics do open can conflict, complement or depend on each other (for example the reuse of models, code or data) and are highly contextual. They are not merely a set of different options, and the tensions for academics between what they want to do, what their colleagues would like them to do, what the system demands of them and what their principles allow are very real.

Definitions of openness in research sharing may be plural and contradictory, as different people mean different things by the term (Corrall & Pinfield, 2014; Pomerantz & Peek, 2016) (“plural”) but various practices of openness may coexist or include each other or follow each other in sequence (“multiple”). A researcher’s perspective on openness in research may be consistent over time, but they may perform openness differently depending on the context: for example, they may insist on all their articles being OA and legitimately consider themselves to be an open practitioner (Weller, 2014), but restrict access to their research data for reasons of research ethics. This is a form of enclosure, but for reasons other than profit or gatekeeping.

2.2.1 THE DOMINANCE OF SCIENCE IN OPEN RESEARCH

While some would offer “collaboration” as a key tenet of Open Science (Crawford, 2011), the idea that “anyone can join” Open Science (Friesike & Schildhauer, 2015, pp. 280–281) may not always be borne out in practice. In the case of ArXiv; researchers without proof of institutional affiliation must be recommended by someone already on the platform (Ritson, 2016) and research submitted to ArXiv is also filtered by moderators (Pinfield, 2004; Reyes-Galindo, 2016), leading to exclusions of authors for not meeting their definition of on-topic or “active researcher” (Cartwright, 2009; Cornell University Library, 2012; Gibbs, 2013), although these barriers can be seen to be low and easy to circumvent. Scientists have made disparaging reference to outsiders as “crackpots” (Ginsparg, 1994; Reyes-Galindo, 2016; Ritson, 2016). The norms of science are not the norms of all research disciplines (Biglan, 1973), but scientists receive the most funding, government support and popular interest in their work and dominate the Open Access discourse (Cruickshank, 2016; Eve, 2015; Finch Group, 2012; Watson, 2012) and infrastructure developments (Jamali, Nicholas, & Herman, 2015).

“Like any person, researchers are accustomed to semantics: not noticed as such most of the time, semantics become visible only when contested.” (N. Schmidt, 2016)

Despite protestations that “science” is being used to cover all disciplines, in the manner of Weber’s use of the German word “Wissenschaft” (Halewood, 2014, pp. 91–110), in English-speaking countries “Open Science” suggests in theory (and often in practice) the exclusion of non-scientific disciplines (Fecher & Friesike, 2014; Sidler, 2014). Science-as-catchall-term reflects the way that the natural sciences have been used as a mechanism for setting norms and judging other disciplines and practices (Fuller, 1999) - described memorably by Bourdieu (2000, p. 110) as “the monopoly of scientific authority, in which technical competence and symbolic power are inextricably combined”. Additionally, there has been limited consideration for the ethics and practices of qualitative and arts-based fields when demanding that data must be shared openly (Borgman, 2009; Childs, McLeod, Lomas, & Cook, 2014; Eisner, 1981; Kowal et al., 2014).

“The realists did not consider the possibility that the same corrosion might be eating away at both language and science at the same time, although science gave less indication of this fact.” (Boyle, 1985)

Boyle rejected essentialist views of language and disciplines while critiquing both rationalist and irrationalist views of the world as a false dichotomy. He warned that essentialism, like many big totalising theories, dismisses some forms of knowledge as irrelevant or irrational and that this has political, social and cultural consequences. The sometimes accidental positioning of science as rational and authoritative and other academic fields as somehow irrational,

emotional and less important pushes a false two (Collini, 2017, pp. 222–230; Zelizer, 2016) or three cultures (Sala, 2013) narrative that makes it difficult to accept a more inclusive definition of “Open Science” without changes in approach, infrastructure and terminology (Sidler, 2014).

2.3 INFRASTRUCTURE OF TOOLS AND PLATFORMS TO SUPPORT OPENNESS

Infrastructures, as discussed in the Introduction, both shape and are shaped by work practices. The organisations that control infrastructures have agency to a greater or lesser extent too, and both institutions and publishers as mediators and gatekeepers have a choice over how they respond to the challenges of the rapidly developing scholarly communication landscape. The ever-increasing range of new platforms and tools related to OA during a big growth period for scholarly communication have driven both in-house innovation and acquisitions of some of these tools by big academic publishers (Lagoze, Edwards, Sandvig, & Plantin, 2015). Failures in the existing systems are exposed by attractive new options. However, perhaps failure is necessary for innovation to thrive.

2.3.1 PLATFORMS AND PLATFORMISATION

Bogost and Monfort (2009) defined a platform in the context of Platform Studies: “A *platform is a computing system of any sort upon which further computing development can be done. It can be implemented entirely in hardware, entirely in software (which runs on any of several hardware platforms), or in some combination of the two.*”

Historically, in Platform Studies the focus was on the relationships between hardware and software design of platforms and the creative content produced on or for those platforms, predominantly video games, virtual worlds and experiments in art, literature and music.

“We define internal (company or product) platforms as a set of assets organized in a common structure from which a company can efficiently develop and produce a stream of derivative products...We define external (industry) platforms as products, services, or technologies that are similar in some ways to the former but provide the foundation upon which outside firms (organized as a “business ecosystem”) can develop their own complementary products, technologies, or service.” (Gawer, 2014)

This definition from Business and Management Studies is high level, and there is more detail in the literature about different types of platforms within the external

platform category, dependent on the number of sides in a market and how the company acts as an intermediary (Gawer, 2015; Hagiwara & Wright, 2015; Mansell, 2014, 2015).

“Platforms are platforms not necessarily because they allow code to be written or run, but because they afford an opportunity to communicate, interact, or sell.” (Gillespie, 2010)

Gillespie engages with the ambiguity of the word “platform” and the way it is used in architecture, figurative speech, politics and computing – the latter corresponding with the platform studies definition – as well as business, to the point where now it is used to mean any computational service, but particularly SNS. SNS platforms now incorporate most of the previous definitions, including giving people and companies “a platform” in the figurative and political sense as well as the infrastructure through which they can sell products and services, share data, and content express themselves and connect with other people.

Again, there is more than one definition of platformisation. In business, it is generally used to describe a company transitioning from a business selling products to one managing direct transactions between two or more actors (Altman & Tripsas, 2015) in a platform-mediated network (Eisenmann, Parker, & Van Alstyne, 2008), for example Amazon’s evolution from directly selling products to enabling third party sellers to use its platform and logistics network. In media and communications, it is increasingly being used to describe the process of making the data on the web compatible with social media platforms and their extension into external web and app contexts (Helmond, 2015).

It can be argued that research sharing infrastructures are engaging with all these senses of platforms and platformisation, with academic SNS being seen as “reputational platforms” (Jamali et al., 2015) and mediating both connections between researchers and the sharing of research content and information. The biggest players in academic publishing and new sharing infrastructures are also building suites of products based on data sharing and acting as intermediaries between libraries, universities, researchers and the public – and platforms rarely have open and transparent governance (W. Clark, Couldry, MacDonald, & Stephansen, 2015; Mancini & Vis, 2015). They can also remove data as it suits them (DeNardis & Hackl, 2015; Gillespie, 2015; Owens, 2014; Pasquale, 2016; Weller, 2014).

French critics (Proulx, 2015) devised the term “GAFA” to describe the oligopoly of big American technology companies –Google (now Alphabet), Apple, Facebook and Amazon - behind the ubiquitous infrastructure behind most of the devices and software used in the world today (Rachman, 2015). Similarly “Death Star Platforms” (Gorenflo, 2015b, 2015a) is an expression that critiques powerful platforms

operating within the “sharing economy” (Bucher, Fieseler, & Lutz, 2016) such as Uber and AirBnB, named after the main enemy spaceship in the Star Wars franchise.

“They [Death Star Platforms] mix technology, ideology, design, public relations, community organizing, and lobbying in a powerful new formulation that’s conquering cities and users around the world. They wrap themselves in the cloak of technological progress, free market inevitability, and even common good.” (E. Roberts, 2015)

While there are many publishers, small and large, operating within academic publishing, the majority of journal articles are published by a handful of companies, who have been described collectively as an oligopoly (Beverungen, Bohm, & Land, 2012; Larivière, Haustein, & Mongeon, 2015b). The ongoing policy of acquisition of platforms and services by the biggest academic publishers has been described (Peekhaus, 2009, 2012) as an “enclosing strategy” and form of primitive accumulation. As Worlock (2016) says:

"In a marketplace now unclothed of its aspirational scholarly lineaments and more nakedly directed by reputation management on the input side, and discoverability and relevance on the output side, the real competitor is not other publishers, but the market itself, its readiness to create co-operative institutions by scholars for scholars, and its willingness to allow Elsevier to co-invest and create margins."

The institutional repository (IR) as a technical platform and set of services has become infrastructural to OA. Even as gold OA grows, the IR is still arguably vital to the REF policy and for long-term preservation of the university’s outputs. That is why who owns and operates the software is vital.

“By definition, infrastructure is an example of what Ivan Illich called a radical monopoly: a situation in which the ubiquity of a tool or service is so great that its use becomes compulsory, thus creating social control through design.” (Lukens, 2013)

It could be argued that the IR is a radical monopoly, in that the majority of higher education institutions in the UK either have their own or a shared service with other organisations. However, unlike the platforms and services provided by publishers, without which researchers would find it difficult to research and disseminate their ideas, their use is far from ubiquitous or compulsory. These academic publishers have redefined themselves: “Elsevier is becoming more of a tools-and-services company rather than a publisher” (Foeckler in Young, 2016) In occupying more and more of the scholarly communication environment, the major publisher is able to exert more control over the sector and capture more data from research and researchers: “The parasite gets power less because he occupies the center than because he fills the environment.” (Serres, 1982)

Elsevier in particular has been heavily criticised (Brienza, 2012; Field, 2016; Fiormonte & Priego, 2016) and even called “the enemy of open knowledge” (Gowder, 2016)– which would make it a kind of “Death Star” in the eyes of some of its critics. The company appears to be moving towards a type of vertical integration in research and research support, developing from a primarily content-based business to playing a larger role in the research ecology (Young, 2016). As one of the key characteristics of platformisation is a move from products to an interdependency of products and services (Gawer, 2015; Gawer & Cusumano, 2014; Gilbert & Goffey, 2015; Kenny & Zysman, 2016), their direction of travel is clear. The change in business model is understandable from the perspective of the publisher, as platformisation is the direction of travel of the wider internet and indeed the economy (W. Clark et al., 2015; Gillespie, 2010; Mansell, 2015; Morozov, 2015; G. G. Parker, Van Alstyne, & Choudary, 2016). Vertical integration, progressing to multisided platformisation involving other parts of the research ecosystem (Hagiu, 2014; Hagiu & Wright, 2015) is the only realistic way to increase profits (Skorup & Thierer, 2012) as library budgets shrink and librarians cancel subscriptions (Kingsley & Kennan, 2015; Wenzler, 2017). Librarians dislike Elsevier and SpringerNature for their high costs and ubiquity, even if most academics prioritise the prestige of publishers over critique of their business practices (Harley, Acord, Earl-Novell, Lawrence, & King, 2010a) or supporting the institutional repository (Plutchak, 2015).

Librarians and Open Access advocates have been criticised for the tone of the debate around academic publishing and research sharing (Anderson, 2014; Goodman, Ratner, Tananbaum, Vaughn, & Plutchak, 2014; Plutchak & Kaplan, 2016; Shearer, 2020) and their words have been met by publisher statements of value (Ferguson et al., 2020; Matthews, 2016b; Meadows, 2016; Page, 2016) – creating an ever-more defensive stalemate situation (Eve, 2013). Publishers market themselves to academics as essential infrastructure: “Elsevier is contributing to building and maintaining this vital infrastructure so researchers and institutions can enjoy its benefits without even noticing it” (Wise, Falk-Krzesinski, & Tempest, 2016).

In May 2016, Elsevier acquired the privately-owned social science preprint platform SSRN, leading to criticism from librarians (B. Butler & Ramsey, 2016) and researchers (Authors Alliance, 2016a, 2016b; Gowder, 2016; Matthews, 2016a) alike. In July 2016, Blogger Richard Poynder revealed in July 2016 that the Federal Trade Commission in the US had launched a review of the SSRN purchase. According to Poynder, who confirmed when asked that information about this review was restricted to private emails and conversations, “The FTC is currently contacting many institutions and experts in scholarly publishing to assess the implications of the acquisition, presumably in order to decide whether it needs to intervene in some way” (Poynder, 2016). In the comments of the same blog post, Tom Reller of Elsevier claimed on 1 August 2016 that the investigation had closed with no further action.

If Zuboff (2015) is correct and the current logic of capital accumulation is “surveillance capitalism”, the biggest commercial players in academic publishing and research sharing are already involved in researcher monitoring or surveillance via the data journey (Bates, Goodale, Lin, & Andrews, 2019; Bates, Lin, & Goodale, 2016) through the profiles, linkages, data intersections and metadata (Beer & Burrows, 2013) managed and controlled via their products and services. The publishing giants provide a full range of these to researchers and libraries and institutions, including citation analysis products (D. Butler, 2016; Harzing & Alakangas, 2016), CRIS (Clements & McCutcheon, 2014), researcher identification systems and analytics (Elsevier, 2014; Ware & Mabe, 2015; Yu, Wu, Alhalabi, Kao, & Wu, 2016), PDF and reference management services (Manoff, 2015), research data management (European Union, 2016) and other researcher tools such as profile services and research notebook software (M. Banks, 2016; Boersma & Tavner, 2016; Cutler, 2012; Hoey, 2015; Martín-Martín, Orduna-Malea, Ayllón, & Delgado López-Cózar, 2016; Nicholas, Clark, & Herman, 2016; Parker-Gibson, 2015; M. E. Smith, 2016). The real threat may not be publisher control of research outputs, but of workflows and data flows, which are far more difficult for either researchers or librarians to ethically disrupt. These big publishers are present at every point of the research process, transforming constantly to retain relevance and control: "Metamorphosis is omnipotence. It occupies space by crossing black boxes; it occupies time by transformations. No, it is not that; yes, it is always that." (Serres, 1982)

Elsevier are also part of the Snowball Metrics initiative (Green, 2014; Wilsdon et al., 2015) used by some institutions in benchmarking university outcomes (Jump, 2014), monitoring researcher productivity and informing academic recruitment decisions (Dresbeck, 2015). In some cases, Snowball Metrics are linked directly to the CRIS (Clements, Darroch, & Green, 2016) and Elsevier have lobbied the UK government in the hope of becoming the preferred supplier of metrics for future research assessment exercises (Eve, 2016a; Wilsdon et al., 2015). The Elsevier product Scopus is already used for the Times Higher Education world university rankings, despite its poor reporting of research outputs other than journal articles and conference papers and thus marginalisation of arts, humanities and social science work (THE reporters, 2016). Elsevier, SpringerNature and their competitors, know that ownership of data flows (Baker & Millerand, 2007; K. Ball, Di Domenico, & Nunan, 2016; Helmond, 2015; van Dijck, 2015) is valuable. In August 2016 another large publisher, Wiley, acquired the publishing software company Atypon (Wiley, 2016) who provide the hosting platforms and analytics services used by their rivals SAGE (SAGE, 2016) and Taylor & Francis (Atypon, 2016). Academic publishing is no longer primarily a “content” business (Lovink & Rossiter, 2005), it is a data business and academics have little say in the matter:

“The data is not available to the people or institutions or disciplines it purports to measure. It cannot be contested, it cannot be re-analyzed, it

cannot be investigated, it cannot be downloaded. It just has to be trusted
(Kelty, 2016)

Researchers engaging with open research sharing have to relinquish control over how and by whom data related to their identity (Jefferies, 2016) and their research workflow is circulated (Beer, 2013) at some point, be it to the institution, academic SNS, their funder, the State etc. However, when one supplier controls or has access to most of the data flows, individual pieces of information can be combined in ways that are harmful to the individual, their community or both (Bossewitch & Sinnreich, 2012; Leszczynski, 2015; van Dijck, 2014; van Dijck & Poell, 2016).

2.3.2 THE DIGITAL POSSESSIVE AND ACADEMIA

Possessive individualism, where every individual is a self-interested and competitive “proprietor” of their skills, owing nothing to society, is the prevailing attitude of people in a “marketised” society - according to Macpherson (1962), who defined the term, and others writing about the modern era confirm his view (Garrod, 2016; Gilbert, 2013; Hayles, 2005; Seignani, 2012)). The “digital possessive” (E. Gordon, 2014) - where digital networks are material objects and those objects are ordered within personal interfaces - can be seen in online profiles, which are an externalisation of a person’s subjectivity, experiences and networks (Boyd, 2012; Boyd & Ellison, 2011). Academic SNS and some of the features of institutional and commercial research software can be seen to support this new “possessive” profile and network norm, in a marketised higher education environment (R. Hall, 2015). The digital possessive and possessive individualism come together not only in research sharing infrastructures, such as the rebadging of the University of Sheffield’s implementation of the Symplectic CRIS as “MyPublications”, but in attitudes to academic entrepreneurship (Giroux, 2013; Ozga, 1998; M. A. Peters, 2001; Winn, 2013), knowledge production (Olssen, 2016) and the power of having access to and being able to disseminate knowledge online (Cottey, 2010, 2014). Some researchers perform various forms of “Open” as a way of furthering their own careers, encouraged by this academic entrepreneurial turn:

“Some researchers, however, are trapped in a social dilemma situation: they consider putting the idea of open science into practice to be an endeavour that comes with a series of additional difficulties for themselves even though they are aware that overcoming those difficulties is in the collective interest of the scientific community. A few researchers indicate approaches to resolve the social dilemma situation by seeing personal profit in engaging in open science activities and thereby having the motivation to overcome the difficulties of putting open science into practice.” (Scheliga & Friesike, 2014)

Academic researchers differ from many other workers engaged in research and development activity, in that while their work may officially be “work for hire”, academic convention has it that the university waives its copyright claim and returns it to the researcher (Kelty, 2014; Wesolek & Royster, 2015). Before the Stern Review (Stern, 2016) recommendations on the non-portability of research outputs were implemented (REF 2021 Steering Group, 2019), the institution where the researcher works at the time of the REF census could claim their output, rather their employer at the time of acceptance or publication, which gave researchers with publications in hand a “bargaining chip” when looking to be hired or promoted by an institution. For REF2021, both employers could submit the output to the REF and future exercises will only allow the employer at time of acceptance to do so. The former policy of portability allowed most UK academics to believe that research outputs belong to the individual researcher – not the institution or the public. They are “theirs” to share. This is not necessarily how these outputs or metrics around them are seen by senior managers:

“On the one hand, the network form is nonhierarchical, reinforcing the image of academic independence where everyone is engaged in cognitive labour. On the other hand, a new dependency arises in the fluidity of the network university when data on institutional-level research performance is processed and used by upper-level administrators to manage lower-level faculty-administrators.” (Hanke, 2016)

2.3.3 ALTERNATIVE APPROACHES TO INFRASTRUCTURE

Any move to create a large-scale academically-owned alternative to ASNSs (Adema, 2016; G. Hall, 2015) and other for-profit platforms could be problematic in itself and leave elite institutions open to accusations of becoming “Death Stars” themselves by accumulating yet more funding, control and lobbying power over the sector (Denskus, 2015). Good governance and participation from a diverse range of scholars are key to open infrastructure (Berners-Lee et al., 2006; Bilder, Lin, & Neylon, 2015; Buckingham Shum et al., 2012; Chilvers, 2012; Macias Vazquez & Alonso Gonzalez, 2015; Neylon, 2016; A. Whyte & Pryor, 2011).

“...with old, traditional libraries and institutions calling the shots and, to be very blunt: being paid well by the European taxpayer. There is a diffuse ‘but this will benefit all of us’ logic involved, but it will primarily be used to build the reputation and prestige of those actors closely involved in the creation of the network” (Denskus, 2015)

The preprint server ArXiv was founded by a researcher, Paul Ginsparg (Ginsparg, 1994), who did not originally envisage the site as anything other than an online replacement for the extant paper-preprint sharing infrastructure (Pinfield, 2004). It

was not an alternative to institutional, publisher or commercial platforms, although OA activists soon came to see it that way (Lagoze et al., 2015). The development of the infrastructure was driven by the existing information-sharing and technology practices of the high-energy physics community (Schöpfel, 2015), but its financial sustainability remains a problem despite being the venue of choice for Physics, hosted by a large research library (Cornell) and developing new funding streams (Pinfield, 2015).

Following the ArXiv model, SocArXiv was launched as a researcher-led alternative to social science preprint server SSRN (Cohen, 2016), which is also being hosted by a university library (Maryland) and has a steering committee comprised of sociologists and librarians, which suggests that thought has been given to governance. However, it was used as a “test case” for Open Science Framework’s new preprint infrastructure (Peet, 2016; Poynder, 2016), which OSF went on to launch as a branded product for different interest groups, and again sustainability may become an issue if longer term funding is not found.

Sustainability, both financial and technical, has always been among the biggest issues for information infrastructures (Bowker, Baker, Millerand, & Ribes, 2010), and research infrastructures in particular (Ribes & Finholt, 2009). With this in mind, researchers like Martin Eve and Caroline Edwards and the particle physicists behind SCOAP3 (Lagoze et al., 2015) have decided to move away from trying to operate outside of formal academic publishing and seek sustainable ways of “flipping” existing journals from subscription to gold OA, funded by a consortium of libraries with sustainable financial planning (Buckingham Shum et al., 2012; Eve, 2016b; Finch Group, 2012; Ware & Mabe, 2015). Researchers have always edited journals and/or run small-scale publishing and sharing infrastructure, but not attempted wresting control of existing journals and presses from the legacy publishers as Eve and Edwards’ Open Library for the Humanities (OLH) have with prestigious linguistics journal *Lingua* – reopening at OLH as *Glossa* (Ingram, 2015).

2.4 ACADEMICS

Professionalism can be used by researchers as a means of occupational control – to promote the changes they wish to see in academia without managerial interference (Freidson, 2001, p. 5; Noordegraaf, 2007; Kevin Williams, 2008). An example of this is the Haldane Principle, the idea that decisions about research funding should be made by researchers not politicians (Department for Business Innovation & Skills, 2015; Edgerton, 2009; Watson, 2012; Wilsdon et al., 2015). The boundaries erected around disciplines are also a form of professionalism, to keep out amateurs and interdisciplinary work that may reduce the importance of specificity (A. Bruce, 2010; Fuller, 2013, 2016; Fuller & Neary, 2016; Rubinstein, 2005) but also to protect the importance of the work being done (Eve, 2020).

The Humboldtian ideal of the university is based on “Lernfreiheit” (freedom to learn) and “Lehrfreiheit” (freedom to teach) – a university funded by the State, combining a unity of teaching and research, a unity of science and humanities with scholarship and a preference for a process of inquiry over employment training with a high level of freedom for both students and academics and security of tenure for the latter. It has been described as a myth with many authors, that never truly applied in Europe (Ash, 2006), and Fuller and Neary (Fuller & Neary, 2016) point out that the Germans were just trying to use the modern research university to catch up economically with the rest of Europe, but it is this model to which many scholars refer when speaking of the managerialism and marketisation of the university and the tension between the institution’s values and their own (Besley & Peters, 2009; Bleiklie & Henkel, 2005; Drainville, 2015; Lone, Riege, Bjørklund, Hoff, & Bjørkli, 2015; Miller, 2014; Vonderau, 2015; Ylijoki, 2014).

According to Marginson (2011), as with information, Higher Education was originally deemed to be a “public good” on the basis that it was non-rivalrous (not depleted by consumption) and non-excludable (the benefits are not only available to individual consumers) – in short, the knowledge and information produced by higher education were universally available, directly or indirectly, to all in society. Originally government policies and funding supported this key function of universities, but over the past fifty years the meaning of “public good” has been reduced to the social and economic benefits of an educated society, particularly in relation to the employability of individuals (Allen, Quinn, Hollingworth, & Rose, 2013; Ash, 2006; Cannizzo, Mauri, & Osbaldiston, 2019; Pitt & Mewburn, 2016; Szelényi & Bresonis, 2014; Wånggren, 2018). The public good has been reduced to private goods, and the burden of financing higher education has shifted accordingly. Some researchers now feel that they are part of a privatised, marginalised structure (Cribb & Gewirtz, 2013; Giroux, 2002, 2013; S. Hall & O’Shea, 2013; Lynch, 2014; K. Peters & Turner, 2014; Willson & Julien, 2020).

2.4.1 ACADEMIC FREEDOM

According to the Education Reform Act 1988, “academic staff have freedom within the law to question and test received wisdom, and to put forward new ideas and controversial or unpopular opinions, without placing themselves in jeopardy of losing their jobs or privileges they may have at their institutions.” This description also forms the basis of the UCU position on academic freedom (Karran & Mallinson, 2017; UCU, 2012) and is similar to the definition given by Berdahl (1990). However, in Henkel’s (2005) study, while academic staff spoke about “academic freedom” more than any other value, it had a variety of meanings for participants, from autonomy in the pursuit of a research agenda to quality of life, work-life balance and individual freedom as a necessary function of academic control of teaching and

research. Some academics have used “academic freedom” more recently to defend views they hold and frequently espouse in private life, mainstream media and trade books, however offensive and harmful they may be to minoritised staff and students and in conflict with the UK’s Equality Act (Horbury & Yao, 2020; Pearce, 2020; Pearce, Erikainen, & Vincent, 2020; Popowich, 2020). There are tensions over who “owns” the university, with researchers combating discourse around business partnerships, the right to speak freely in the media and the tendency of Vice Chancellors to treat academics as just another group of stakeholders to consult (Shore & Davidson, 2014; Shore & Taitz, 2012) with assertions of the primacy of academic freedom and the public good (Giroux, 2013; Szelényi & Bresonis, 2014; Tilak, 2009):

"It feeds on the myth of a totally free academic, the master of his or her time, and the myth of university, constructing it in such a way that it is gradually deprived of any emancipatory potential." (Szwabowski, 2016)

The level of autonomy experienced by a researcher depends on their career stage (Bosanquet, Mantai, & Fredericks, 2020; Hancock, Clegg, Crossouard, Kahn, & Weller, 2015; Ibarra et al., 1999; Nash, 2019), their gender (Huppertz, Sang, & Napier, 2019), their disciplinary culture (Lamont, 2010) and who is funding their work:

"Our scientist may be in a laboratory run by a scientist-administrator and a firm run by former members of the laboratory staff, all of whom pursue administrative policies aimed at preserving his professional autonomy. Or he may simply be in a good market position, his services so much in demand, his mobility chances so great, that his superiors tread lightly when they reject his advice or make suggestions about his work " (Wilensky, 1964)

Robert Merton developed a set of “institutional imperatives” that he believed underwrote the ethos of modern science: universalism, communism, disinterestedness and organised scepticism. By universalism, he meant generalisability, by communism, he meant work was produced and owned in common with others, by disinterestedness, he meant detached from vested interests, and by organised scepticism, he meant that all truth claims could be investigated and challenged by other scholars (Merton, 1942). However, the management of science and the university today has moved away from these norms, if they were ever fully realised, towards Weber’s instrumentalist value-rationality and traditionalist behaviours, which forces researchers to also behave in value-rationalist and affective ways in order to survive in the commercialised academy (Lynch & Ivancheva, 2016).

One study (Macfarlane & Cheng, 2008) tested three of Merton’s norms (Communism, Universalism, Disinterestedness) using a web-based survey of UK academics across a range of disciplines, including the arts, humanities and social sciences. They found in relation to “Communism” that 95% of respondents were in favour of sharing teaching materials and research results with peers, but 75% wanted

to protect individual property rights and a small number agreed that they tended to keep their work secret before it was published. Participants were only slightly in favour of universalism other than generalisability/validity of their research beyond their national context. Generalisability was most popular in the applied sciences (90%) but 78% in the arts also supported statements relating to this value. 90% of participants said that their teaching and research was influenced by personal values (and therefore was not “independent” in the positivist/Weberian rationalist sense).

Disinterestedness was the least popular of Merton’s values. Most respondents felt emotionally and financially attached to their work and believed they were entitled to express views in public debates regardless of their level of relevant subject expertise - especially social scientists (77%). Around 85% of respondents thought their research might be applied for the good of society. More than twice as many (66%) respondents from applied sciences thought they aligned their research interests with funding opportunities compared with those from the natural sciences and arts (32%). Merton's norms were not based on empirical data. The politics and economics of the modern situation lead the values of the researchers of today to differ from Merton's values.

2.4.2 RELATIONSHIP BETWEEN RESEARCHERS AND THE INSTITUTION

Despite relatively high job satisfaction, according to Grove (2016) the majority of UK academics are not happy with what their university offers, nor its senior leadership or future plans. As with studies of other professions (Ipsos for Steelcase, 2016; LSBF, 2015) many academics would not recommend working at their institution. This is in accordance with the findings of other studies on academic workers in the UK and elsewhere (Courtois & Keefe, 2015; Locke & Bennion, 2007; Lone et al., 2015; The Guardian, 2015) and findings on other professions – but in stark contrast to the generally more positive views of professional and support staff. Alignment with the corporate university can be seen as a managerial approach to academic identity, in contrast with a "professional identity" alignment with academic values and scholarship and the role of the academic in society (Dearlove, 1997; K. Smith, 2012; R. P. Winter & O’Donohue, 2012). Williams (2008) argues for the importance for the academic profession of enabling students and society to live with uncertainty and providing new frameworks for understanding ourselves as human beings, rather than aligning with managerial and stable ideas of professionalism and expertise.

Some researchers believe that their institutions do not understand their position and pressures as academics and feel that they are not given enough time or support to do their work (Billot, 2010; Holmwood, 2018; McCann, Granter, Hyde, & Aroles, 2020; Yarrow, 2020). This is despite the fact that a supportive institution is the single biggest factor in research productivity (Bland & Schmitz, 1986) and the correlation

between a strong research culture in the department and high performance in research assessment exercises (Edgar & Geare, 2013). However, individual high performers do not feel very committed to their departments, only engaging in departmental activities that are recognised beyond their institution, and they recognise their value as a “commodity” in the academic market (Gendron, 2008). The performance rewards and other incentives given to high performers (Whitchurch & Gordon, 2010) increase tension with their colleagues without improving their retention, as the “REF currency” that goes with their success (Agyemang & Broadbent, 2015) in the UK (or equivalent drivers in other countries) encourages them to move institution to gain promotion and even higher status. Departmental cultures and workload distribution (Hornibrook, 2012) can also be at odds with institutional agendas (Locke, Whitchurch, & Smith, 2016) and contribute additional pressures and fragmentations to academic identity (Gough, 2012; Locke et al., 2016).

“We believe that scholars and researchers are more likely to sustain good quality work in the absence of audit and bureaucratic monitoring, and the culture of performance management and ‘gaming’ this creates. Wherever management-by-metrics is deployed, it will distort the process, fail to measure what should be measured, undermine staff morale, and gift another cudgel to vice-chancellors. Additionally, it poses an escalating threat to academic freedom and threatens to shape a cautious academic whose access to academic advancement is contingent upon satisfying the shifting benchmarks of ‘performance’.” (Holmwood, Hickey, Cohen, & Wallis, 2016)

The official stories shared by universities tell of “world class” academics, profitable return on funding investment and a beneficial relationship with the institution. These corporate stories do not reflect the plurality of perspectives found amongst researchers (Churchman & King, 2009; Malcolm & Zukas, 2009). In particular, part-time and temporary workers may struggle to “prove” their commitment to the university via long working hours, successful publications, attendance at meetings and participation in events, and in return receive little in the way of support or inclusion from their employers (Dowling, 2008; Harding, Ford, & Gough, 2010; Levin & Montero Hernandez, 2014; Willson & Julien, 2020) or any certainty and continuity in their role in academia (Müller, 2014). These workers are therefore less likely to identify strongly with their institution and its rules, unlike those in permanent academic roles who may be in institutions that encourage a more stable career progression and reward loyalty to the university (Hancock et al., 2015; Musselin, 2013).

According to Degn (2014), those in academic managerial roles in newer universities are more likely to identify positively with their institution and its possibilities than department heads at traditional universities, who identify more strongly with disciplines and academic communities. Clarke and Knights (2015) attribute individualistic approaches to academia and doing what is institutionally rather than ethically valued to the normalising influence of managerialism, but also to a need for

symbolic and financial security. Researchers show different levels of awareness of playing the “game” of academia (Maton, 2005; Zembylas, 2007) according to Bourdieu's concept of the field:

"The social field can be described as a multi-dimensional space of positions such that each actual position can be defined in terms of a multi-dimensional system of co-ordinates whose values correspond to the values of the first pertinent variables. Agents are thus distributed, in the first dimension, according to the overall volume of the capital they possess and, in the second dimension, according to the composition of their capital - in other words, according to the relative weight of the different kinds of capital in the total set of their assets." (Bourdieu, 1985)

This awareness of the “game” affects researchers' understanding of where their priorities could and should lie between their institution, their discipline and their own lives and careers (L. Archer, 2008; Billot & King, 2015; Burrows, 2012; Cheng, 2010; Gendron, 2008; Illner, 2011; Nedeva, Boden, & Nugroho, 2012). Researchers are more likely to identify more strongly as part of their field of study (Becher & Trowler, 2001; B. R. Clark, 1986, p. 29; Schuster & Finkelstein, 2006) in a wider community beyond their department or institution, with their reputation gained from peer review and meeting the standards of their discipline (Flowerdew & Wang, 2015; J. White, 2012). However, not all researchers conform to disciplinary boundaries and this study acknowledges that some research areas have very specific and unusual characteristics and requirements even within a discipline.

In an age of “supercomplexity” in knowledges and technologies (Barnett, 2000), institutions have to meet the competing needs of industry, students, market share and social responsibility and this “dysfunctionality” (Watson, 2012) does not always sit well with researchers' concepts of the university (Harris, 2005; Sutton, 2014). Academics are also encouraged to become entrepreneurs and pursue individual success in earning grants, proving impact and producing “REF-able” publications (Franco-Santos, Rivera, & Bourne, 2014; Jump, 2015; Sutherland, 2015), and there are significant differences in the rewards and resources available in different fields (Schuster & Finkelstein, 2006) and institutions (Black, 2005; Locke et al., 2016; McAlpine, Amundsen, & Turner, 2014). This encourages researchers towards prioritising their discipline and their own work over the demands of their institution, in a form of networked individualism (Wellman, 2001). Behaviours and attitudes of researchers are closely related to the incentives and rewards that exist in their field – grant income, academic credit via citation and promotion opportunities.

Social media, both academic SNS and more general tools like Twitter and blogging, enable researchers to create and maintain their own networks more easily (Costa, 2013, 2015; N. Johnson & Veletsianos, 2021; Stewart, 2015), both within their own field, which has always been more important to researchers than their institution, and developing interdisciplinary communities of interest. As Daniels and Feagin

(2011) state: "Today, rather than being restricted to the colleagues one finds in ones' own department, scholars (and teachers) go online to find intellectual companionship, in effect, curating the ideal academic department and tailoring it to their interests."

It could be argued that researchers who engage in Open research practices online have more in common with each other than with their institutional or disciplinary peers (Weller, 2014). However, this is not to negate the technical and cultural pressures on researchers to present and market themselves as well actively engaging in networking activity (Jordan & Weller, 2018; Tregoning, 2016; Veletsianos & Kimmons, 2012b).

2.4.3 MANAGERIALISM AND MARKETISATION

Figure 1 shows the four dimensions of the value basis of higher education, and many academics argue that the balance between these is now tilted away from the academic values towards the other, more commercially-oriented and corporate-driven, value sets as new management theories and government priorities came into fashion.

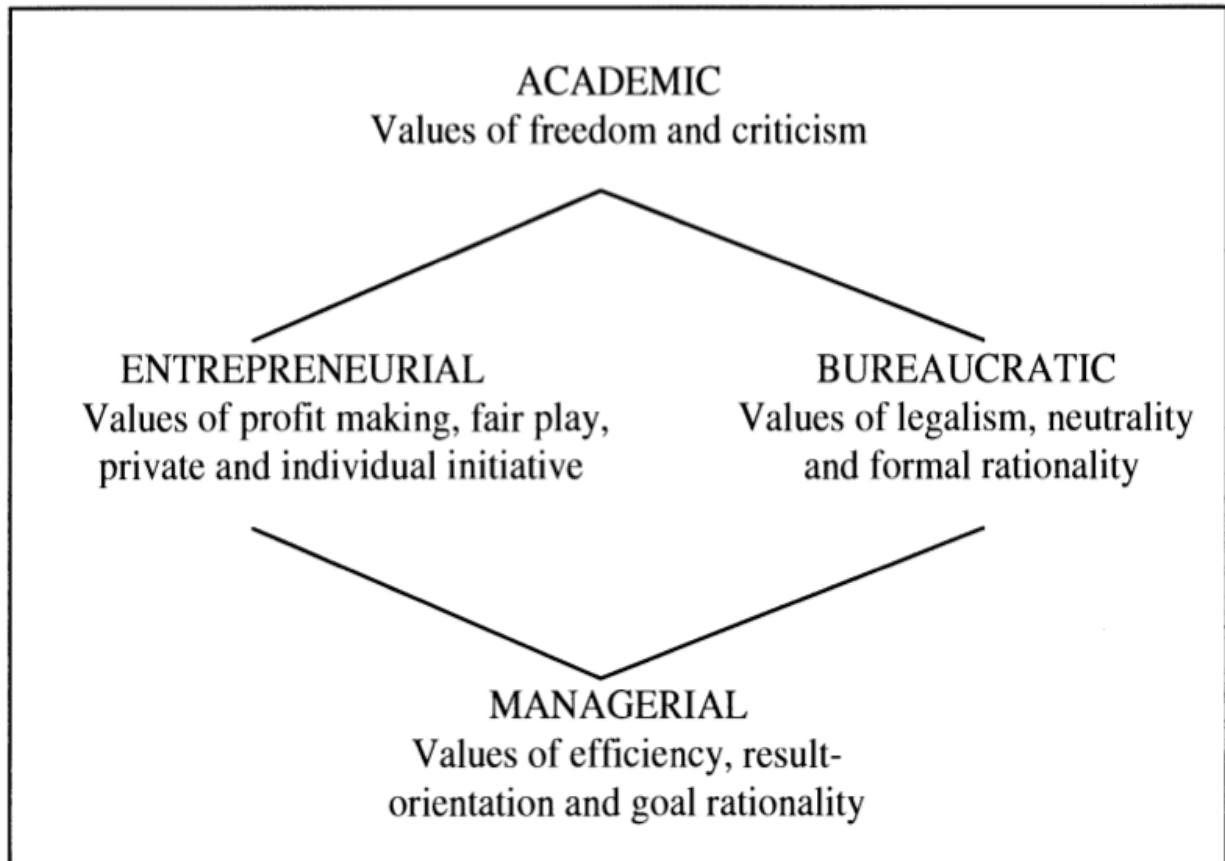


Figure 1: Four dimensions of the value basis of higher education (Salminen, 2007)

New Public Management (NPM) is a private sector management theory that was introduced to UK public sector services, notably local authorities and higher education, in the 1980s and 1990s (Gruening, 2001; M. A. Peters, 2013) There was a move from academic and collegiate (Bacon, 2014, pp. 4–5; Dearlove, 1997) values as the basis of the university to entrepreneurial, bureaucratic and managerial values, some dimensions of which can be seen in Figure 1. Decision-making involving all academics was replaced by top-down senior management teams (Lorenz, 2012), performance was measured and incentivised, new forms of governance, accountability (Ranson, 2003) and competitive logic were introduced (Bates, 2014) and outsourcing, privatisation and decentralisation were introduced. Universities were encouraged to think of themselves as corporations, and students and academics as entrepreneurs, creating surplus value and profit wherever possible (Bacon, 2014, p. 14) in a form of academic capitalism (De Angelis, Harvie, & Angelis, 2009; Deem,

2001) In order to ensure continued employment within higher education, researchers with values opposed to NPM and marketisation have needed to suppress those values or be subsumed by role conflict (Olssen, 2016; Sotirakou, 2004). As Hall says, “Those who labour in the University risk being placed in asymmetrical opposition to the State’s imposition of financialisation and marketization.” (R. Hall, 2015)

Academic work cannot easily be analysed and divided into standardised activities, nor researchers’ bodies be monitored constantly for maximum measurement, efficiency and control (Fuchs & Trottier, 2013). Researchers do not fit the Taylorisation philosophy of work (Nadolny & Ryan, 2015) and their work cannot be simply deskilled and automated (Halffman & Radder, 2015). However, academic work is under surveillance (Hoecht, 2006; Lorenz, 2012) via audit, REF and metrics (Gendron, 2008) and peer observation (Lyon, 2001, 2003, pp. 41–43) and New Public Management enables a decentralised, consumer-oriented approach to individualising and isolating workers (Gerrard, 2015; M. A. Peters, 2013). “Performance management” and resistance to it are not new (Bleiklie, 1998; Cannizzo, 2015; Cannizzo & Osbaldiston, 2015) and the freedom to do nothing can lead to fears of opportunism (Segal & Lehrer, 2012) and arbitrary decision-making (Kondrat, 1995) in academia. However, despite what Edgar and Geare (2013) say about the correlation between individualisation and higher research performance, the move from stewardship of higher education to an agency model of monitoring and control (Andrews, 2019a; Franco-Santos et al., 2014) would appear to be at odds with researchers’ commitment to autonomy, collegiality and academic freedom (Brandist, 2014, 2016; Cribb & Gewirtz, 2013; Kallio, Kallio, Tienari, & Hyvönen, 2016; Raaper, 2015; Schulz, 2013; R. P. Winter, 2009).

2.4.4 MONITORING AND MEASURING

The use of CRIS and IRs to monitor and manage research information and outputs (Clements & Proven, 2015; Ehlers, Joubert, Kinghorn, & Zyl, 2009), showcase the university’s research (Robinson, 2011) and their role in producing data for assessment (Clements, Reddick, et al., 2016; Clements, Darroch, et al., 2016) exercises makes these systems of compliance (Leathwood & Read, 2013) unappealing to values-driven researchers (Cannizzo et al., 2019; Huppatz et al., 2019; Poynder, 2015; Wood, 2010) and those who are resistant to data-driven assessment and evaluation (Ebert et al., 2015) Researchers have indicated that they may choose to boycott the CRIS and IR as part of a REF strike, even when they value Open Access (Elden, 2016; Indignant Academic, 2016). Should UK institutions decide to follow the example of Wageningen University and use the CRIS to persuade researchers to publish in journals they deem to be of “higher quality” (Fondermann & van der Togt, 2016), there is likely to be a backlash from those opposed to control over publishing

venue (Gilman, 2015; Kling, McKim, & King, 2003) and the use of journal Impact Factor as a measure of quality (Dahler-Larsen, 2015; Smeyers & Burbules, 2011; Wilsdon et al., 2015). While the journal Impact Factor remains a strong driver of researcher publishing behaviour in many disciplines (Gill & Donaghue, 2016; Martín-Martín, Orduna-Malea, & López-Cózar, 2016) separate from any single jurisdiction, it could be argued that librarians should take a more critical view of such measures (Hicks & Wouters, 2015) and some would say that influencing researcher publishing venue is outside librarians' purview (Gilman, 2015).

In the current climate, researchers feel that they are constantly in competition and in a rush towards individual achievement and assertion of ideas in public in fear of losing their place in academia (Müller, 2014). It can be resisted in part by treating academic work as work, not a way of life. The “accelerated academy” is a concept developed by Filip Vostal and Mark Carrigan (Carrigan, 2015; Vostal, 2013, 2016), following the work on social acceleration and the acceleration of work by Rosa and others (Couldry, 2015; Hoofd, 2010; Rosa, 2003; Ylijoki, 2011). Feminist scholars speak of the benefits of the “slow university” (Farr, 2016; Hartman & Darab, 2012; Mountz et al., 2015) and the “slow professor” (M. Berg & Seeber, 2013), where researchers resist the pressure to publish constantly and work excessively long hours in order to gain control over their research and their work-life (Martell, 2014). This has been critiqued by Carrigan et al for its dismissal of online communication and the assumptions it makes about the position of the academic and the role of individual responsibility (S. A. Moore, 2020) – postdocs and precarious researchers are less able to take the “slow” path and refuse the pressures placed upon them (Carrigan & Vostal, 2016a, 2016b). Provocatively, some left-wing writers embrace acceleration in order to accelerate social change and a postcapitalist economy based on automation and universal basic income (Srnicek & Williams, 2016).

“Our director of human resources was quoted as saying that all academics will be expected to ‘excel’ or will have to ‘leave the organisation’. It is hardly surprising that mental health problems among academic staff subjected to such pressures are on the rise.” (Brandist, 2014)

Researchers are in a position where they must “sell” their ideas to research funders and employers and second guess changes in the policy and funding landscapes, and even those who have been in academia for a long time experience job insecurity and find the change of pace and pressure difficult (K. Smith, 2012). There is a culture of taking minimal leave, publishing as much as possible and devoting long hours to work, while also achieving impact and status outside the academy as an academic entrepreneur (Jessop, 2017; Locke & Bennion, 2007; Möllers, 2016; Nikunen, 2014; Ozga, 1998).

Metrics are not merely “neutral” statistics. When multiple actors use a measurement, it becomes a visible artefact that can be compared with other artefacts – a material object that did not exist before (Pine & Liboiron, 2015). The production and analysis

of these artefacts is a profitable service (Andrews, 2018), be it traditional bibliometrics, which serve disciplines such as the humanities very poorly (Stelmach & Von Wolff, 2011; Thelwall & Delgado, 2015), or the alternative article level metrics commercialised as Altmetrics (Martín-Martín, Orduna-Malea, Ayllón, et al., 2016). The extent to which data about academics is profitable is recent and disturbing:

“What is new about audit culture is the extent to which these calculative practices of measurement and ranking have become institutionalised, extended and above all, financialised.” (Shore & Wright, 2015)

The vast number of publications produced by researchers every year led to a call by some for the human evaluation panels of the REF to be replaced in part or in whole by metrics, and an extensive multi-stakeholder review led by James Wilsdon (Wilsdon et al., 2015) recommended that metrics be used responsibly and only to support qualitative decision-making, not replace it. Despite Elsevier lobbying the government for the tender to run the new metricised REF (Eve, 2016a) Clarivate will be providing metrics for REF2021 (REF2021, 2018) and the qualitative work of the REF panels is still the primary way in which research will be assessed. Elsevier have partnered with several elite UK universities to develop Snowball Metrics (Green, 2014; Jump, 2014) which come with a book of “recipes” to aid judgment about researchers for comparison purposes in hiring, promotion and funding decisions. Spooner argues that audit culture and metrics encourage the viewing of the outputs of research, teaching and action as “end goals in themselves” (Spooner, 2015) as opposed to communication of those experiences.

CRIS are explicitly designed to be reporting tools, including the generation and exposure of metrics and comparisons, and IRs have also been used alongside or instead of CRIS in REF reporting and exporting data to funders for Researchfish (Clements, Reddick, et al., 2016; Hinrichs, Montague, & Grant, 2015). Researchers often feel uncomfortable with audit culture (Back, 2016, p. 50; Cahill & Irving, 2015; Fochler & De Rijcke, 2017; Kate Williams, 2020), and policymakers and managers are doing little to address this concern (Cruickshank, 2016), while librarians continue to embed Altmetrics, bibliometrics and Snowball metrics into the research sharing infrastructures they control (Clements, Darroch, et al., 2016; Sonkkila, 2015; Ward, Bejarano, & Dudás, 2015). Academic SNS are also engaged with metrics, ResearchGate even devising its own version of the h-index, following interest in its proprietary ResearchGate Score (Kraker & Lex, 2015; ResearchGate, 2016).

2.4.5 THE GAME

Studies of academic identity often refer to the “game” of academia, with the strive for “excellence” and need to achieve highly on publishing and teaching metrics, as one where they do not understand the written rules, or they feel ill-prepared to play ((S.

J. Ball, 2000; Krause, 2009; Levin & Montero Hernandez, 2014; Pereira, 2016; J. Smith, 2010; Sparkes, 2007; Winn, 2014), - even as they recognise their role in this game at various stages in their careers (Barry, Chandler, & Clark, 2001; S. Moore, Neylon, Eve, O'Donnell, & Pattinson, 2017; Watermeyer, 2015; J. White, 2012; Zembylas, 2007).. This performative aspect to working life (J. Butler, 1988) and academic identity (S. J. Ball, 2000; Morrissey, 2015; Musselin, 2013), based on Goffman's ideas of social performance (Goffman, 1956), adds additional pressure to the academic's experience of work and time that is not experienced by other higher education workers.

It could be argued that the constant drive for improvement in "excellence" also moves away from learning about learning for the benefit of society and towards metrics, compliance and evidence for the benefit of third parties where reporting is a proxy for actual improvement and consistency of approach is actively discouraged (Collini, 2012). Collini is talking about teaching here, but the same could be said of research, in a move away from increasing the sum of human knowledge and understanding towards again metrics, compliance and reporting (Ayres, 2018; Marcella, Lockerbie, Bloice, Hood, & Barton, 2018). Beer (2016) argues that measurement "produces uncertainty and competition"; it individualises people and stimulates intense affective responses. It is important not just to consider how the Game and the metrics associated with it affect the careers and working lives of researchers but also how they affect researchers' affect. In other words, measures are affective even when they are not effective, and how they make researchers feel is as important a consideration as the behaviours they target.

Lord Stern's review of the REF (Stern, 2016) was only advisory at the time of my fieldwork but understandably caused something of a stir in the trade press and social media (Shaw, 2016). The two biggest upsets are the reinforcement of the split between teaching and research, and the removal of the portability of research outputs for the REF. These outputs traditionally moved with the researcher between institutions, which led to some "poaching" of high-profile researchers late in the REF cycle in order for their outputs to be credited to their new institution (J. White, 2012). While non-portability may alleviate this issue, early career researchers (ECRs) trying to play the Game according to the rules of previous REF exercises tended to concentrate on having a good set of publications in hand in order to be "REFable" (Franco-Santos et al., 2014; Locke et al., 2016) in the eyes of employers (Sutherland, 2015). These publications could be deposited at their old institution, but still count at their new institution.

Under the REF 2021 rules (Research Excellence Framework, 2020), it would be more advisable for ECRs to refrain from publishing work that was ready in order for those outputs to be "forthcoming" in job applications; otherwise their former institution would receive the benefit, complete with copies of any articles accepted for publication in their repository. This is particularly difficult for researchers in the humanities and some of the social sciences, where both the research and publication

processes are much slower and there are few team-written outputs (Cullen & Chawner, 2010; Hammarfelt & de Rijcke, 2014; Harley et al., 2010a). Additionally, it is rarely the choice of humanities researchers to move institution regularly – the employment conditions are such that many work fractional contracts across several institutions and do most of their research in their own time, unpaid (Gill, 2014; Nadolny & Ryan, 2015; UCU, 2015; Ylijoki, 2005). Some researchers on Twitter have already speculated, with some negativity, that the REF policy’s tie to institutional repositories is related to the change in portability and will be used to audit the ownership/portability status of research outputs, eventually including other outputs not covered by the policy like books and media. This could be done by CRIS instead, without the need for deposit of all item types, but not all institutions have CRIS let alone enforce reporting of all research outputs, and the CRIS landscape is currently too fragmented to support a national infrastructure (Jörg, Waddington, Jones, & Trowell, 2014; Waddington et al., 2013).

2.4.6 MANAGERIALISM VERSUS VALUES

Clegg (2013) suggests that the move towards affective economies – where “emotions do things, and they align individuals with communities” (Ahmed, 2004) – in higher education, which has been criticised for gendering division of academic labour (Hey, 2011), may lead to a “more hopeful account of the academy. In this account, people are more likely to act meta-reflexively (M. S. Archer, 2007a, 2010), reflecting on their own reflections, and fight for their values rather than adhere to self-interest and societal norms. Some signs of this hope can be seen in accounts such as *Academic Diary* (Back, 2016) and the fostering of collaborative online communities that are values-driven (Costa, 2015; Gornall & Salisbury, 2012; R. Hall, 2013; McAlpine, 2016). More negatively, along with the increase in corporate agency also foreseen by Clegg, evident in individualised “wellness” approaches to managing the “risk” of ill-health in the academy (Saltmarsh & Randell-Moon, 2015), there are less sanguine examples of acting on principle such as the resignation of Sara Ahmed in protest at institutional failure to address the problem of sexual harassment (Ahmed, 2016).

UK researchers in 2016 interviewed 135 people across 10 different occupations and found that while leadership actions were never mentioned in relation to meaningful moments, where personal reflection was key to positive feelings, management could easily destroy employees’ feeling of meaningfulness in their work (Bailey & Madden, 2016). The number one way in which leaders could destroy a sense of meaningfulness was when employees experienced a “disconnect” between their work and the values of their employer. While UK Higher Education is perceived to be at odds with academic freedom and the public good, and the CRIS and IR are negatively associated with top-down policy and compliance, it is unlikely that those tools will be perceived as being in accordance with academic values.

2.5 LIBRARIANS

Librarians struggle to get academics to engage with the infrastructure institutions provide to support openness. Research support and OA librarians interviewed in 2014 (Andrews, 2014a) rejected the idea of supporting OA for reasons purely to do with policy compliance and economic benefits. They strongly asserted their support for Openness as a public good (Schöpfel, 2016) and supported researchers who argued that OA was a matter of social justice (Scherlen & Robinson, 2008). However, those who promote Open Access are “still largely regarded as altruistic or anti-capitalist” (C. Banks, 2016) by publishers, irrational by at least one senior librarian (Anderson, 2014) and misguided collectivists by opponents to OA (Baum, 2005; Beall, 2013, 2015).

The cost of meeting the deposit requirements (HEFCE, 2014) of the 2021 research excellence framework (REF) was estimated at £4-5m per year (R. Johnson & Fosci, 2016). During the previous REF period, Andrews (2014) found that library staff working in repositories and research support felt very uncomfortable with the change in focus from advocating Open Access and depositing research outputs in institutional repositories as a public good to a library role in “policing” compliance with Open Access policies and mandates. Despite this discomfort, monitoring and supporting compliance with funder policies is now both challenging and necessary (Reimer, 2016), though Banks (2016) notes that “librarians are not around to tell academics what to do” – instead, librarians must work with researchers to reduce friction in compliance support services and find ways of reducing the risk of sanctions from funders.

Librarians are keen to share memes and stories on social media about librarians and “proper” library-provided services being better than their mainstream counterparts like Google (Jacobo, 2012; Mikki, 2009): “*Google can bring you back 100,000 answers. A librarian can bring you back the right one.*” (Gaiman, n.d.). They are critical of researchers who use academic SNS instead of the repository (Cirasella, 2015; M. Williams, 2015) and see “proper metadata” checked or input by cataloguers (Cerbo, 2011; Witt, 2008) and institutional support for copyright advice (Curtis+Cartwright Consulting, 2011; Neugebauer & Murray, 2013) as vital. Conversely, researchers are not influenced by policy when choosing which version of an article to upload (Covey, 2009, 2011; Way, 2010) although this will have to change in the UK, and are usually able to ignore copyright and metadata issues if uploading to academic SNS rather than the IR (Van Noorden, 2014) where they are required to find the correct version of the paper and respect embargo periods (McCutcheon & Eadie, 2016), even if they wish to share the final version of an article immediately.

While researchers are not aware of the full range of services librarians offer, they value most the support they are given with copyright issues and IRs. It is clear that

many researchers do not value most of the library services they do know about, beyond those they perceive as directly relevant to their research (Anglada & Anglada, 2016; Cooke et al., 2011): paying for subscription access to journals, measuring the impact of published articles and disseminating outputs via the repository. There is a fundamental disconnect between how librarians and academic staff view their relationship: librarians blame time constraints for a lack of dialogue between academic staff and the library, whereas academic staff claim it is because there is no need for it, and academic staff rate support for research as most important, whereas librarians put it below teaching information literacy (Library Journal, 2015).

Unfortunately, librarians may harm their case for their relevance to researchers by failing in most cases to practice what they preach about Open Access – few publish their outputs in Open Access journals or deposit their manuscripts in institutional or subject repositories (H. Carter, Snyder, & Imre, 2007; Emery, 2018; Mercer, 2011; Vandegrift & Bowley, 2014)

“Libraries have often led policy, technical and administrative developments in institutions and carried out advocacy to other institutional stakeholders but the agenda needs now to be embedded more widely in institutions” (Pinfield, 2015)

There appears to be a connection between O’Connor’s criticisms of the use of information literacy as professional legitimization of librarianship while traditional roles around access and mediation are eroded (O’Connor, 2009a, 2009b) and the consistent assertion of librarians in presentations, blogs and social media (e.g. Hinchliffe, 2016a, 2016b) as well as articles (Neugebauer & Murray, 2013; Wynne, Dixon, Donohue, & Rowlands, 2016; Zhao, 2014) of the importance of librarians and repositories to Open Access. Only a few librarians dare suggest in blog posts and tweets that libraries can and likely will be cut out of researcher workflows (e.g. Tay, 2016), whereas other commentary suggests that they already have been disintermediated (Jubb, 2010) in favour of individual workflows and third-party research platforms and tools (Dempsey, Malpas, & Lavoie, 2014). There is tension between proactive and reactive approaches to library services (Auckland, 2012; Gray, 2013; L. Saunders, 2015; Tate, 2015), and a clear need to prove continued relevance to the core research work of the university (Hansson & Johannesson, 2013).

“Librarians are in a nasty spot. Sometimes I wonder if we can even call ourselves librarians anymore. We feel we are virtually required to provide access to whatever researchers in our local community ask for while restricting access from anyone outside that narrowly-defined community of users. Instead of curators, we’re personal shoppers who moonlight as border guards...We can’t preserve what we don’t own, and we don’t curate because our function is to get what is asked for.” (Fister, 2016)

The approach some librarians are taking to the “threat” of Academia.edu and ResearchGate could be described as “offensive actions” (Welch, Buchheit, & Ruocco,

2000) where blogging librarians unfavourably compare repositories and academic SNS (Cirasella, 2015; Mangiafico, 2016; Pontika, 2016; Walker Rettberg, 2015; M. Williams, 2015)- using attack as a form of defence. These comparisons may not always be accurate, e.g. the emphasis on the long-term preservation functions of repositories (Office of Scholarly Communication, 2015), which back in 2007 was the most motivating factor for faculty in contributing to IRs (J. Kim, 2007). The presence of preservation functions is not supported by the advice in the Tickell report which recommends the development of “an effective preservation service” for UK repositories (Tickell, 2016) some four years after the same recommendation in the Finch report (Finch Group, 2012) and over ten years after Jisc commissioned a report on preservation (James, Ruusalepp, Anderson, & Pinfield, 2003).

In OpenDOAR, of the 197 UK repositories listed as “institutional” and accepting articles, only 57 had defined preservation policies (OpenDOAR, 2021) by the time of this thesis submission. Policies on their own are not preservation functions, and a blog post from Edinburgh University (Lee, 2016) suggests that even those committed to implementing digital preservation solutions in UK universities have not yet managed to achieve this. Indeed, it is possible that via mass peer-to-peer distribution, piracy of research outputs is a more successful and discoverable version of digital preservation than that provided by many academic libraries (Basken, 2016; Correa, Laverde-Rojas, Tejada, & Marmolejo-Ramos, 2021; Curry, 2016; Czerniewicz, 2016; Nicholas et al., 2018; Tenen & Foxman, 2014). If researchers perceive that librarians are not being transparent or acting in their best interests, they may not trust them, however they feel about their Open Access expertise (Eiser, Stafford, Henneberry, & Catney, 2009; R. M. Marsh, 2015; Stafford, 2016).

2.5.1 STAFFING FOR OPEN ACCESS

"Many of these factors call for an expanded service role for the academic library at a time when all of higher education is experiencing intense fiscal pressures. The question is, how do we do more with less? The answer lies, in large part, in better utilization of the library's human resources through improved productivity and a reinterpreted professional role for librarians, a role more appropriate to scholarly requirements and technological opportunities and, hence, even more demanding than it is today." (Abell & Coolman, 1982)

The quotation that opens this section is taken from an article published in 1982; and yet it could just as easily apply to today's academic library. There has not been a time in the past forty years where higher education in general (L. D. Berg, Huijbens, & Larsen, 2016; Gill, 2014; Gonzales & Núñez, 2014; Kyvik, 2013; Slaughter, 1985) and libraries in particular (Biggs, 1989; Donald E. Riggs, 1996; Gibson, 2016; E. R. Johnson, 1983; Meier, 2016; Webster & Lorenz, 1980) have not been claiming to be

doing “more with less” in the face of increased complexity, economic challenges, changes to librarian roles (Corrall, 1995, 2010; Cox & Corrall, 2013) and changes in technology (Hamilton, 2016; JISC infoNet, 2012; Warheit, 1972). If the perception of academic librarians reflects reality, the university library must be a “homeopathic” institution in order for it to become ever more productive and efficient in the face of continual “less” – the dilution of budget and staffing numbers results in a stronger and more useful library (Curtis+Cartwright Consulting, 2011; Meier, 2016).

Reports via the Jisc OA Good Practice project indicate that UK academic libraries have on average only 1.5 full-time equivalent (FTE) posts in support of their repository “deposit workflow” (Dobson, 2016)). The lack of staffing and technical limitations have led to a focus on compliance with publisher copyright policies above other areas of OA (Walters & Daley, 2016b, 2016a), despite it being difficult to ascertain whether or not full compliance with the REF policy is being achieved (Reimer, 2016), and researchers appear to be confused by the research-related messaging coming from the library (Field, 2016; Jefferies, 2016).

It is possible to apply the categorisations of professional UK higher education staff defined by Whitchurch (Whitchurch, 2006, 2008b, 2009, 2013; Whitchurch & Gordon, 2010) to the roles of librarians in academic libraries:

Table 1: identity “dispositions” and characteristics in Whitchurch’s work

Identity “dispositions”	Characteristics
“Bounded professionals” (voluntary or involuntary)	Work within clear structural boundaries (e.g. specialist function, job description)
“Cross-boundary professionals”	Actively use boundaries and cross-boundary knowledge for strategic advantage and institutional capacity building
“Unbounded professionals”	Lack of consciousness of boundaries; focus on broadly-based projects across the university, and contribute to institutional development
“Blended professionals”	Dedicated appointments spanning professional and academic domains

Corrall (2010) chooses to model the evolving role of the academic librarian as a “blended” professional, but the justification continues to seem better suited to Whitchurch’s cross-boundary definition. While many academic librarians have been employed outside of libraries prior to their current role, they do not usually have the background, freedom or qualifications to truly inhabit the third space between academia and professional services, particularly in the UK where few undertake academically rigorous research and publishing activities. There is more of a blurring, as Whitchurch recognises, between unbounded and blended professionals, particularly as newer and project-based roles become more established or change focus.

Librarians with responsibility for the IR in the UK were originally mostly unbounded professionals with a strong sense of community around their work (Kelly, Sheppard, Evans, & Budden, 2013). The roles were newly defined and holders of these posts often had a lot of freedom, learning from each other and developing both the technology and the advocacy around it with relatively little interference. When they were recruited, universities sought to recruit what is known in internet startup culture as a “full stack developer” (Demirkan & Spohrer, 2015; Eghbal, 2016), what journalism call a “unicorn” (Hermida & Young, 2016) and human resources professionals call a “purple squirrel” (Dumeresque, 2014; Haun, 2013) – a miracle candidate who is expert in a number of skills and can deploy them all effectively, so no more workers need to be recruited.

IR and OA librarians were often on their own or in very small teams (Kelly et al., 2013), working across all areas of OA and scholarly communications as needed. This was a state of affairs unlikely to continue, as either the IR and OA would prove to be a failed project, in which case the librarians would move to another role, or the reverse would be the case and more staff would be needed (Delaney & Bates, 2014). While IR staffing numbers remain low, and library staff full-time equivalent (FTE) numbers have dropped (SCONUL, 2019), the teams have grown in size in some institutions and the roles within the team more specialised (Dobson, 2016). This follows Smith’s view of the pin factory, where productivity increases as labour to make the pins is divided on a task basis rather than workers each making the whole pin (A. Smith, 1904) and is also the basis of Taylorist approaches to management (P. Moore, 2015), which lead to workers being deskilled, losing control over their work and rendering their work more boring and routine (Hanlon, 2015, pp. 186–197). Some of those original librarians have moved into different roles, finding the new restrictions uncomfortable and the work less challenging (Andrews, 2014a). Of those who remain, many are understandably defensive about their jurisdiction, worried about degradation and feel conflicted about academic SNS and the reliance of corporations in their work (Abbott, 1988, p. 222; Petersohn, 2016).

Gatekeeping is a concept first defined by Kurt Lewin (Lewin, 1947a, 1947b), where individuals or groups act as “gate keepers” of a social channel to control who should have access to resources, including acting as an intermediary for the communication of information (Westley & MacLean, 1957). Protecting jurisdiction, or exclusive control over an area of work, is common to all the professions, including researchers and librarians (Abbott, 1988, p. 139). Librarians in particular have sought to not only defend their jurisdiction, but extend it as new areas of interest emerge, although hybrid professionals crossing boundaries within higher education are becoming more common (Cox & Corral, 2013). Defending jurisdiction in librarianship and academia is a form of gatekeeping, which is understandable as a society of information is also a society of control (Beniger, 1986, pp. 291–426, 1988), but the academic publishers are the ones who are really controlling access to research (Bossaller & Sweeney, 2015) and the big corporations and research universities who control the infrastructure.

Traditionally, librarians have been gatekeepers of information, providing and curating access to specific resources and even with a move to digital libraries, the focus is still on “proper” databases and “proper” institutionally-managed systems for search, research information management (CRIS) and research output dissemination (IRs) (Parsons, 2016; Zhao, 2014). When writing about academic SNS, they may attempt to take a balanced approach by providing information about some of the benefits of these, but their dislike of SNS and the negative consequences for non-compliance are often clear (Mangiafico, 2016; Office of Scholarly Communication, 2015; Pontika, 2016). Librarians have never been truly able to control more than access to their buildings and collections, despite being portrayed in popular culture as the gatekeepers “between order and chaos” (Radford & Radford, 2001), but it is possible for them to carry out their gatekeeping function “in a principled manner” (Ojennus, 2019) rather than outsourcing it to software vendors and commercial platforms: “Do our collections policies and practices simply “serve the user” or do they serve the powerful user first and most efficiently, excluding others?” (M. F. Winter, 1992)

Journalists, like librarians, have long been categorised as either “objective” gatekeepers, facilitating society’s access to information and how it is presented, or advocates, who take it upon themselves to speak out for marginalised groups (Janowitz, 1975). Manca (1989) develops the model by showing the importance for editors and reporters to allow a more democratic “gate-opener” approach to media by thinking of citizens as potential journalists, including those with less popular or palatable views. In practice, it is difficult for professional journalists and editors to retain their identity and relinquish their usual controlling roles while allowing for pluralistic input and “balanced” output (Carpentier, 2005). Koljonen (2013) found that modern journalists are becoming “active agenda-setters”, pushing particular viewpoints like the advocates, instead of “passive” but relatively neutral gatekeepers. However, if journalists act as “gate-openers” (Manca, 1989), a wider range of

arguments and information is offered to the public, who can then make up their own minds about what is interesting and true.

Journalists have not only had to relinquish their gatekeeping role, due to jurisdictional shift (Abbott, 1988, pp. 98–133), but understand the change in the objects they deal with. Not only have their practices shifted from mostly analogue to mostly digital, as with libraries and research, but their outputs have become communicative objects (Raetzsch & Bødker, 2016) circulating outside of institutional and official dissemination. Researchers understand this is happening to their work and they no longer expect their ideas to be locked into journals and books. It may be helpful for librarians to understand the life of research outputs as communicative objects, beyond traditional output types. Both libraries and journalists fear loss of jurisdiction, but maintaining a gatekeeping role (Savolainen, 2020) would only hasten the demise of each profession (Carpentier & Cammaerts, 2006; Koljonen, 2013; Radford & Radford, 2001).

"While users perform their own searches and use other non-library resources, library staff fear devaluing of skills and irrelevancy in the evolving information age." (Matesic, 2009)

If librarians took a more “gate-opening” and pluralistic approach to resources and systems, as journalists have been forced to, it may change their perception of researcher workflows, research outputs and library communications around technology. It could be argued that this would lead to library staff becoming more valued in their ability to support research, which is something librarians have stated that want to be known for and yet studies suggest that this is not fully appreciated by researchers (Association of College and Research Libraries, 2013; Harley, Acord, Earl-Novell, Lawrence, & King, 2010b; Tenopir et al., 2013). Their capacity and capability for supporting researchers may still be in question, as is the desire of researchers for their support (Jubb, 2016), and it may yet be a form of mission creep. However, Speight (2016) suggests that changes to the research support librarian role can improve researcher perception of this kind of work.

"Do librarianship's values permit genuine cultural diversity and ideas, or do they prejudge, by prescribing in advance, which ideas have legitimacy and which do not?" (Weissinger, 2003)

In librarianship, ethics and values are taught and imposed (CILIP, 2012; Knox, 2014) rather than arrived at via consensus (Weissinger, 2003) – they are value-rational and traditional. The only “laws” of librarianship known and agreed by most librarians (S. A. Berg & Jacobs, 2016; Gray, 2013; R. Jones, Andrew, & MacColl, 2006; Schöpfel, 2016) are those of Ranganathan (1931):

1. *Books are for use.*
2. *Every book its reader.*
3. *Every reader his book.*

4. *Save the time of the reader*
5. *A library is a growing organism.*

“Core values” are used to rationalise the existing views of professionals and social relations of power embodied in communication (Habermas, 1974, p. 9, 1987, p. 313). While Foskett placed neutrality and duty to the organisation above all (Foskett, 1962), it is difficult to argue that the librarian has ever been ethically neutral (Jensen, 2004; McMenemy, 2007, 2014) nor lived up to the ideal, even in reader development and reference work, of being the “reader’s alter ego, immersed in his politics, his religion, his morals” (Foskett, 1962). There is some consensus over values in principle (S. A. Berg & Jacobs, 2016; Dole, Hurych, & Koehler, 2000; Foster & McMenemy, 2012), but they do not directly resemble any of the codes, nor do all of Gorman’s “enduring values” endure, and interpretation is often ambiguous and conflicting. Rationalism and democracy are far from universally popular. However, Gorman’s values of intellectual freedom, service, privacy, equity of access and stewardship are key and also of vital importance when working with researchers and Open approaches to research (Way, 2010). Advocating compliance with institutional systems and restricting who can use them cannot really be argued to accord with values of service, equity and freedom.

2.6 THEORY USED FOR CRITICAL LENS-GRINDING

Having situated my research in the literature, I will now move on to discuss the theory I have used in this project and why. Traditionally, theory has been seen as a lens through which to see data. However, this can lead to a rather static and passive view of the role of the researcher in relation to theory, where a single famous theorist or theoretical framework is selected off the shelf and applied to the data like a unifying prism. Lens-grinding (Heaney, 2016) requires work to grind and polish multiple theories or “lenses” together, to actively engage with the theory and take a pluralist approach that recognises the flaws in single overarching ideas in comprehending the complexity of the social world. I have used theories and theorists to help me think about the literature, where I have drawn on multiple fields including where they have multiple definitions and interpretations of the same concepts. I have also used theory to help me decide on methods. It was not just something to be applied to the data, although I have used it in analysing and discussing my findings, as a single way of viewing the world. I do not belong to a single theoretical or disciplinary tradition. I am a bricoleur of methods, literatures and ideas (Kincheloe, 2001; L. Roberts, 2018) and this has allowed me to develop a much richer understanding of the heterogenous groups and technological contexts in which my participants were found.

“By extending the metaphor from the static ‘lens’ to the more dynamic and embodied ‘lens-grinding’ theory is returned to the status of craft; brought back down from the high and rarefied hills to the workshop floor. Within this construction we may retain the benefits of the lens metaphor – a cluster of concepts arranged in a specific relational order through which we view aspects of the social world pluralistically – but remind ourselves that such instruments must be constructed, not appropriated.” (Heaney, 2016)

Lens-grinding, as Heaney states, requires more work and deeper thought than selecting one approach. “Applying theory” implies slipping a single lens in front of my data to view it more clearly, and my thesis resisted that.

2.6.1 AGONISM

Agonistic pluralism accepts that there is no way to achieve complete harmony or transparency in a democracy, and therefore top-down objective single solutions cannot work. Instead of pitting antagonistic actors against each other as enemies, the antagonism that is part of human nature, to try to find consensus, society should move towards agonistic pluralism, which is a struggle between adversaries (M. Jones, 2014; Mouffe, 1999, 2000, 2002). Clashing perspectives and passions are mobilised in pluralism and given voice, rather than crushed or being told that they are multiple expressions of the same perspective.

The research community is global and heterogeneous, a truly “broad church” (D. Marsh & Savigny, 2004; Rheinberger, 2016). There can be multiple routes to Open Access and even compliance with a single policy, and this can be explored through this study, rather than seeing librarians and researchers with differing viewpoints as enemies. There is a need to take a meta-reflexive approach (M. S. Archer, 2007a, p. 63, 2010) and look outside the current professions and current solutions and the gatekeeping impulse of all actors in this space. It is also likely that advocates will need to move beyond the hegemonic idea of Open Science, and infrastructures, policies and governance will need to be developed with a broader perspective, open principles and greater grace towards groups with good reasons for feeling excluded or patronised (Bilder et al., 2015; S. Moore, Gray, & Lämmerhirt, 2016; Neylon, 2016) As Sidler says:

“At worst, non-science scholars will perceive Open Science as a threat, another way in which scientific disciplines dictate methods for knowledge production and manoeuvre for more resources...the Open Science movement will have to acknowledge and address disciplinary divisions and monetary reward systems that led to this acrimony. A first step might be a broader exploration of the potential impact that networked technologies will have on different knowledge areas.” (Sidler, 2014)

There is no “magic bullet” solution that will make all researchers converge on a single opinion or way of working, neither technical nor policy-based.

2.6.2 QUEER USE

“Queer uses, when things are used for purposes other than the ones for which they were intended, still reference the qualities of a thing; queer uses may linger on those qualities, rendering them all the more lively.” (Ahmed, 2018)

Ahmed writes about things coming into being through use, such as pathways made clear and visible as they are worn down by walkers repeatedly traversing the surface. On beginning this project, I could not see evidence of standard pathways for “doing” OA for many disciplines and researchers outside the sciences, but I could see attempts to impose those from above via standardised models and guidelines and, conversely, attempts to resist them via blogs, tweets and emerging software platforms. Ahmed’s work enables me to think about what use actually means and how researchers and institutions bend systems and policies to their own ends. It is possible to be positively disruptive in order to progress Open Access policy and practice, to move away from compliance and managerialism and towards a more open approach that reflects the early utopian desires of OA advocates before it became associated with bureaucracy and publisher profits (MacLeavy, Harris, & Johnston, 2020). However, Ahmed also reminds me of my own experiences as a former OA activist: that utopianism was limited and problematic, and that it is easier to espouse values than to live by them. OA should embrace queering (De Kosnik, 2016, p. 151; M. Parker, 2001; N. J. Smith & Lee, 2015) to bring back control to the authors and readers of research, but also to understand power, exclusion and replication of harmful norms. The self-appointed leaders of the movement have embraced all the problems of traditional academia (Whitaker & Guest, 2020) and policy-driven approaches to OA means the focus has become making outputs open rather than making research open to all.

2.6.3 THEORETICAL ASPECTS OF INFRASTRUCTURES

Before I move on to the methodology for my study, it is important to talk about theoretical aspects of infrastructure, as these inform my understanding of the systems and technologies involved in supporting policies and processes in OA. What is infrastructure, other than the study of “boring things”? (Star, 1999) Is it a “broad category referring to pervasive enabling resources in network form” (Bowker et al., 2010)? A system essential to functioning (Sandvig, 2010)? As Edwards (2003) says, it is a “slippery term”, but it is a sociotechnical system (B. C. Bruce, Rubin, & An, 2009; Monteiro, 1998), a system involving technological and social aspects, organisations, broad accessibility, background knowledge and “general acceptance and reliance” (Verhoeven, 2016). A network is an infrastructure, an infrastructure can be a series of linked networks, and in the case of this study, a series of linked actor-networks. This study is not of one network, but many, some dependent on each other and some not. Infrastructures are not always invisible until they fail. It is the visibility of the current research sharing infrastructures, even when they are working well for their users, that is causing antagonistic tension between actors (Larkin, 2013). Research sharing infrastructure is social, even when it is not a social network. It can be a benefit or a fuff, a corporate juggernaut or a platform created in a bedroom. There are so many research sharing platforms, infrastructures within infrastructure, that they can fill a Powerpoint slide (see Appendix 8.3) or set of survey options (Bosman & Kramer, 2016; Kramer & Bosman, 2016) while remaining unknown to many.

“As a fundamental substrate upon which scholarly research operates, scholarly publishing can be understood as infrastructure—a combination of technologies, policies, human actors, and social norms...that is ‘ubiquitous, accessible, reliable, and transparent’.” (Lagoze et al., 2015)

Scholarly communication has been disrupted by not only Open Access, platformisation (Andrews, 2020b), entrepreneurship and the internet, but also the serials crisis, where the cost of subscriptions to academic journals has grown at such a rate that library budgets cannot keep up (Wenzler, 2017), and the ownership of academic publishing and emergent research sharing platforms by a small number of large corporations (Fiormonte & Priego, 2016; Larivière, Haustein, & Mongeon, 2015a). Scholarly communications is also currently subject to what Illich would call a radical monopoly (Illich, 1973), a dominance of one product (peer-reviewed journal articles, structured using scientific norms) over any other type of research output (HEFCE, 2016). This infrastructural ecology (Latham, McCormack, McNamara, & McNeill, 2009) regulates, orders and disciplines publication and research sharing, and both researchers and librarians are at least partially dependent on its current form: “We need to understand how our libraries function as, and as part of, infrastructural ecologies — as sites where spatial, technological, intellectual and social infrastructures shape and inform one another.” (S. Mattern, 2014)

“Boundary objects are a sort of arrangement that allow different groups to work together without consensus.” (Star, 2010)

Boundary objects in infrastructure studies are a means by which disparate groups can work together – they are objects that intersect various social worlds and satisfy the information requirements of all those groups (McKnight & Zietsma, 2007; Star & Griesemer, 1989; Styhre & Gluch, 2010). This is what CRIS, IRs and the other infrastructures discussed here are trying to do, and why infrastructures originally designed for niche areas of science or particular types of function and output do not function properly for workflows and actors that do not adhere to those norms (Doolin & McLeod, 2012; Nicolini, Mengis, & Swan, 2012; Star & Ruhleder, 1996; J. Whyte & Lobo, 2010). Any attempt to improve or innovate platforms for supporting research information and output management must take this boundary object concept into account, not merely the demands of specific actors.

2.7 CHAPTER OVERVIEW

This chapter has examined and discussed literature on the topics of Open Access (OA), the infrastructures and policies that support it, and my participant groups: academics and librarians. First, I defined openness and other relevant concepts. I explored the themes of policy, platforms and professional identity. I drew from a range of disciplinary and interdisciplinary sources to provide much needed context on UK academia and academic librarianship. I then introduced the theorists I use in my Discussion chapter. The complex environment I portray in this account sets the scene for my explanation of my ethnographic methods in the next chapter.

3 METHODOLOGY

3.1 CHAPTER INTRODUCTION

In this chapter, I outline the main features of my research methods. I begin by outlining my research philosophy (3.2) and research design (3.3). I then go on to explain my choice of methods: connective ethnography (3.4), interviews (3.5), visual methods (3.6) and online participant observation (3.7). This is followed by a discussion of my participant recruitment strategy (3.8). I then go on to discuss my approach to coding (3.9) and analysis (3.10) of the data before reflecting on research quality (3.11) and ethical issues raised by the research (3.12).

3.2 RESEARCH PHILOSOPHY

To answer the research question “What are the attitudes and behaviours of researchers concerning Open Access policies, processes and technologies and what prevents librarians influencing researchers effectively?”, an epistemological stance that takes a positivist approach is unlikely to work. This is because the very nature of the question is subjective and seeks to understand the experiences of researchers and librarians. I am not taking a research stance that is based on objective facts and testing a hypothesis to reach a single truth (Guba & Lincoln, 1994) and develop generalisable “laws” (Bryman, 2012) that are universally true would not produce a full account of the rich and heterogenous views and experiences of my participants. These views are not easily quantifiable. Instead, an interpretivist stance allows for all these different and sometimes conflicting accounts of researcher and librarian lives and acknowledges my own position as a researcher who interprets these accounts (Bryman, 2012) from a not entirely isolated position.

I have chosen to take an ontological stance based on critical realism, using the work of Margaret Archer (M. S. Archer, 2007c, 2007b, 2010). Critical realism is a “third way as an alternative to positivism and hermeneutics” (Collier, 2005). This view of realism recognises that some entities are not merely created via discourse, as with positivism, but does acknowledge the effects of social construction on reality. Critical realism identifies four modes of reality (Elder-Vass, 2017): material (the natural world), artefactual (objects created by humans), ideal (discourse, language, ideas, theories etc) and social (norms, rules, class/gender/race/disability structures, organisations, economics). Causal mechanisms are key to the creation of knowledge. Actors consciously and unconsciously interact with structures, which are the outcome of human agency.

There are three modes of internal conversation – the thought processes experienced by an actor when being reflexive (de Vaujany, 2008). The first is communicative reflexivity, the thoughts an actor has while speaking to others, where the reflexivity is

reliant on contributions of others and the aim of the actor is to maintain cohesion within a group or social structure. The second is autonomous reflexivity, where the aim of the actor is to move their own projects and aims forwards, which may result in changes to social structures and conflict. The third is meta-reflexivity, or thinking about thinking, where the actor is having an autonomously reflexive internal conversation about internal conversations. I primarily engaged with this third mode.

This approach makes sense for my project, as three of the four modes of reality are key to understanding what drives researchers to use or not use different types of research sharing infrastructure. The literatures I reviewed drew out potential factors relating to artefacts, social and ideal realities. Using structure and agency as concepts can help to explain why some themes are common to actors in different situations, while the impact of reflexivity can explain the difference in perceptions and behaviours between actors in the same or similar situations.

Meta-reflexivity also helps me to understand my positionality (Rossi, 2008) as an early career researcher who has undertaken multiple research assistant roles who also has a librarianship qualification and related experience who is now researching researchers and librarians at all career stages. I am critical of all the institutions while having been part of them.

3.3 RESEARCH DESIGN

As the interpretation of the world by my participants (Bryman, 2012) is key to answering my research question, this naturally suggests a qualitative approach to this study. To understand the impact of the different modes of reality and reflexivity and to achieve my objectives, I needed to speak to academic researchers and the librarians who support OA and researchers in universities. Researchers in higher education are the main producers and consumers of research content, and librarians are traditionally the institutional curators of that content but also, in most institutions, traditionally advocates for and managers of Open Access. I decided to focus my research on researchers and librarians, rather than other stakeholders such as IT providers, research office staff, academic publishers or scholarly communication consultants. This is because I have a particular interest in the relationship between researchers and library staff, having worked in both roles and tried to mediate between the two.

However, interviews alone could not produce a rich enough picture of these actors, their networks, the scholarly communication infrastructural ecosystem in which they are situated and the way that they actually carry out their work as well as describe carrying out their work. They also did not fully explain the apparent conflicts between librarian and researcher workflows and the communication between the two groups. These gaps meant that I needed to use an ethnographic model for my study,

involving participant observation and mapping of workflows. I also decided to take a creative approach to capturing and analysing information usually lost during the “flattening” effect of transcribing interviews (Balan, 2005; Glesne, 1997) and losing participant voice and affect. I was able to see and describe physical spaces important to my participants.

I specifically decided not to use quantitative surveys in this project after undertaking brief analysis of open data relating to researcher use of academic SNS and IRs. The available data, from an international project based in (Bosman & Kramer, 2016) and a French project run by Couperin (Vignier, Joly, & Okret-Manville, 2014) were unable to reveal much more than what the literature already says (IRs are unpopular, ResearchGate is popular, Academia.edu is most useful to humanists and social scientists), other than how the surveys were distributed. The international survey was mostly distributed via social media, with the exception of a subset relating to authors publishing with Emerald, and unsurprisingly that showed high usage of a wide range of SNS and digital tools. The French survey was distributed via academic libraries, and many of the participants in that survey had not heard of academic SNSs or did not use any digital tools. What was more interesting to me is how and why researchers engage with OA including institutional and external systems and tools, and that could not be answered adequately via predominantly closed questions in surveys.

I also chose not to use focus groups or group interviews, which I considered for librarian participants in order to speak to more people; as I was worried that voices of dissent might feel excluded (McLafferty, 2004) and I had already heard that librarians in the same area of librarianship tended to share opinions on certain topics in a kind of “groupthink”. I wanted to see what heterogeneity there was, especially in different team sizes and types of institution with different levels of support and resource for research.

My fieldwork began in June 2017 and continued up to March 2018. Some interviews had to be rescheduled several times as academics struggled with availability and others had to be moved to video chat instead of face-to-face. This had some impact on the quality of maps produced by those distanced participants, as their diagrams (which they photographed after the interviews and sent to me) more rigidly resembled the example map I showed them.

3.4 CONNECTIVE ETHNOGRAPHY

The methodological approach I chose was “connective ethnography” (Hine, 2007, 2015), the key aspects of which are defined as follows:

“The idea of a connective, itinerant, or networked ethnography, divorced from a necessary connection to a specific location and open to exploring connections as

they present themselves, is fundamental to conducting ethnography for an embedded Internet that may mean quite different things in different settings. The connection between online and offline space is not a once-and-for-all issue to be settled, but an ongoing question for both participants and ethnographer.” (Hine, 2015, p. 70)

This approach recognises that there is not a “digital dualism” or hard binary between online and offline parts of work, such as those in which librarians and researchers engage (Jurgenson, 2012). Most professionals now move continuously between the two modes. Using connective ethnography, I could follow my participants, with their consent, through the different online and offline spaces they inhabit (Fields & Kafai, 2007; Markham, 2016), as their data and their practice moved through a range of tools and services both institutional and person. There was not time within the PhD timescale and ambitious scope of this project to embed myself for long periods in the physical workspaces of my participants, but I have written about these where possible.

This methodology brings together semi-structured interviews, memos, field notes, visual workflow mapping, document analysis, online participant observation and mapping of use of digital tools and spaces. My methods are centred on interviews, with mapping taking place as an opening to conversation, and each of these methods is described in more details below. The virtual ethnography method of online observation (Hine, 2017) took place at a distance, as I examined the digital traces (Bowker, 2016) and data sweat (Gregg, 2014) produced by participants online – there is not just one research site or workflow, even per individual participant. It therefore also made sense to use multiple methods for data collection (and I planned additional methods for analysis, which were later iterated out due to lack of time):

“Our methods can now be fine-tuned and in the process, increased in number. Henceforth, my book is rigorously fuzzy. Geometry has made its peace with finesse.” (Serres, 1982)

One measure of research quality that helps to explain my work is “rich rigor”, where that idea of finesse is less important than richness and depth:

“The study uses sufficient, abundant, appropriate, and complex

- Theoretical constructs
- Data and time in the field
- Sample(s)
- Context(s)
- Data collection and analysis processes” (Tracy, 2010)

Tracy's criteria are upheld in my work in the use of multiple theoretical constructs, which I have interwoven rather than cherry-picked, and the amount and types of data I collected and analysed to provide a well-rounded view of my participants situated in the complex context for my research.

The analytical concepts presented by Caliandro (2017) were useful for thinking about my data: community, public, crowd, self-presentation as a tool, and user as a device. Most of these are self-explanatory, but "user as a device" means that while my participants are human actors, they are not just standard social actors as they produce data and metadata alongside their content both explicitly and accidentally while working and living between various online and offline spaces. The maps and observations aimed to capture some of that production, alongside talking about their self-presentation and the communities and publics with which they interact or seek to engage. This was useful because it helped to think of my participants as these complex sociotechnical actors with multiple modes of presentation rather than just people who interacted with technology and policy. I interpreted the self-presentation concept as going beyond the "personal brand" to explaining the way academics and librarians perform professionalism and authenticity through their words and actions online and offline alike.

3.5 INTERVIEWS

Semi-structured face-to-face interviews (Barriball & While, 1994) were carried out where possible with participants, and where that was not possible two participants were interviewed online via Skype (Hanna, 2012). The interview schedules I developed for the two groups of participants (see Appendices) allowed for wide-ranging interviews covering attitudes and behaviours towards Open Access, the REF, working lives and tools and services that produced data relevant to my research question without being too prescriptive.

I used prompts specific to individuals, such as asking about a specific recent publication or project, to draw out more details, and the visitor and resident maps used as part of the interviews enabled participants to consider aspects of their personal and institutional lives and how they interact. These maps also helped me to create a rapport with some of my interviewees (Clifford, 1983) as they shared common frustrations with some tools and services, and this meant they opened up more later in the interview.

The interviews were double-recorded, using a Zoom H4n broadcast quality audio recorder and an iPhone's voice memo app for backup. This was the case for both face-to-face and Skype interviews. I brought blank sheets with me for the Visitors and Residents maps but encouraged participants to use their own pens if they had

them, providing these if they did not, as they would be more comfortable writing with a familiar instrument.

3.6 VISUAL METHODS

Visual methods can help researchers expose phenomena that can be difficult to talk about or taken for granted (Wills, Dickinson, Meah, & Short, 2015), which was particularly useful in this study for understanding researcher engagement with OA tools and services. The use of maps in participants' own handwriting and the specificity of some of the items on participants' maps meant that anonymity was a consideration (Benson & Cox, 2014) for sharing the images of the maps. However, they elicited much more information than even I initially expected and started valuable discussions that enabled a thick description of researcher and librarian attitudes and behaviour.

An evaluative review of visual methods (Pain, 2012) found that there are two main categories of reasons for using visual methods: to enrich data collection and/or presentation and to support the relationship between researchers and participants. I found the following characteristics both appealing in principle and true in practice for the visual method I used:

- Helping to build rapport between researcher and participant
- Facilitating communication
- Eliciting the expression of tacit knowledge,
- Promoting reflection

Most interviews opened with a few broad questions before I explained the method to the participant and we began to fill out the map. Jokes and asides in the interview transcripts as well as explanatory comments showed that the mapping process relaxed participants and helped them to explain why they positioned certain tools at certain points on the map or even included them at all. Shared experiences with some of the services came out through those conversations and this led participants to express tacit knowledge and reflect more deeply on their experiences of using technology.

I chose to use the visitors and residents approach (Gourlay, Lanclos, & Oliver, 2015; Lanclos & White, 2014, 2015, D. S. White & Le Cornu, 2016, 2017) for mapping researchers' use of digital tools and spaces, including those relating to Open Access. This is a visual analogue method that involves asking participants to draw or write the services they are using, how and why on a template, on an axis between personal use and use for institutional or research engagement purposes and on a continuum between visitor and resident modes. Visitor mode is equivalent to the moderate scholars of Shehata et al (Shehata, Ellis, & Foster, 2015), who use online tools and spaces mainly in read mode and when they do participate, do so in a more

“functional” manner with little or no visible traces of their engagement, whereas resident mode is a more experiential form of engagement, as practiced by heterodox scholars. I also asked librarians to provide diagrams of the workflows relating to IR and CRIS (if present) at their institution.

The maps produced a long list of tools, systems and services, reproduced in the Findings chapter as Table 10, that enabled me to understand the complexity of the technology and policy environment in which my participants were situated and the extent to which personal and institutional boundaries were blurred by some tools in reality. One element missing from this method is an axis for “professional” use of technologies, which would incorporate some of that personal and institutional crossover but also help to explain the way some researchers and librarians use tools like Twitter, to create a hybrid professional identity (Suchman, 2005) that exists outside of personal and institutional bounds and speaks more to their profession, discipline or field. Some also had a clear awareness of a public audience for their content, which is not captured by these maps.

It was helpful to see the wide range of tools and services used by my participants, without restricting them to categories such as OA and scholarly communication tools. Many of your participants saw OA-related tools within that larger context of institutional and personal software without giving them special status in any way. Many tools are boundary objects of a sort, where the line between what constitutes an OA -related tool and a non-OA-related tool is by no means clear, so therefore I needed to capture all of the tools. The CRIS is used in some of my participants’ institutions to log all research-related activity, for example, and Twitter is used to promote OA outputs but also for many other personal and professional purposes as my data shows.

3.7 ONLINE PARTICIPANT OBSERVATION

I also carried out observations of researchers’ online presence (Bates et al., 2019; Cristofari & Guitton, 2017), which involved observing the use of tools and systems by researchers at a distance and analysing the official communications made by librarians in the area of OA and research support. These strategy and workflow documents were mostly available on library websites, but some were provided directly by librarians. I used “clean” instances of web browsers set up specifically for research, to avoid any personalisation of search results, looking only at publicly available data accessed via search engines and not any private communications (Dyke, 2013). This enabled me to assess whether participants’ perceptions of their online reputation and visibility were accurate and to see the prioritisation of different types of profile websites and article versions relative to institutional links and versions of record. I searched for researcher names, disambiguating via adding their

institution name where necessary, and for titles and keywords from research outputs and projects.

3.8 PARTICIPANT RECRUITMENT AND CONSENT

I took a heterogeneous approach (Bryman, 2012) to sampling to make sure I did not select people with similar roles and views, insofar as that could be anticipated. To ensure a wide range of situations and norms are represented, I drew my librarian participants from across the university mission groups (Morrish & Sauntson, 2013) and my researcher participants from across the three post-PhD research career stages outlined in the European Framework for Research Careers (European Commission, 2011):

- **First Stage Researcher (R1)** (Up to the point of PhD)
- **Recognised Researcher (R2)** (PhD holders or equivalent who are not yet fully independent)
- **R3 - Established Researcher** (Researchers who have developed a level of independence)
- **R4 - Leading Researcher** (Researchers leading their research area or field)

I focused my researcher sample on one field from each of the REF 2014 panels (Research Excellence Framework 2014, 2010). I also selected practice-as-research artists from REF panel D, as their needs in relation to scholarly infrastructures are very different (Nadim & Randall, 2013; Pariser, 2013) and have to date had limited attention in this context. In total I interviewed 18 participants (14 researchers and 4 librarians), and with more time and access would have interviews more. I also interviewed 4 scholarly infrastructure experts but chose to discard their interviews from my analysis as their data did not speak to my research questions. While I preferably would have interviewed more people, I needed to make sure there was enough time to fully analyse the rich data generated by the multiple data collection methods I used.

Table 2: researcher sample

REF Panel	Field(s)	Number of participants
A	Nursing	2
B	Earth Systems and Environmental Sciences	2
C	Sociology	4
D	History (and Art & Design)	4 (+2)

There was some difficulty in recruiting participants from REF Panel A and I had to change my original choice of field from Clinical Medicine to Nursing. However, this turned out to be a good decision that produced some interesting findings related to information sources and the balance between teaching and research in a practice-oriented department. Several participants dropped out before interview and this reflects the very issues of time pressures to which my findings speak. I recruited participants via several methods: a website which was shared to disciplinary mailing lists and on social media, direct approach to acquaintances and the snowball sampling method (Corbin and Strauss, 2008) where participants or those keen but unable to participate suggested other researchers to try. My connections to the library world made recruiting librarians via the convenience method easy and I specifically chose to speak to people whom I knew less well.

3.9 CODING

Key themes from the data were developed via inductive thematic analysis (Braun & Clarke, 2008) and theory was applied to the data to inform findings and theoretical understanding of issues. Coding was informed by a pragmatic approach to Grounded Theory (J. J. Corbin & Strauss, 1990) that used some elements of Grounded Theory without being wedded to its purest tenets such as delaying the literature review until the end of the study. I could not avoid approaching the data with some preconceptions due to my previous involvement in both the early career researcher and OA advocacy communities, and therefore it was necessary to take an “informed” approach to Grounded Theory (Thornberg, 2012) involving constant reflexivity for self-monitoring and continuous awareness of my own positionality and how my concepts and decisions were being formed and made. I acknowledge my subjective role and prior knowledge when approaching the data.

I wrote many memos while re-reading the interview transcripts and re-examining the other data sources such as the maps and search results, to reflect on what I was seeing in the data and how I was developing ideas concerning what it was telling me. I created a code book and applied it consistently. I aimed to achieve thick descriptions of the data (Geertz, 1973; Latour, 2005, p. 136,148). Codes identify parts of the data that seem to be interesting or demonstrate a point relevant to the research question (DeCuir-Gunby, Marshall, & McCulloch, 2011). I examined the interview transcripts, visitor and resident maps and memos from my online participant observations closely and applied the codes to them systematically. The codebook is in Table 3 below.

My approach to generating codes used a six stage process developed by Braun and Clarke in their most recent articulation of this process (Braun & Clarke, 2020):

1. data familiarisation and writing familiarisation notes
2. systematic data coding
3. generating initial themes from coded and collated data
4. developing and reviewing themes
5. refining, defining and naming themes;
6. writing the report.

My codes are inductive, grounded in the data rather than imposed from other research or theory, and mostly semantic or explicit codes rather than latent or hidden (Braun & Clarke, 2008). Table 3 shows my codebook after my initial codes were consolidated from over 100 individual codes to 45.

Table 3: Codebook

CODE	DESCRIPTION
workflow	Explicit reference to guidance around workflows or official way to do things.
mess	complications, complexity and messy work
time	direct or indirect reference to time and pacing
system	technical system or academic system
process	how they actually work
paper	reference to working with paper or off screens
strategies	coping methods and managing careers
game	direct reference to academia as a game
challenges	barriers identified by participant
embargoes	direct reference to an embargo
discipline	their discipline or field
profession	academic or librarian profession
career	direct reference to career instead of just job/role
reading	how and where they read for work
writing	how and where they write for work
publishers	academic publishers

mental health	tone or reference that relates to mental health
out of (my) control	feeling of lack of control for participant
misfit	Participant refers to themselves as being an outlier in some way.
metrics	metrics and rankings
monitoring	checking and monitoring of work and workload
priorities	what work they or others prioritise
defiant objects	Reference to academic outputs that don't fit the norms of article or conference paper
technical skills	reference to skills needed or possessed
competition	with other academics or institutions
cooperation	with other academics or institutions
what universities are for	reference to purpose of university
communication difficulties	struggle to be understood by colleagues
teaching	direct reference to teaching
sources of information	where participant found out about something
union	Membership or problems with trades unions
locations	Where someone works
office-sharing	if they have their own office or not

academic admin	Administrative (not managerial) work required by the university
life admin	Personal administrative tasks
getting it wrong	Anxiety about making mistakes that will have serious consequences
caring responsibilities	Looking after children, partners or other relatives
institutional problems	Issues specific to that university
redundancies	
values	Participant makes explicit or implicit reference to the values they hold
strike	UCU strike of 2018
rankings	Rankings of universities and departments by external bodies
emails	How they manage emails and notifications
work-life balance	
creativity	direct or indirect reference to being creative

3.10 ANALYSIS

After data collection was complete, I transcribed, coded and analysed data from the interviews, maps and online participant observation. I tried using NVivo initially for coding and analysis but found that it was more productive to read and mark up the transcripts digitally with codes, consolidating from over 100 initial codes to 45 where similar activities or emotions could be grouped together. I then decided to use cut up paper and a large board to move around the codes, having found it gave me more freedom than working on the screen, and created themes I identified using thematic

analysis (Braun & Clarke, 2008). Figures 2-4 illustrate several iterations of these boards, where I group codes (which were later refined) but have not yet named themes:

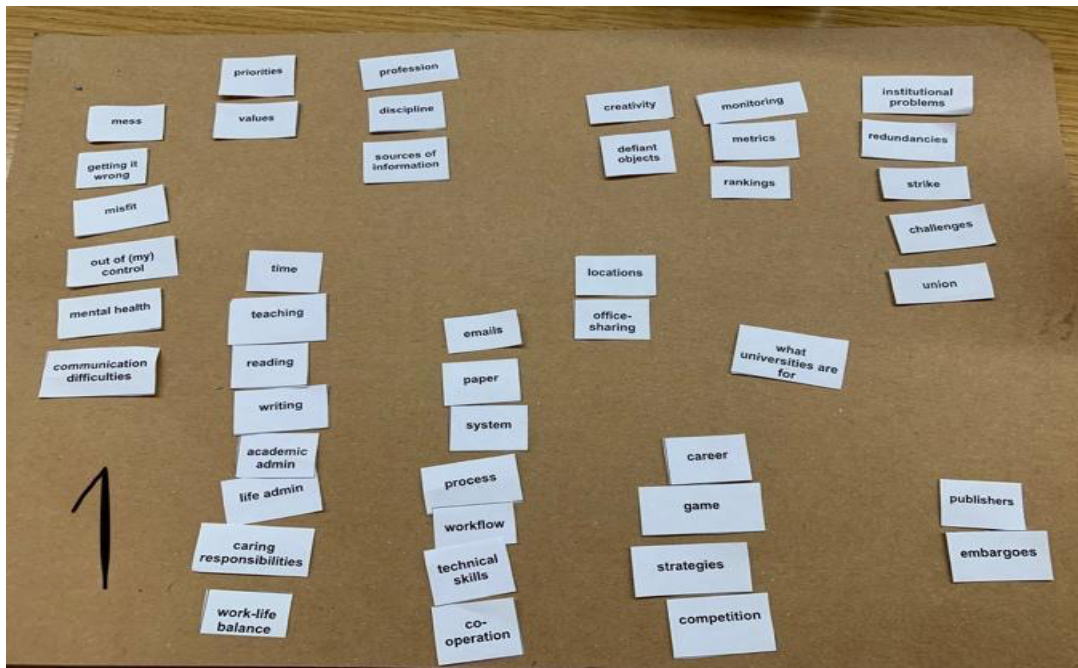


Figure 2: Themes iteration 1

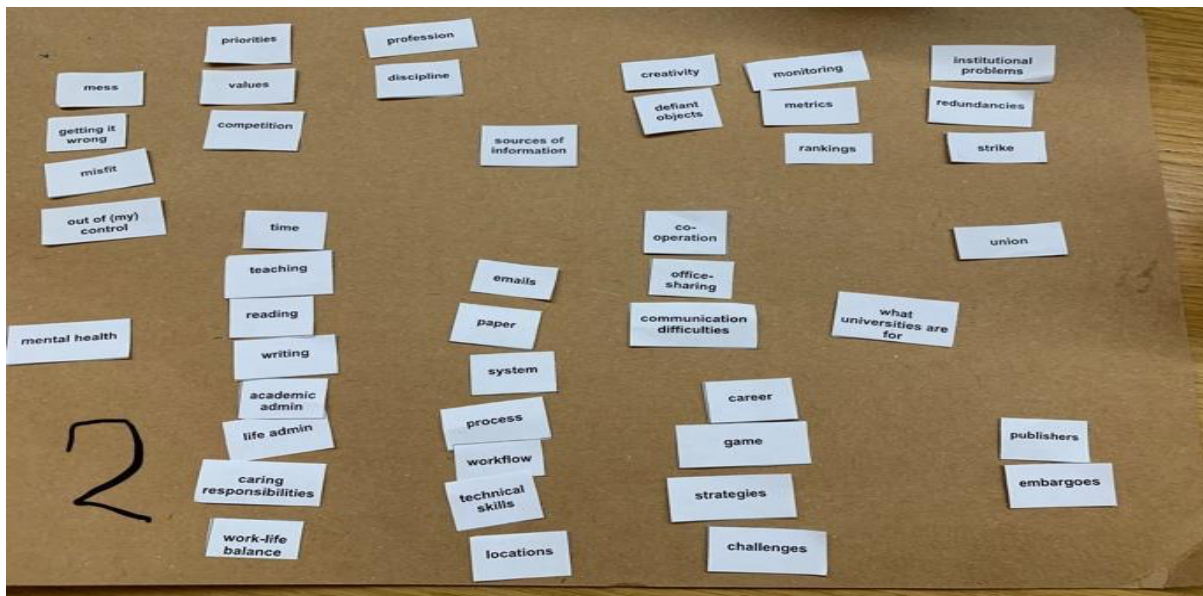


Figure 3: Themes iteration 2

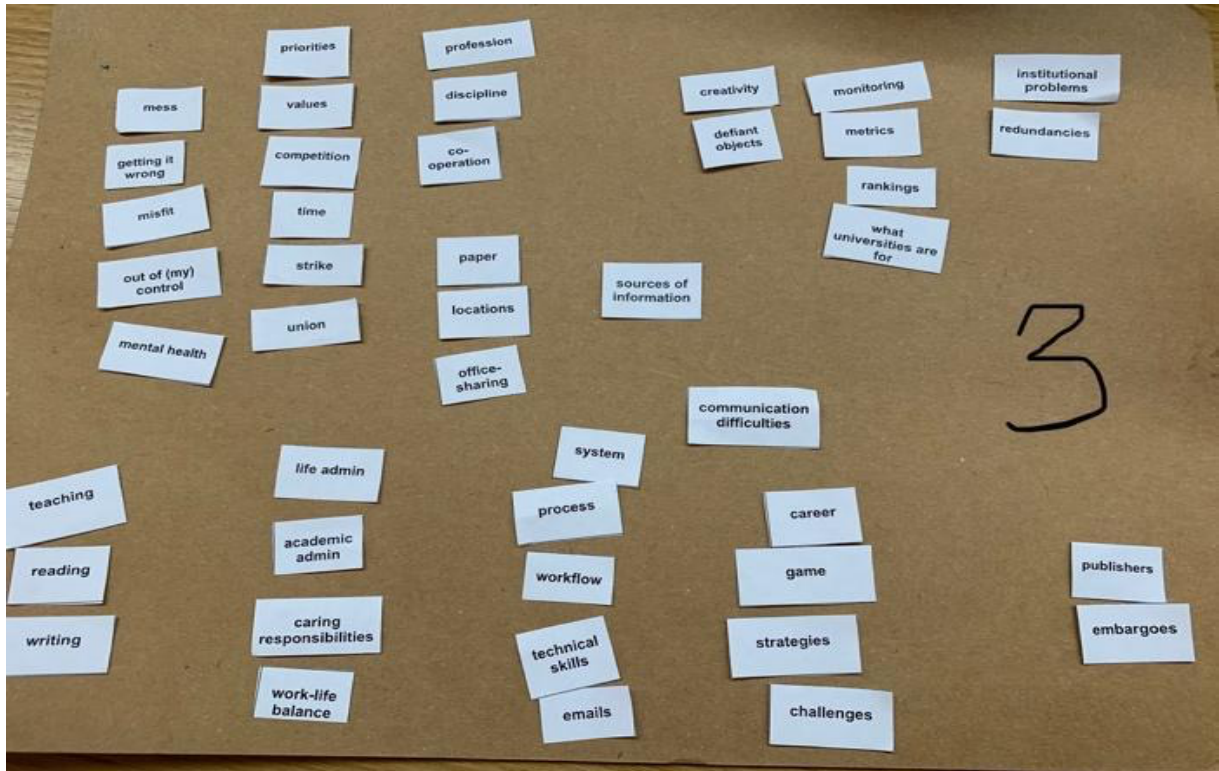


Figure 4: Themes iteration 3

These boards then moved to a digital version of the process via the program Scapple (illustrated in Figure 5).

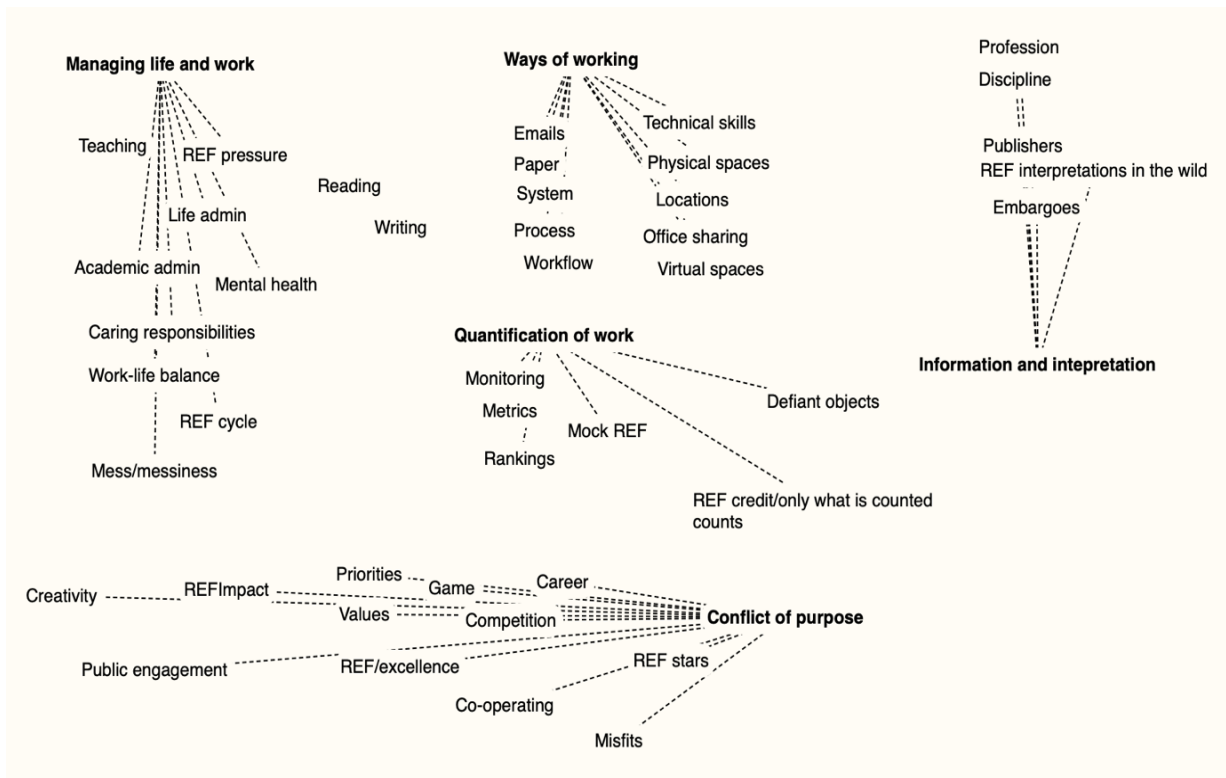


Figure 5: Digital themes map

These maps were further developed into a storyline diagram (Birks, Mills, Francis, & Chapman, 2009) to understand what my findings were trying to tell me and how they fitted together, as illustrated in Figure 6. I did not just group the themes but tried to understand the relationships between them, ordering them and adding arrows to indicate how the issues flowed from each other as influences, pressures and information sources came into play.

I kept reflexively returning to the data, looking for latent as well as surface codes and themes (Braun & Clarke, 2008). I have taken a pragmatic approach to thematic analysis, where I settled on a codebook that others including my supervisors could check and understand, but a reflexive attitude towards themes and storytelling with the data that is no less rigorous but much less concerned with a strict framework that ignores my own perspective and interests as an early career researcher with a library background. I wanted to be able to generate rather than validate theory (S. M. Carter & Little, 2007) but also use critical theory where appropriate to discuss what emerged from my data. As I began to write the analysis, these two approaches conflicted with each other and I mostly concentrated on the former. I brought in theoretical concepts where relevant instead of them dominating the discussion.

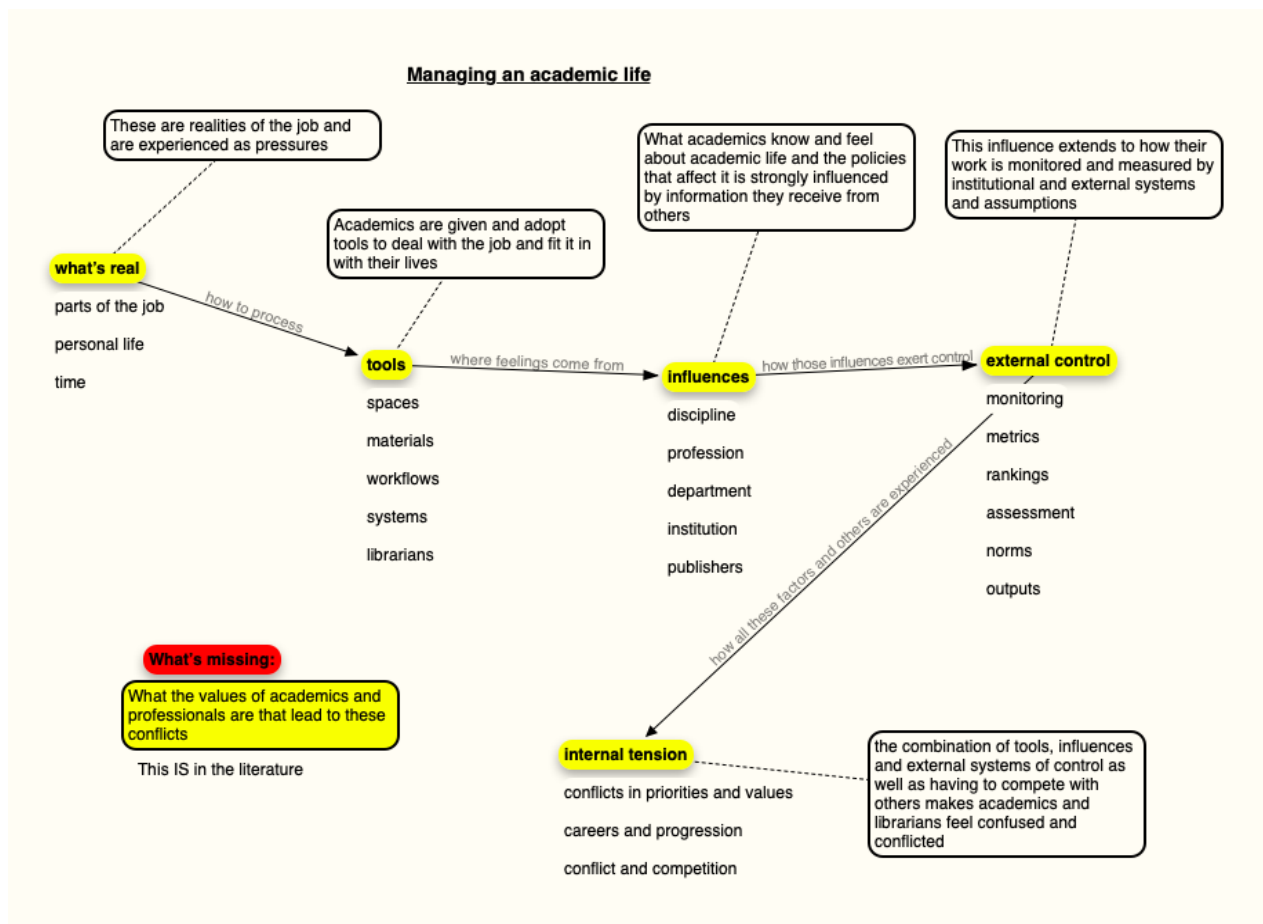


Figure 6: Storyline diagram

When analysing the maps and observation data, I used these codes and themes but also made a list of the tools and services used by my participants and their typical positions on the map (see Findings chapter).

3.11 RESEARCH QUALITY

Multiple methods of data collection helped me to compensate for weaknesses in individual methods and to confirm and validate my data (Norman K Denzin & Lincoln, 2000). However, there was no singular reality to be found, but rather a plurality of experiences that at times clashed with each other (Richardson, 1991). My question did not demand triangulation for accuracy (Patton, 1999), but it suggested searching for the fullest picture of what was going on for researchers and librarians at the time of my fieldwork.

I chose to transcribe recordings verbatim, which captures hesitancy, dysfluency, repetition and other errors of speech. This makes it more difficult for other people to read and check the transcripts and can make speakers seem less intelligent and articulate (Lapadat, 2000), but as my participants were academics and librarians these stigma were unlikely to attach themselves to their quotations. Standardising orthography would have reduced these issues, but at the expense of the emotion and changes of tone captured by my verbatim choice. I quote participants liberally and at length, as direct quotations are not only a form of rigour in research informed by grounded theory (J. Corbin & Strauss, 2008) but also a way of giving my participants a fuller voice in the research rather than having one indirectly attributed to them.

I could have used member checking by giving copies of transcripts or quotations back to my participants to check for accuracy. However, this was difficult to do without raising ethical issues (Birt, Scott, Cavers, Campbell, & Walter, 2016) as it would be difficult for me to be present when they were reading the extracts to check for harm to the participants, and synthetic member checking also would have been inappropriate for use with these professionals. It would also have delayed my analysis considerably. However, participants drew their own maps, those maps were clarified with them and dates and details checked via email later where these were unclear.

I have tried to be clear about what constitutes a code and what constitutes a theme and grappled with the difference between topic summaries and the deeper shared meaning of actual themes (Braun and Clarke, 2020). Generating themes rather than looking for them to emerge was a more active process than I was expecting, and in multiple stages over a period of years rather than weeks, but I have more confidence in the quality of the research as a result.

While small scale qualitative studies like mine fail at statistical-probabilistic generalisability, this is not the goal of all research and particularly not when participants' experiences are heterogeneous and "reality" is constructed by them rather than an observable truth (B. Smith, 2018). However, another form of generalisability is applicable: naturalistic generalisability (Stake, 1978). I have tried to provide the reader with sufficient detail of participant's lives through the rich accounts in my findings so that the reader can reflect on what I have said feel a sense of connection with the research. It should "feel true" to academics and librarians. The research can also be transferred to other situations via case-by-case transferability and generalisation of the concepts presented (Guba & Lincoln, 1994; B. Smith, 2018).

3.12 ETHICAL ISSUES

I followed the University of Sheffield's ethical research policy in full, ensuring confidentiality and security for my participants and safety for me as a researcher. Ethical approval for the study was given in June 2017. Participation in the study was voluntary and all participants were sent a consent form and information sheet relating to the project before agreeing to take part and then again on the day of interview where appropriate. Participants were made aware they could withdraw from the study at any time, and some withdrew permission for direct reproduction of their visitor and resident maps after our interviews with reference to the information I had given them. Data was stored on password-protected computers in encrypted folders.

There was no potential for physical harm in this study, but some of the topics discussed such as mental health, redundancy and precarity were emotionally difficult for both participants and researcher. Some information was shared with me on a strictly off-record basis and this confidence has been respected. Meetings took place in public places or in participant offices and meeting rooms where trusted contacts of both parties were aware that participants and I were in the room and in contact before and after interviews.

Ethics in practice is of course more complicated than ethics procedures (Racine & Bracken-Roche, 2018; Tracy, 2010), and the comfort of my participants was very important to me both while conducting my study and writing up my research. My reflexivity involved consideration of the purpose of my research beyond achieving a PhD and furthering my own career. Part of my intention is to improve ethical engagement between researchers and librarians, not to become another barrier to this.

I took the following steps to protect confidentiality of my participants:

- Avoiding job titles, as these can be specific to the individual or the institution
- Removing any details that may reveal geographical location or institution

- Letting the participant know that they could make comments off the record and this would be respected, especially in sensitive discussions around mental health or redundancy procedures
- I did not reveal participant details even to my supervisory team, as the OA librarianship world in particular is quite small and one of my supervisors researches OA

I used pseudonyms for my participants derived by picking names that were statistically common for their age group and racial heritage (B. Saunders, Kitzinger, & Kitzinger, 2015) and did not begin with the same letters as their real names. The approach I have taken to this thesis is a personal, open writing style and this would be disrupted by replacing names with numbers or codes.

3.13 CHAPTER OVERVIEW

I began this chapter by sharing my research philosophy, which is an interpretive stance informed by critical realism, and research design, which is qualitative in approach. I then justified and explained my choice of methods, which collectively form a connective ethnography. I explained in detail how I coded and analysed by data and ended with a consideration of the ethical issues raised by the study. The next chapter shares the findings from my data.

4 FINDINGS

4.1 CHAPTER INTRODUCTION

This main Findings chapter is organised in the form of five themes emerging from my data, which answer five sub-questions stemming from the overarching research question I asked in the introduction. My data developed my understanding of how my participants work, manage their time, understand the REF, experience the quantification of their work and cope with the conflicts of purpose inherent in UK higher education. These were the most important issues emerging from the data and characterise participants' experience of working in the sector at the time of my fieldwork, which coincided with the middle of a REF cycle. Scholarly communication and Open Access relate to all of these themes, to a greater or lesser extent, and feature in all of them.

4.2 PARTICIPANTS

The selection of my sample and the explanation behind their pseudonyms is explained in full in the Methodology chapter. The tables below are included for your convenience, explaining their roles and the type of institution in which they work. Throughout the chapter, I will mostly refer to them by pseudonymous name and discipline/profession, which I have found to be more humanising than the use of alphanumeric codes - even though those could potentially contain more demographic information. Discipline and profession inform their responses more often than other attributes and I will make it clear where that is not the case.

Institutions are classified by their primary focus on teaching (mostly post-92 universities) or research (pre-92 universities) (Jubb et al., 2015), with an exception for Oxford and Cambridge (Oxbridge) as they work slightly differently, especially with reference to libraries. Their type and group are as defined by a Department of Education report on the Teaching Excellence Framework (Blyth & Cleminson, 2016) and the seniority and equivalents of academic roles are as explained by the Barton Group (G. J. Barton, 2019). Russell Group universities are often portrayed as more prestigious than other universities, in the vein of American R1 universities, and are classified separately from other groups for this reason as they have their own image and reputation pressures. This is also true of Oxford and Cambridge ("Oxbridge"), analogous to the American Ivy League group. I deliberately sought participants from a range of institution types, roles, career stages and institutional seniority.

I will explain librarians' roles separately below as they are more heterogeneous and even esoteric in title and position in institutional hierarchy and do not always have direct equivalents at other UK institutions, never mind internationally.

Table 4: Academics – History

Institution focus	Institution type	Institution group	Role	Seniority	Name
Research-intensive	Prestigious research university	Russell Group	Lecturer	Independent teaching and research/associate professor	Siobhan
Research-intensive	Prestigious research university, red brick	Russell Group	Senior Lecturer	Career advancement for lecturer	Chris
Teaching-focused	Former teacher training college	Post-1992	Postdoc	Post-PhD research on short-term contract	Kate
Teaching-focused	Former polytechnic	Post-1992	Hourly-paid teaching assistant	Post-PhD teaching assistant/adjunct on casual contract	Greg

Table 5: Academics - Sociology

Institution focus	Institution type	Institution group	Role	Seniority	Name
Research-intensive	Prestigious research university, red brick	Russell Group	Reader	Senior academic, level below full professor/assistant professor	Andrew
Teaching-focused	Former polytechnic	Post-1992	Lecturer	Independent teaching and research/associate professor	Jenny
Research-intensive	Research university	Plate glass	Teaching fellow	Post-PhD teaching on short-term contract	Hannah
Teaching-focused	Former art school	Post-1992	Senior Lecturer	Independent teaching and research/associate professor	Jess

Table 6: Academics - Earth and Environmental Science

Institution focus	Institution type	Institution group	Role	Seniority	Name
Research-intensive	Prestigious research university	Ancient	Professor	Full professor	David
Research-intensive	Prestigious research university, red brick	Russell Group	Postdoc	Post-PhD research on short-term contract	Naz

Table 7: Academics - Nursing

Institution focus	Institution type	Institution group	Role	Seniority	Name
Research-intensive	Prestigious research university	Russell Group	Postdoc/part-time lecturer	Split between temporary research project and independent teaching and research	Sarah
Teaching-focused	Former polytechnic	Post-1992	Senior Lecturer	Independent teaching and research/associate professor	Gail

Table 8: Academics - Practice-based Arts

Institution focus	Institution type	Institution group	Role	Seniority	Name
Teaching-focused	Former art school	Post-1992	Visual art lecturer	Independent teaching and research/associate professor	Becky
Teaching-focused	Former polytechnic	Post-1992	Performance lecturer	Independent teaching and research/associate professor	Laura

Librarian roles in this specialism are not often directly mappable to each other. Alex works for a faculty, a group of subjects, with library assistants below them. Natalie manages a team who are all paid at qualified librarian level a grade below her; but has a head of technical services at a grade above her, with deputy and head of service above that. Daniel does not line manage any staff but his role is at the same grade as senior librarians, managed by the deputy head of service one grade above him. Marie's role incorporates part of the electronic resources team management role and is managed similarly to Daniel, but has library assistants below her that she jointly line manages with another senior librarian.

Table 9: Library workers

Institution focus	Institution type	Institution group	Role	Seniority	Name
Research-intensive	prestigious research university	Oxbridge	Research support librarian	See above	Alex
Teaching-focused	former polytechnic	post-1992	Research support librarian	See above	Natalie
Research-intensive	prestigious research university	Russell Group	Open Access librarian	See above	Daniel
Teaching-focused	former polytechnic	post-1992	Research support manager	See above	Marie

4.3 WAYS OF WORKING

The first theme of this chapter answers the question: **How do academics and the librarians that support them work and why do they do it that way?**

Open Access policies and technologies are often considered in a vacuum. This study is intentionally placing the processes, policies and technologies in context, which creates a situated understanding of the pressures on academics.

MANAGING COMMUNICATION CHANNELS

Emails loom large in the lives of both academics and librarians, whether they work part-time or full-time, on or off campus. Most participants had made a conscious decision about when and how they read their work email, including whether or not they could access it on their mobile devices and in what circumstances they would read it at home. Newer, commuting and part-time academics felt more pressure to read work email on their own time and be more obviously “present”. Checking their inbox regularly using their mobile phone or tablet made them feel like they were still a good worker and colleague, which was not something that troubled senior full-time academics to the same extent. This sometimes meant looking at emails late in the evening to head off potential problems when they got into the office the next day, or managing the constant flow of information by reading, responding to and deleting emails when they were meant to be taking annual leave, like Sarah:

“I tend to still do email on my days off. Hmm, and sometimes I do work on my days off, but ultimately, if my son is awake, he's a toddler, so I tend to still keep it kind of keeping on top of my emails and if he's having a nap then I will do some work.” **(Sarah, Nursing)**

Athena SWAN was mentioned by several participants throughout interviews, as part of initiatives intended to make the workplace more female and family friendly. However, the actions and policies that emerge from these initiatives are not always welcomed by staff. For many academics, flexibility is part of why they like their jobs and that includes being able to split tasks across a week and not work fixed hours. Jenny explained how a policy at her workplace, instigated from an Athena SWAN action plan, was discussed in her department:

“So, they're talking about having a kind of email core hours policy. We are not supposed to send emails outside those hours. Everyone's a bit like, don't take away my academic freedom to organise myself, and it should be more like, don't feel that you have to respond. I think that's the sentiment it was meant in, but people don't like being told what to do.” (Jenny, Sociology)

Here Jenny has explained the key tension around email, between the freedom of an academic to manage their own time and workload and the pressure some feel to respond to messages whenever they arrive in order to be considered responsive, professional, hard-working and caring. Senior participants tended either not to have work-related email apps on their phones in order to avoid the temptation to reply outside of times when they considered themselves to be working or to add some friction to the process, as explained by Jenny:

“IT [services] was like, oh we can get your work emails sent through to your Gmail, so you'll get it on your phone, and I'm like no, I only want to access my emails from work through my web browser because that means it takes an extra step. It's more effort, it's more effort and I won't constantly be hassled by others.” (Jess, Sociology)

Jenny found her attitude to email changed over time, which is supported by the experiences of other participants later in their careers. It is clear that the onus is on the individual to find a way to cope with emails and notifications that they can manage without risking external perceptions that they are not working hard enough. Jenny felt she could only set firmer boundaries once her employment position was more secure.

“At that point [first academic job] I was much more prepared to put in extra time to do things and to be like, right, I've got to respond to this email and I've got to spend this extra time writing with my hands in pain and all of this kind of stuff, and the more you get to a position - I mean I'm still on probation here – you have to set limits so you can't.” (Jenny, Sociology)

Jess and Jenny have found ways to cope with the volume of communications and notifications, but the postdocs and teaching fellows felt additional pressure to keep up with their email and social media accounts for reasons of precarity and applying for jobs and other opportunities: “just always jumping a bit in case it's an interview or a rejection or something else I need to see right now” (Naz, Earth Sciences).

Perhaps due to the dominance of computers and screens in large parts of their work and home lives, as I will discuss in the next section, outside of emails and writing participants expressed a preference for working at least some of the time on paper, especially for reading and editing. Piles and boxes of printouts and photocopies were stacked up on the desks and shelves of those who had their own offices, along with plenty of books and those who worked in open plan arrangements spoke of having similar volumes of paper at home: “I need an office in my next job just to have somewhere to put everything. My house is a fire hazard” **(Hannah, Sociology)**

Andrew misses the days of paper copies of journals as his main mode of reading articles and prefers physical books to ebooks:

“I like material books, yeah. I think it's a real shame we don't circulate actual journals, material journals, cause I'm studying the thing I've been reading [and] not the screen.” **(Andrew, Sociology)**

Taking a journal somewhere other than his desk and reading it frees him from distraction, which is how other academics felt about printouts and photocopies. Reading on screen inevitably led to distractions from other resources available on the same device, from their web browser to their email account. It is also harder to physically manage reading on screen for newer academics like Naz, who unlike some permanent colleagues does not have a desktop computer with multiple monitors and therefore does not have the screen space to easily read, write, make notes and edit concurrently:

“I could kind of sit with my laptop open and look at the paper at the same time, it's clear what I'm reading and what I'm editing, but I need space for that.” **(Naz, Environmental Science)**

For Andrew and Naz, their approach to analogue and digital resources related to what they were actually writing about (for Andrew, long technical documents), keeping reading and writing physically separate and managing screen time during the working week. They are at least twenty years apart in age and in very different disciplines, but their experiences and preferences are similar. None of my participants work wholly digitally, and strongly prefer print books and paper notes to their digital equivalents. This also reflects my experience working in a Politics department, where offices were full of printouts and books and far more people took physical notebooks to meetings for note taking purposes than iPads, laptops or phones. Those who talked about ebooks did so disparagingly, and “they're useless for anything other than setting single chapters for reading lists” (Gail, Nursing) was a common sentiment. The difficulties of accessing copies, saving PDFs for later reading and integration with other services and devices were all raised as issues. Participants did find ebooks useful for looking up references, via full-text search, and relieving pressure on a small number of library copies of print books on a reading list.

However, specific ebook platforms (eBrary, Dawsonera) and their poor user experience led academics to swear and rant:

“Dawsonera is just awful, it never works, and then if it does then it makes you run out of time.” (Chris, History)

“Why do some ebooks say you can’t borrow them because they’re already out? They aren’t even real!” (Laura, Performance)

“These things are OK for chapters, but it is hopeless trying to read a whole book, you know? Sometimes I buy a Kindle copy for myself, but then I forget about it, like the Verso sale every year, yeah, so many that I just don’t have time, but it’s a better way of doing it than the library.” (Greg, History)

Natalie works on e-resources as well as Open Access and research support for her institution’s library, and found herself frustrated by the gap between student and staff expectation of academic ebooks and the reality: “They aren’t even available for lots of titles, and there are a lot of different purchasing models, and then people expect to be able to read them when they want how they want and they can’t”. Even though Adobe Digital Editions is required to access and read most of the content downloaded from legal academic ebook platforms, for digital rights management reasons, none of my participants mentioned it as one of the tools or systems they used regularly. While academics add to reading lists book chapters and textbooks in ebook format, where available, this in addition to their comments on the frustrations around access indicates that few of them prefer academic ebooks for their own reading and referencing. Most academic titles are unavailable for download on e-readers, despite some participants talking about Kindles.

COMPLEX TECHNOLOGY ENVIRONMENT

When it comes to systems, workflows and processes in higher education, participants use a lot of different tools and devices that then have to mesh with their different ways of working - both personal and institutional. I wanted to know what happened and how systems participants had to use and the ones they chose to use fitted into their working habits. Conversations about systems and tools began with participants drawing and talking me through their Visitors and Residents diagrams (see Methodology chapter). Participants mostly stuck to talking about electronic tools, but one showed me their physical notebook as the way we were talking about mobile apps reminded them of how they worked with their current notebook and how it integrated with other tools and systems they used at home and work.

The table below, Table 10, shows the range of tools participants said they used, and their most common position on the diagrams.

Table 10: Tools from Visitors and Residents diagrams

Name of tool or system	Brief explanation	Category	Common diagram position
Outlook	Email – web, mobile app or computer-installed software	Office software	Institutional, Resident
Word	Word processor - computer-installed software	Office software	Institutional, Resident
Excel	Spreadsheets - computer-installed software	Office software	Institutional, Visitor
Gmail	Email – web, mobile app	Google cloud service	Personal/Institutional, Resident
G-Suite (including Drive, Docs, Sheets, Slides etc)	Storage and collaboration – web, mobile app	Google cloud service	Personal/Institutional, Resident
Google Maps	Mapping – web, mobile app	Google cloud service	Personal/Institutional, Resident
Google Scholar	Search for academic and grey literature – web	Google search service	Institutional, Resident
Agresso	University finance system	University specific system	Institutional, Visitor
VLE	Content management system for teaching and assessment	University specific system	Institutional, Visitor

Bus Times	Mobile app for local bus times – mobile app	Transport app	Personal, Visitor
Minions Rush	All-ages puzzle game – mobile app	Mobile game	Personal, Resident
Pure	Research information system (CRIS) – web	University specific system	Institutional, Visitor
Symplectic	CRIS – web	University specific system	Institutional, Visitor
Institutional Repository	Repository service for uploading and downloading research outputs – web	University specific system	Institutional, Visitor
WhatsApp	Encrypted mobile group messaging - mobile app	Messaging app	Personal, Resident
Facebook	Social networking platform – web, mobile app	Social network	Personal, Resident
Snapchat	Social networking platform – web, mobile app	Social network	Personal, Resident
Twitter	Social networking platform – web, mobile app	Social network	Personal/Institutional, Resident
YouTube	Video sharing – web, mobile app	Video	Personal/Institutional, Resident
Academia.edu	Academic social network – web	Social network	Institutional, Visitor
ResearchGate	Academic social network – web	Social network	Institutional, Visitor

arXiv	Preprint and grey literature sharing - web	Preprint server	Institutional, Resident
Other preprint servers	Preprint and grey literature sharing - web	Preprint server	Institutional, Visitor
Mendeley	Referencing software – web bookmarklet, mobile app, desktop app	Referencing and PDF management	Institutional, Resident
Zotero	Referencing and PDF management	Referencing and PDF management	Institutional, Resident
EndNote	Referencing software – web bookmarklet, mobile app, desktop app	Referencing and PDF management	Institutional, Visitor
Notebook (physical)	Note taking – paper book	Note taking	Personal/Institutional, Resident
Notebook (electronic)	Note taking software – mobile app or computer-installed software	Note taking	Personal/Institutional, Resident

Of all the big technology companies, Google has the biggest presence in librarian and academic lives. Not every institution uses Microsoft Outlook for email, not every academic chooses to write in Microsoft Word and Apple products are not universal, but all my participants have personal Google accounts for home use and many have institutional accounts as their university has moved to G-Suite for email and other office software. Google-owned products were central to many participants' lives, research and teaching: Gmail, Google Maps, Google Docs, Google Drive, Google Scholar, YouTube.

When it comes to the Visitors and Residents diagrams, not all participants completed them and those who did were not happy with those being shared openly. Therefore, a limited number will be shown in this chapter and extracts to avoid recognition of handwriting or behaviours.

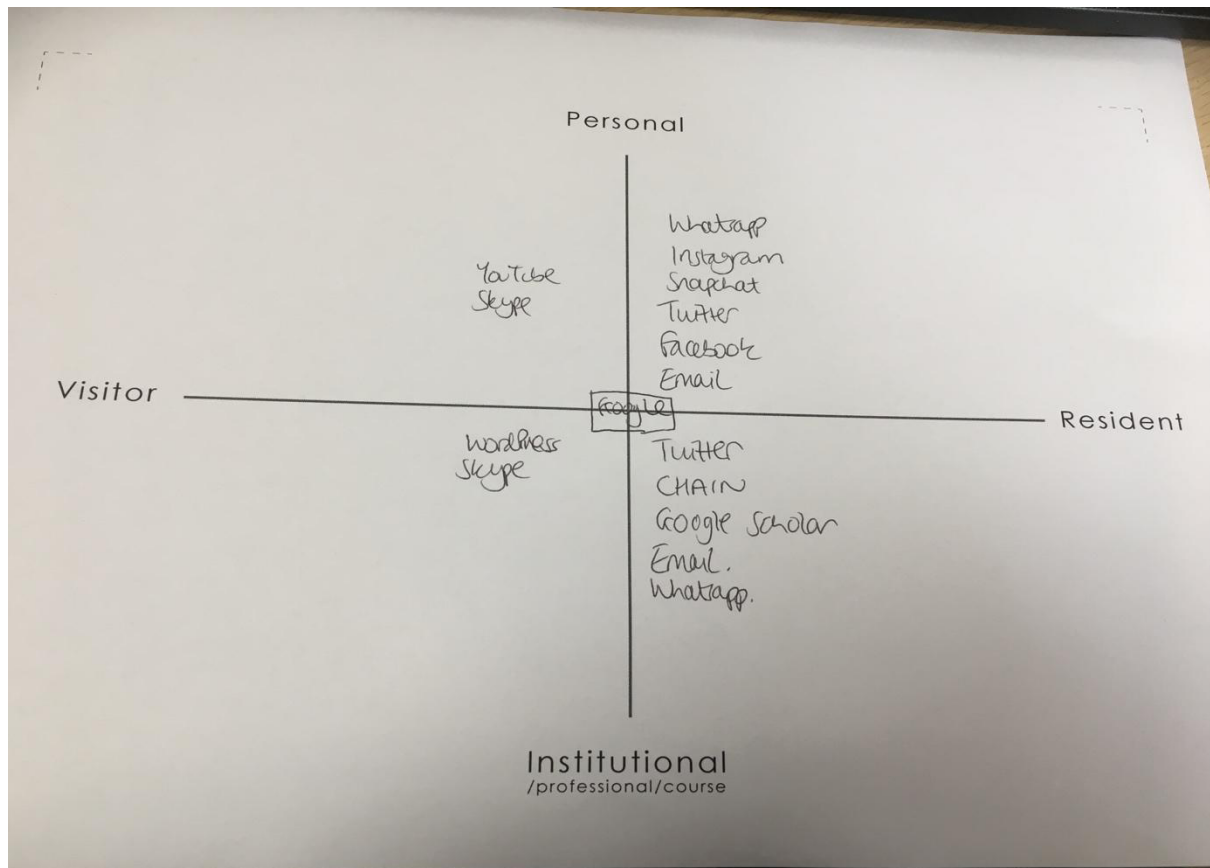


Figure 7: Visitors and Residents diagram from Sarah (Nursing)

This diagram, Figure 7, is interesting because it is atypical. Most participants placed at least some items at the extreme poles of visitor and resident. However, Sarah used a small core of tools semi-regularly, and the main split was between personal and institutional use, with Google at the heart of her digital life and most university-owned services being out of scope of regular use. Their teaching, research and family commitments leave them short of time to explore more tools. *CHAIN* is the Contact, Help, Advice and Information Network, a specialist network for professionals in health and social care. There is a directory of members and their interests, and a wealth of resources and sub-groups for information sharing and question-answering. Links and subgroup names are visible to the public, but most of the website is members-only. One of the subgroups is for nurses, midwives and associated health professionals in related research. This participant was the only one in the study to use CHAIN, and she had a strong connection to the nursing profession through their research as well as teaching.

Some participants felt pressure to learn new software to become more efficient or develop emerging skills that appear to be more valued by employers (e.g. coding, data visualisation and quantitative analysis) and resent it. Siobhan (History) felt this attitude was common to many humanities academics in particular:

“I mean there are fewer grants and plenty of other stuff to do including teaching prep and if I’m gonna do anything like learn to use LaTeX or switch out to any other operating system or use something different to make graphics then it seems like next year might be the year to do that and then I just think I really hate this idea that we should have to do it. Because I think it’s one of those things where they’ve taught it (software and coding/programming) as part of how you do science and if that’s not how you talk and it’s not automatically how your brain works then it won’t work for most of us later in life.”

The arts, humanities and social sciences academics frequently talked about the interface of systems and expectations of policies and recruitment being aligned with the practices of academics in STEM subjects (science, technology, engineering and mathematics). STEM participants did not mention the arts and humanities at all but did seem in general to be more comfortable with technology and complained less about the assumptions around ways of working made by managers and policymakers. Learning to use writing tools like LaTeX, to code in R or Python and so on are valued parts of their training. This does not make them any keener on institutional software that they only use for very specific tasks on an irregular basis.

INSTITUTIONAL SYSTEMS

The institutional repository and research information management systems were conflated by most of my academic participants, which is understandable given that at all of those institutions, the latter was used as a front end for the former. While librarians were resident in these systems, academics considered themselves to be occasional visitors and found the processes involved slow and frustrating. Librarians’ approaches to what needs to go into these systems varies and differs from my previous study of repositories where most participants were grateful for any deposits in the repository and welcomed new recruits adding all their previous outputs. The focus of research support librarian roles as advertised more recently is much more tightly related to the REF.

“It is a mandate, but it’s not one that we can go, you must deposit everything, you know, but obviously for HEFCE, then that’s the push that works. Yeah, well, you know, if it’s going to be in the REF they have to do it.” (Daniel, research intensive)

“So if they send us their PowerPoints, well, I know. It doesn’t mean anything on its own does it? And things like letters to the editor, people will put them in and I go, No, I don’t need a letter to the editor or an editorial because it doesn’t make any sense without the rest of the journal or that book. And it’s quite a lot of work to do, you’ve got to process everything. And I think if it doesn’t, if it’s not useful on it in its own right, it’s difficult to have it in there because it kind of has to work as an object on its own. You want it to be useful to somebody who otherwise people are going to look at it and going

which journal does this relate to as we're going to read over there and not have access to the rest?" (Marie, teaching focused)

Daniel and Marie are in small teams and focus their efforts on submissions for the REF and journal articles over other types of outputs. Daniel reminds academics about compliance with the REF policy but does not otherwise encourage submissions to the repository or logging of outputs in the research information management system. Marie does advocate that academics deposit older as well as current outputs, and different types of content, but thinks carefully about the usefulness of what is in the repository and mediates deposits. Natalie takes a similar approach to Marie, as even with a bigger team there are not enough staff to process large amounts of non-REF-related deposits. Alex, an Oxbridge librarian, works within a faculty that demands staff logging of all research-related activity and deposit of as many outputs as possible, including research data. They talked me through their implementation of Symplectic and showed me the screens users see:

"I'm signed in, but you know...so you can even upload manuscripts without having to try too hard. You see now it will take you straight through to your Symplectic profile because it will pick up who you are either if you're on campus like I am or if you signed in using your credentials at some point on the university system and then yeah you can deposit your work through a nice big shiny button there. Obviously, I don't have a thing to deposit right now, that's not very helpful, but you can choose whether it's a conference paper or journal article or whatever from the menu. There are also reminders about, you know, all the access policies and email addresses and then there's also a way that you can submit your (research) data."

Alex makes this process seem smooth and simple, but some academics see the systems very differently. Becky used to work as an hourly-paid lecturer with timesheets to fill in, and views the burden of logging all her outputs (a requirement at her institution) in Symplectic similarly:

"You've got to log it (all your outputs) anyway because otherwise you're not going to get credit for that on workload. It's all your conferences and exhibitions and events you do, yeah, although they don't all need attachments if there's not a document or slides already. It takes ages, it's like having timesheets to do again." (Becky, Visual Arts)

Laura (Performance) has profiles on multiple academic social networks as well as her university profile page, fed by the repository/research information system. As an early career researcher who has worked as a research assistant on various projects, she only had one first author publication at the time of our interview and my observation of her online presence:

"So, I'd spent a day last week uploading all the conference presentations. Actually it's because I've got them on ResearchGate and Academia(.edu), I

know it's a bit dodgy, it's just I might as well replicate it. I'm trying to make sure that, I'm trying to be consistent, so it doesn't matter which one they go to and that they don't seem to go behind on one of them. Like on this one (platform) she's talked about this paper but on this one there's this paper and she doesn't have that one so I'm just trying to kind of get myself so that they all look the same and they've all got the same content and including more conference papers.

'Cause at the minute, that's (conference papers) the most of what (outputs) I've got and it's been quite helpful because there's one on ResearchGate that I uploaded that for some reason has been read quite a lot so it's making me think I really should write that up as a paper (article) soon. The paper was only really from my PhD so I need to update it with what happened and I have changed my thinking a bit but obviously people are interested in that. The metrics are quite useful on ResearchGate in that some of them people are reading a lot and then others of them that no one's looked at at all. So, I wonder if I didn't frame it very well or maybe the title's not quite right or maybe actually that's just not quite as interesting somehow.'

Observation of Laura's profiles showed that she was right, some of her papers had a lot of interest across the two academic social network profiles and some had no reads or downloads. Her university profile showed a lack of interest across the board, but that can in part be explained by how new she was to her role and how recently she had uploaded her work. Limited time in her teaching-heavy role to turn conference papers into journal articles meant the metrics on the other profiles gave her some idea of what to prioritise and what may need more work to draw readers to the content. She was keen to make sure all her profiles had the same outputs and were kept up to date, so that readers could find everything whatever their entry point, rather than concentrating just on the university repository and profile. A conversation with one of her colleagues convinced her of the usefulness of uploading outputs that may be useful for your reputation or for others' teaching, even if they do not count for the REF:

"You just write your stuff it comes out and you kind of forget about it because the point is to publish. Not, in a sense, to be read. She [colleague] was like 'oh people are reading it and they like it' and I said yeah but the thing is I knew your name before I came (to work) here because I'd seen your profile on the uni website. I was a bit intimidated, I said, because I've seen your publication output and that's a long list of good stuff. But the funny thing is that your students don't think of you in that sense, they don't come here for your research."

It is interesting that the long list of publications on Laura's colleague's profile was intimidating to Laura when she was interviewing for her current role. She was comparing herself with a more established researcher and felt less productive as a result, but then comforted herself with the reminder that she is at a teaching-focused university where students, "even the MA students", apply for the reputation of the course and not the research profile of the academics. The pressure to keep up with her peers is still there, and Laura's online presence looks more like that of someone on the job market rather than a lecturer settled in a permanent post and no intention of moving – which she is.

Hannah (Sociology) felt there was a difference between senior and newer staff, including precarious postdocs like her, in terms of the expectations placed on them to use university systems. The research information system (CRIS) at her institution is the Elsevier-owned Pure. Adding items to Pure is the way to upload content to the repository and therefore the way to comply with the REF policy:

"In terms of compliance because everyone has kind of, most people are kind of clicked onto the fact that you have to do this for it to count (for the REF) and so you can put in your best work as soon as it is accepted even if you might not be there when it matters. If you don't do it then you get into trouble. We have this professor who won't put anything in there, they're just hoping they'll have retired, but they're the only type people you can see getting away with not doing it."

Jess (Sociology) also uses Pure and she has her own frustrations with the system:

"The writing group allowed the people who don't qualify as authors but want to be authors access and they'd taken the list of actual authors [off] and just put the writing group as the authors. And I'm like no this is my first author paper, these people who are they? And to be fair to whoever administers Pure you've got a lot of things to check and a lot of academics don't do a very good job I don't think on looking after metadata and things but at the same time don't take my first paper away from me."

I find that I put stuff in and then you know a few months down the line when it actually gets into First Access (or Online First) then it might start putting stuff through and I'm like, but that's been there for months but you can't defuse it. You can't get to update the same record like you can on Google. Google Scholar sends you weird emails and you can kinda see that they've changed any details - well maybe it's just me who gets that. Well whether it's just a merge or update or whatever in Pure, it just wants to put a new one in it doesn't, I think, it doesn't want me to merge it (with the existing record). It doesn't look for an existing one, no. It's like you've got this, you find it. I don't like that the sources they use like Web of Science or Scopus or whatever don't

talk to each other, and you have all this rubbish to say isn't yours and reject too."

Later, one of the library participants told me this system was updated but Pure was automatically overwriting the existing record rather than asking researchers about conflicting feeds, unlike with Google Scholar. Librarians all told me that they found the REF policy had produced a lot more work for researchers and librarians than the previous workflow of authors just claiming publications the databases had found for them, as they had to enter all the metadata manually at the point of acceptance only for it to be overwritten. Several academic participants found this frustrating too, especially as the administrators did not like incomplete records and required the academic to update the record on publication or email the Open Access team to ask for this to be done, rather than the library staff keeping track of this.

The virtual learning environment (VLE) or learning management system (LMS) came up repeatedly when discussing participants' visitors and residents diagrams. Views were mixed, but only Jenny (Sociology) was truly enthusiastic and she gave detailed reasons for liking and using this system:

"I do loads on our VLE and I really like it, it's called (name). I use it to communicate with my students, to give a personality to my teaching. I really enjoy teaching and I like trying to learn how to use the VLE to enhance my pedagogy. I use film on there, I have twitter feeds embedded on my VLE pages. I talk to my students through it all the time, I use it to remind myself of what I'm doing next and I use it as a repository for all of my lectures and I even have little spaces at the bottom of my VLE pages for other presentations that I use a lot like recruitment things.

They're really nothing to do with that module, but I put it there because I know I'm going to go back to it so I'm much more likely to use that than, say, my remote working file, which I can easily get online as well."

It is interesting that Jenny uses the VLE in so many different ways, including for storage, when she even says that she could just as easily use the system designed for that purpose – the remote working file – but she is not resident there like she is in the VLE so it is less convenient for her. Chris (History) is also resident in his VLE, which uses the Blackboard system, due to his teaching load, but he is considerably less happy about it and engages in a whole series of highly technical workarounds to make it work better for him and his students:

"Oh god Blackboard. I would say I'm required to use it for all my taught courses. I would describe my approach as one of continually fighting Blackboard - not in a frustrated way but, I would like to think, in a fairly informed way. I've built all of the taught content as nests of web pages then use WebDAV to stick that in the Blackboard area and then the actual Blackboard front-end I'm going to as little as I can possibly can. The other

approach I've been using recently is to put nearly all of the course materials for particular courses in a PDF document which is actually managed as Word document and has all of the links to things. Like, so, the lecture slides for instance, they are linked to some URLs that go deep into the Blackboard space but again I've just put the stuff there through using WebDAV with a copy of Dreamweaver, so the student could just click on that link out of the PDF and get the lecture slides out to find a bit - and then there are all sorts of hyperlinks around the documents. They've got a proper contents listing and so forth and that means I can keep nearly all of the stuff in one document which I know where it is, I know how to get to it easily and all I have to do is open Word for it. And then I have to spend literally two to three minutes on the rigmarole of getting into Blackboard in the first place.

I also have to mark in Blackboard and Turnitin is embedded in Blackboard. Yes, I do have to do that. The university requires that we make all of the feedback available to students electronically. In practice, given the amount of working with other people that you have to do, it is quickest and easiest to use Turnitin. When I say that, it is from a position of profound experience because I have tried every alternative that I can think of, including the native Blackboard assignment system. Its design principles are much better than those of Turnitin, but unfortunately it was very buggy last year. I've also tried getting the students to submit in docx (format), hoovering all those documents up into one big folder and then just going through making all the comments using track changes and saving them Word and then email it back to the students. It's doable, it's nicer when you're actually marking, but it's very time-consuming to manage again when the institution assumes that you're using Turnitin and assumes that Turnitin is a normal thing.”

This is a long quotation, but it demonstrates the depth of feeling and the extent to which Chris is willing to work around the systems in order to make things better for students and his colleagues. This is not merely an individual's rant about Blackboard and the anti-plagiarism TurnItIn system. It is the words of someone who cares deeply about providing the best possible information and learning experience for everyone involved. Figure 8 depicts his process. He cannot opt out of using TurnItIn, because he works as part of a team and in an institution where TurnItIn is embedded in marking and moderation processes as well as the actual VLE software. When other participants speak in less depth about their workarounds for university systems, it is not often about making their own lives easier. It is about producing a better end result – “I just want everything I do to be easy to find and get at in minimal clicks for the reader, wherever I end up working” was Kate's main reason for using her own website to upload and share her outputs more than repositories or pre-print servers.

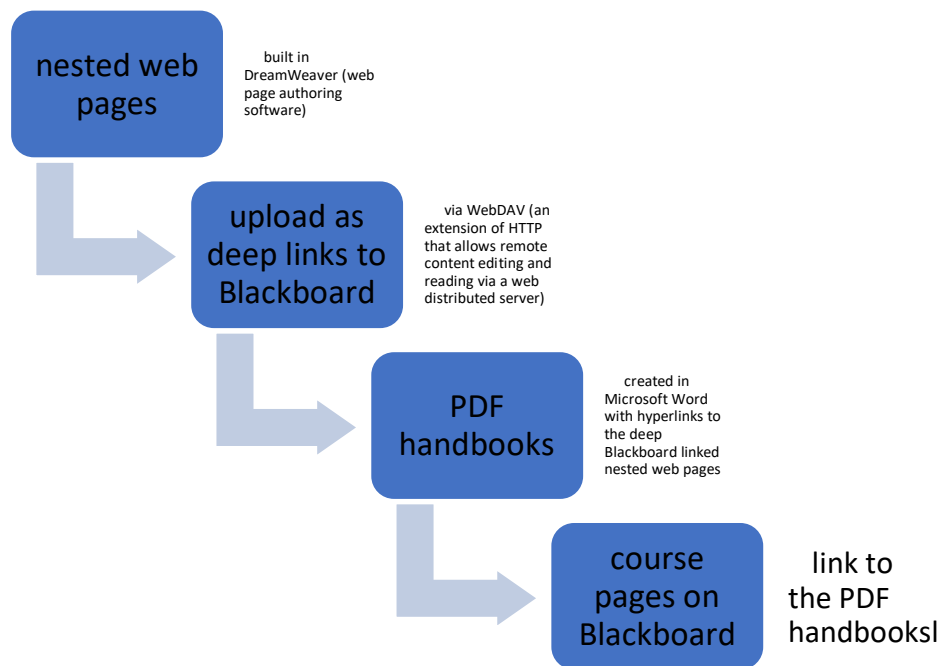


Figure 8: model of how Chris (History) mostly avoids using Blackboard front end

The way Hannah (Sociology) talks about reading list software articulates perfectly the way many participants talked about the institutional systems they avoid where possible, which seems to be based on their bad experiences (also described in this chapter) with the systems they are required to persist in using: “My default assumption is that whoever made the list management software wasn't really thinking about how people live in the real world and there's likely to be overly cumbersome aspects to it and I can't be bothered to invest the time to find out whether that's the case.”

ONLINE PROFILES

I asked participants about their profiles on websites: the university's, academic social networking sites like Academia.edu and ResearchGate and their own if they had one. For some of my participants, their university profile had a publications section that linked to Open Access repository copies of their work where available, but for most the CRIS data about publications was fed through and link to a metadata only page that only pointed at the version of record. A couple of participants had to add any publication information manually. Repository entries or profiles were not on the front page of results for the majority of participants, with the exceptions being the most senior academics (across all disciplines). Twitter profiles, where participants had them, were first or second in the list of results, and Academia.edu or ResearchGate, likewise, in the top five. This was true on all browsers and in all general search engines. If the participants had written for non-academic outlets or appeared on mainstream broadcasters, pages relating to these appeared high up the results. Google Scholar found the versions of record for their (online) publications in all cases, but other versions such as repository, website or Academia PDFs were

found, if at all, under the “all n versions” link, where “ n ” is the number of different sources available for the same article, conference paper, book or chapter. For the sociologists, Academia.edu was the top source I found outside journal sites for their publications, and that is supported by their own comments about the importance of the site to their visibility as academics.

“I get notifications from Academia(.edu) that people have looked. I have no idea if the institutional repository is used in that way. There's no data sent to me. When I'm speaking to other (non-academic, including the media) people about my work, they were going for Academia first and then in the journal, but they never think to look elsewhere, so that (the repository) doesn't feel like it's particularly important.” (Jess, Sociology)

“Although actually my main kind of data chapters were class, race, gender and then and a lot about policy, it's the gender one that's really gone places and I think it's because of the title of the article. When I look at academia.edu, that's the one that gets the most hits because people just Google (phrase) and that's what they get.” (Jenny, Sociology)

While librarians were proud of the range of statistics and metrics available for their institutional systems, including Altmetric and other plugins and download counts and talking about them when drawing their Visitors and Residents diagrams, as in Figure 9 below, only two academic participants regularly received updates about their work from the repository. Emails from the academic social networking services were much more frequent, and requests for copies of papers go straight to the academic rather than being mediated via the repository/Open Access library team. Those academics who ran their own websites could easily check their own access and download statistics for papers hosted there.

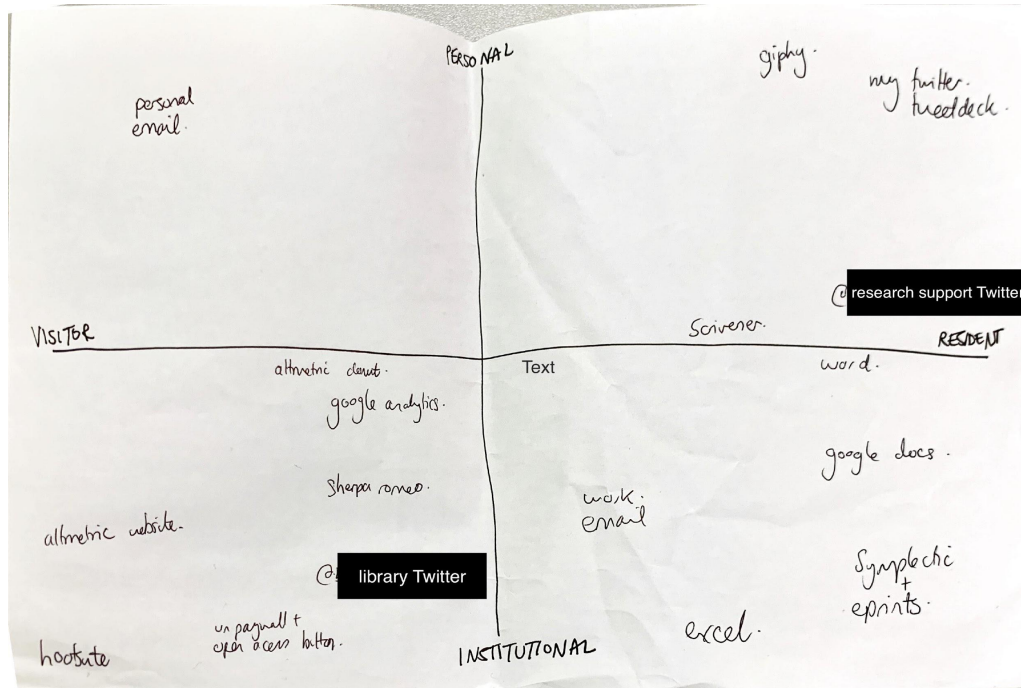


Figure 9: Librarian Visitors and Residents diagram

A couple of participants maintained their own websites separately from their university and social network profiles. Both are over 35, mid-career academics and learned HTML some years ago, and both have media interest in their work. Their websites are hand-coded in HTML and they do not use content management systems (e.g. Wordpress, Drupal or Squarespace) or design software (e.g. Dreamweaver). Other participants mentioned Wordpress or Google sites for specific projects or events, but found the work of maintaining a site for themselves beyond academic social networking sites, which in my observation were often out of date when it came to uploading their publications, too time-consuming.

Chris (History) is aware of the shortcomings of his personal site, but continues with it despite not having the time to improve it:

“So, in theory what I do is, erm, I maintain a personal website, and I make sure that offprints or preprints or the best available version of all of my work are available to download in PDF or whatever, erm, from a nice, clear, navigable page that shows up in the search engines so that anybody who searches for one of my papers can get hold of it without faffing about in any given repository.

The reality is somewhat different. I haven't got time. The, uh, website is showing very serious signs of age. If you attempt to load it on a smartphone it looks like absolutely nothing on Earth. It is complete as to my publications, but that's about as much as you can say for it. Erm...I don't think...I think a lot of other things are much better SEOed and my stuff, if you did in practice search for any of my papers by title, I don't think that site is what you would typically find

unless you were prepared to dig for it or you were expecting it. So, I don't have a good solution at the moment.”

This website does not come up in the first page of search results via various search engines in searches for his full name, nor in top Google Scholar or search engines for titles of his outputs. Chris is correct in his analysis. Whereas for Andrew (Sociology), his website is something both more proactively shared with new contacts and widely used by them, and the second result in search engines after his university profile. It is a useful tool for him and not a reluctantly maintained presence:

“The website with like journalism types, yeah obviously there's a need sometimes for a kind of pitch and it gives me a place I can kind of send them. I mean, most of the time anyway. The (institutional) repository is absolutely fine, it's just it's organising what you see properly. The main landmark publications are hidden in among stuff so I think it's separating topics and dates of publication...so the repository is fine for what it is but that's why I've got this because of all the other stuff as well.”

Andrew found it irritating that he could not significantly change how his university profile displays his publications, and that because it is fed by Pure and the repository, it does not link to or archive outputs like trade press articles or blog posts. Even if he uses Pure to curate which publications are displayed, they are fed through to the profile in date order, so those “landmark” publications are hidden among more recent but less important outputs or articles co-authored with his students.

Technical skills and confidence in these seem to affect academic participant choices and attitudes towards systems and tools. The most user-friendly systems, especially those that were available for both personal and institutional use, were the most popular and drew the fewest complaints. Academic participants with their own websites and/or who code as part of their work and librarians were much more comfortable with a wider range of systems and with “faffing about” with these systems to fit them better to their workflow. Those who had fewer technical skills or felt they had no time to learn these were much more resistant to both institutional systems and some other tools such as social media platforms. They had less confidence that they could make the tool work for them rather than having to change how they work to suit the tool.

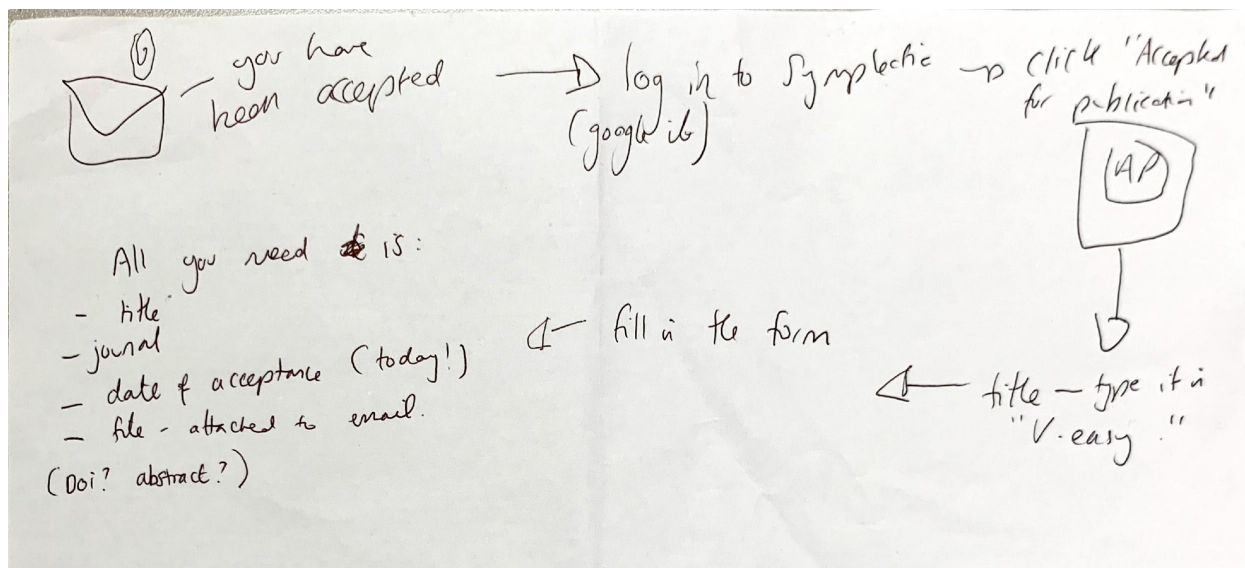


Figure 10: workflow model from a library participant

WORKFLOWS VS. PROCESSES

Librarians were the keenest to talk about workflow as a concept and send me images like the research lifecycle diagrams used by their institution and other bodies in Open Access advocacy and researcher education. They were also able to show or draw for me the flowcharts illustrating the process of depositing items in their institutional repository, as in Figure 10 above. In these diagrams, the process is shown to be iterative, but 'clean' – a researcher may go back and repeat a step or two, but this is "how researchers work", as Natalie put it. The truth is somewhat complicated. Even the guidance for deposit of manuscripts provided by most institutions does not match the actual processes followed by academics and librarians and the system is not as simple as it could be for either group:

"We've got a workflow that tells them (academics) how to deposit when their article accepted but there's no workflow that shows the process that happens after that and that might be a good idea actually, because I know we get queries from a lot of people being worried about it being made available when they don't think it should be. Even don't want to make the deposit, and we have to say well no don't worry, it doesn't get made open instantly, it comes to be manually checked by a person. We check all the policies, the copyright, embargoes, please don't worry about that. So maybe making that information a bit clearer would be good, because do you know we're kind of using the system that the person before me set up and just if I had time I would love to figure out some sort of way to do it. A better system where we don't have to check ePrints manually to release the embargoes from a list but it's automatic and tells the academic everything at the time." **(Daniel, librarian)**

Only the scientists in my sample of academics were comfortable with the term 'workflow', as something that was talked about a lot in their PhD studies, the labs they worked in and so on. When I asked historians, artists and sociologists how they worked on their most recent projects, their accounts all started with ideas and reading, but went off on tangents from there and there was no single way of working that was common to a discipline or career stage. Administrative and pastoral roles as well as teaching commitments made it more difficult to have a consistent pattern of research days and linear ways of working, as Jess explains, after a long time with a big administrative role that absorbed all of her time:

"I've finished being a head of programme, I am now writing this [output] up. The teachers' book is due at the end of next month and the monograph is due at the end of January and then I'll start pushing for articles, because I need to bring my articles up, because I haven't had a chance to publish very much. Yes, and whilst they really like my impact, yeah, I don't have enough three or four stars yet." **(Jess, Sociology)**

The realities of fitting research into long commutes, funder priorities, archive access, an overloaded work allocation model and more means that work happens in a variety of ways and places and in orders that may not make instinctive sense or fit into phases of existing models. Jess had to fit REF requirements and external publisher schedules in with a heavy teaching load and administrative duties and was writing up empirical work done many months ago while starting new projects and updating literature searches. Librarians like Natalie also found the complexity of different policies and requirements, both internal and external, barriers to efficiently implementing policy and running services:

"The information provided is so down to interpretation and it's like they keep trying to make it clear but it's just not. I'm looking at [professional] mailing lists and things people say oh I've done this with this deposit according to this HEFCE rule then two people will reply and one will say well I put it this way looking at that rule and someone else did it differently and it's not consistent."

'Process' is a word that seemed to resonate more than 'workflow' with all disciplines, even if it was less familiar to the librarians. It was generally accepted by academics that they have comfortable and preferred ways of doing things that they may repeat across different projects and in different roles, even if they did not always get to work exactly as they would like to due to their office spaces, workload, needs of colleagues and home lives. One part of the process may be split across many months, rather than moving in a linear way as shown by the diagrams referenced above. Research questions and methodologies are iterated up until publication, analysis happens in conjunction with writing and reading happens throughout the process.

Andrew (Sociology) developed a workflow specific to the project he was working on at the time and the types of resources he would need to do the work. For his recent book, he had a large amount of documents to analyse, mostly born digital and printed out, and he carried out a basic physical sort of the documents into themed piles before writing notes on his laptop wherever he happened to feel comfortable: “Once I’ve got them into these themes I could kind of sit with my laptop and look at the paper at the same time, it was easy to manage, and you can get an overall impression that then helps me get into the analysis...the form of what you’re looking at changes how you work on it and what you are going to produce at the end.” Projects that required the use of archives or interviews required different workflows and resulted in different forms of output.

PHYSICAL SPACE

Physical spaces and working locations, including office sharing, also had a big impact on how and when participants would work. Access to physical offices (pre-pandemic) often correlated with other privileges such as seniority or permanence of roles. The shared offices I visited looked quite generic – desks with computers, a portion of a shelving unit per occupant, a handful of books, maybe a photograph or a mug and a small amount of paper. Anything more would have cluttered the small amount of space available. Our interviews could not take place in these spaces, and they were also often subjected to noise from external building works. Most of their reading and writing happened away from the office, in cafes and other third spaces or at home. Participants who had their own offices all used whiteboards or blackboards to help plan their work, and their bookshelves and noticeboards were wholly theirs. This also helped make their work and workflows more visible to others – someone who has their own office and is in most weekdays, with a full whiteboard of projects and publications, could be perceived to be more ‘present’ than an academic who is only at their desk part-time, between meetings and teaching sessions, and has few of their belongings around them. That would reflect my own experiences in shared offices, large and small, and working with academics who had their own offices or a rarely-there office partner.

Whiteboards and blackboards help researchers to visualise their work as well as to plan it, and more than one participant told me that they understood what their research interests and projects at a given time really were from looking at what was on the board more than thinking about it.

“So, that’s my research plan up there on the board.” (participant points at whiteboard on the wall)

“Journals...so, at the moment I am supposed to be working on the corrections for a paper in (health journal) and I’d quite like to get something in (sociology journal), so those kinds of ones. There’s one called QHR as well, of course,

Qualitative Health Research. They seem to be kind of the core ones, but I'm just looking at my board... (participant looks at whiteboard)

"I didn't want to be a lesbian researcher researching lesbian things, but it turns out [from looking at the board] that my biggest project at the moment is about LGBT stuff."

One participant had a highly-personalised office, which I will now describe, because the environment Jess (a sociologist) has created enabled me to understand her work and working practices more than anyone else I spoke to or observed. She was also able to show me, rather than just tell me, how she used various systems, and pass me the books where her work appeared. I got a sense for her relationship with her students, her colleagues and her research, as much from her space as her words or the diagram that we never quite finished together.

As Jess let me into her office, I immediately noticed that the main overhead light was not switched on. Instead, the room was dimly-lit with lamps and fairy lights, like a teenager's bedroom, and the glow of the computer screen. The walls were covered with notes, pin boards, paper, images, flyers. I was directed to a low sofa, with cushions and a throw, and placed my recording equipment on a stool close to Jenny's chair. It did not feel "professional", it felt like I was visiting a friend. She passed me books from the shelves as the light from the window faded and I read the blurb using the lamp nearest to me. It was almost relaxing.

This heterogeneity of working methods, expectations, spaces and processes leads to the second theme, where we go on to understand how academics and librarians manage that work and those processes, the pressures they face, and issues raised by the reality of their personal lives.

4.4 MANAGING LIFE AND WORK

The second theme of the chapter answers this question: **How do academics and the librarians that support them manage the different pressures on their time and capacity to think?**

At least two of my academic participants laughed out loud when I brought up “work-life balance” and the struggles of time management in and out of work were common to all. The librarians strongly felt that they could leave their job at their workplace and it did not encroach on their time or space at home. This is not always the case for library workers, especially in management roles, but the academics at all levels at least recognised their love of their research and the expectations placed upon them at all career stages could have a serious impact on their home lives and would need active intervention in order to maintain some kind of control over how many hours they worked, where and when.

“It can be really difficult if doing it [flexible working] puts more pressure on partners, but on the other hand, you know, you end up being the one to take the time off when the baby is ill.” (Sarah, Nursing – whose partner is an academic in another discipline)

Sarah’s partner is a full-time academic. Her role is part-time and more junior than her partner’s, and as a postdoc she has more flexibility outside of her teaching commitments than he does. However, this means that she loses precious research time whenever their baby needs one of them to take time off work, and her career could suffer as a result. She will be less able to publish regularly and make a case for promotion if she does not have time at the office to do the work, and neither partner feels comfortable working in evenings and weekends while their child is young.

All the researchers I spoke to said that they used to work more hours than they currently do, and that it has had negative effects on their lives and the lives of those close to them. It was recognised that sometimes it is necessary to work more hours than they would consider healthy, in order to achieve a specific outcome for themselves or their team, or to “buy back” time later (such as after parental or medical leave): “I’m working 60-80 hours a week, trying and failing not to do weekends” (Gail, Nursing).

Laura applied to work at her small, teaching-focused institution because she perceived it to be a less high-pressure environment for academics than more high-profile universities, and she thought that she would end up working too many hours if she moved elsewhere:

“A very good friend of mine who was in banking and economics, he went from having passed with no corrections from his PhD, he went to [Russell Group university]. You’ve just been overwhelmed by the thesis and then, you know, he found it difficult because he was doing 80-90 hour weeks as quite

standard for people in his department and not just teaching but trying to get publications out. I know he was under real pressure. Yeah, I just thought I really don't think I want that and all the pressure that goes around it, so I chose this route for myself. I think it was a very smart decision, yes."

(Laura, Performance)

Naz does feel the pressure to work long hours, especially as an early career researcher, because he wants to protect his time but sees everyone else also struggling to make this work:

"It's difficult because I'm still working within a school and everybody is too busy, and everyone has too much to do, and actually, you know, you need to show willing, that you're you know – there - and to get involved in other things to keep progressing other aspects of your academic career."

(Naz, Earth Sciences)

This echoes what other academic participants have said about the pressure to appear to be working at least as hard as your colleagues, if not harder, and presenteeism was also a feature of some participants' work lives. Not coming in when ill during term time meant finding teaching cover or making up the sessions somehow or risking poor ratings in student evaluations. Senior participants feared this problem less and gave the impression that they were more secure in both their employment status and their relationships with their colleagues.

Conversely, librarian participants worked a more regular and monitored schedule, with access to flexitime or time off in lieu, until they reached senior management level where they worked the hours necessary in order to get the job done, which could sometimes mean evening and weekend working with no compensation. This was not expected or experienced for early career professionals, as weekend working such as open day tours would lead to time off in lieu.

The impact of working long hours on the mental and physical health of participants was clear, and reviewing the recordings showed that they were upset when talking about times where this had been necessary, or they had believed that it was required of them in order to succeed.

"I was working regularly more than 90 hours a week. So sometimes, a few weeks I think, significantly more than that, and I was rationing sleep. One of the things I learned there is - don't ever do that. Know whatever is going on in your life, making some sort of structure or arrangement to change that would be better. I've got long term problems from that. After that all finished and what anybody not going through it would have regarded as the entirely predictable downswing, I was in quite a bad place and I was not working a full week. The only thing I was failing to do that would be seen as core to the job was to get publications out."

(Chris, History)

There is a clear distinction between what is possible inside and outside of term time, and participants complained that administrative and other duties were reducing the time available for research, regardless of the workload allocation model (WAM) in place in their department. Writing tends not to happen in term time, unless the researcher is on sabbatical or other form of leave, and it takes effort when the teaching and pastoral load is high to stay connected to research and related activities. Not only is research the most attractive part of academia for many participants, but also producing research outputs and engagement activities is an expectation of both funders and employers and cannot be avoided even in teaching-focused institutions. Some senior academics had found a routine that worked for them:

“I tend to do quite a lot of reading during term time because you have like a couple of hours between things or something and you're not quite in the right mindset to write, but you can read 10 or 20 pages of something and make notes.” (Andrew, Sociology)

Part-time work was rarely part-time, in the sense that participants were expected to check and respond to emails on their non-working days, and complete administrative and other tasks to new and urgent deadlines, even if they were not due to be working. However, researchers repeatedly stressed that they enjoyed their jobs and liked their colleagues, and that everyone felt under pressure.

“They've been fantastic about me reducing my hours, you know, yeah, it's just those little invisible bits that people perhaps don't appreciate, being a parent as well.” (Sarah, Nursing)

Managing and compartmentalising time in a job that never ends is generally a problem, even with the best intentions. These seemed to be more of an issue for humanists and social scientists, where less of the work is based on funded projects or experiments.

“The work is never done. People have no finish point and no end point...It's like I could spend the rest of my life reading background material, literally I mean that, to make a publication, such that even if I just read the top 10 that would be my entire career now, and I think that's what might be a little bit more unusual, in that it can be much harder to partition your time in an efficient way, because we will look at the possible tasks that you could do or in from the tasks that could go on forever and have no logical ending. Even when an article is written, to know when you've done enough work and you know it could always be more. It would be nicer if we had more defined points, like with proper deadlines, and you can say that it's finished now - I no longer have to do this, and it is over, and I can move on to the next thing.” (Siobhan, History)

I have shared a long quotation from Siobhan here because it gets to the meat of what a lot of participants were saying, that they could work every hour of the day and it

would still not be enough for either them or the people measuring their outputs. Whether or not that is true, it is something that many academics have internalised and a 'long hours' culture is accepted as the norm. Newer researchers felt pressure to push out publications quickly and often and were frustrated by the slowness of the academic publishing process. More established academics built their deadlines around project milestones and the REF cycle. Professors were more sanguine about how and when outputs came out and advise co-authors but are willing to be led by them on venue and timing.

“The reasons why this current paper that I said is taking years, it was taking so long, and this is new for me, is that well actually want to make sure it's actually right, I could publish it today, tomorrow it will be in a journal. But it wouldn't have been the best as it could be.” (David, Earth Sciences)

“There's a balance between you want to get a high-ranking journal and the career benefits of that, but you have to offset against how fast you need it to come out, which can be really slow for those channels.” (Siobhan, History)

Working norms do not just differ between types of institutions, be they research or teaching focused, or disciplines, but also departments and the history and academic culture of those. In the more applied disciplines, researchers may have more freedom in their work and less pressure to bring in funding, but also less time and support for their research and publishing. The quotations from Jenny and Sarah show how the tension between teaching and research can work even in research-intensive universities with good reputations for the subject – one works in a medical school, the other in a school of nursing.

“The teaching load and kind of development load has been really quite high for a lot of people for a long time, so a lot of people here haven't published. We don't have like a really strong research culture yet, and, you know, don't get big grants, so there's, this gives you a bit of freedom.” (Jenny, Sociology)

“Well, teaching is the real work of my school, so we have big cohorts of undergrads and Masters students, yeah, as well you know, it's just the greater work of this isn't just your piece of research and publishing. We have a lot of students, and they have long terms, don't they, compared to other students, so then there's not much time when they're not there.” (Sarah, Nursing)

Jenny is not expected by her managers to be successful in her funding bids, which frees her from some pressure that others face, but nor is the support to apply or understanding of the needs of funders particularly strong in her department. For Sarah, even though she was a postdoctoral research fellow as well as lecturer at the time of this fieldwork, the work of teaching and marking still needed to be done and specifically done by her – rather than delegated to teaching assistants or other staff - as a priority over research-related work.

Conversely, some participants at research intensive universities were concerned that their postgraduate teaching, teaching preparation and pastoral work were not valued at all, particularly in the contexts of promotion or redundancy. For the STEM academics, more PhD students meant more funding (internal and external) and more potential co-authored publications. In the humanities and social sciences, participants told me that funding levels are much lower, more of their students at Masters and PhD level are self-funded, PhD students mostly publish alone and Masters students rarely: “they're thinking ‘you have all those PhD students and you still didn't publish anything?’ Supervising the PhD students on their projects, THEY publish stuff.” Hitting targets for PhD student completions was important for REF and funder related reasons, but recruitment of said students generally meant more work for little official recognition.

“I mean undergraduate teaching, but it's postdoctoral research supervision and anything connected with postgrad taught. To basically safely spend a lot of time developing a postgrad taught course, it's not something that's considered when they're making redundancies and things like that.” (Chris, History)

These academics did however speak in glowing terms about their students at all levels and found the work itself rewarding.

Using the same technologies for both work and home, e.g. Google apps, Microsoft Office and Twitter, wasted less time and made participants feel more comfortable in managing software and priorities. Responding to student appointment and colleague meeting requests in Google Calendar was easier than in other systems because participants were resident in those systems both institutionally and personally and felt less likely to make errors in their work such as deleting an event. Several participants mentioned family Google calendars, helping them to deal with life administration and childcare needs.

Several participants had children, and none had other caring responsibilities at the time of interview. Male participants spoke about the necessity of travelling less for work when they had young children, but it was the women who found that parenthood had more of an impact on their working patterns.

“It can be really difficult if doing it [flexible working] puts more pressure on partners, but on the other hand, you know, you end up being the one to take the time off when the baby is ill.” (Sarah, Nursing)

When it comes to the impact of academic administrative work on my participants, the librarians and other professional services staff underestimated the burden of the tools they used every day on those they considered to be the end users – academics. Many institutional systems are only used occasionally, as there are many competing required tasks for academics and they do not log in to these platforms every day in the way that they do for email, social media apps or calendars. For a librarian using a

research information management system or an administrator using a finance system, many tasks are quick and routine in a way that they can never be for an academic using them a few times a year. This is why all these systems were pushed to the extremes of institutional and visitor axes on participant diagrams. Lack of familiarity with the systems and the assumptions they make of the user's outputs and working processes caused the friction we could see in participants' experience of Pure or Blackboard. Even ambiguous or inappropriate (for fields outside of life sciences) labelling of fields in a funding form on a specialised platform would cause problems and raise questions that would then add more delays and frustration to the academic's workload and ultimately impact negatively on their mental health. There are too many administrative tasks and too many systems for participants to be able to do the work they are required to complete effectively.

Mental health is an issue that was directly or indirectly referenced by the majority of academic participants, and even those who described themselves as well at the time of interview and observation spoke to me unprompted about times when that was not the case. Like the REF, this is a theme that impacts on all other findings because it is impossible to escape its influence. Lack of sleep is not unique to academia, nor is a culture of working long hours, but the difficulty of getting and keeping an academic job made participants newer to their roles like Greg, Kate and Becky feel like they were overworked and tired but still not doing enough.

All participants with pre-existing conditions from their postgraduate years or earlier found that academia made anxiety and depression worse, and uncertainty about the future was destabilising.

*“I don't know if I look to my institution for support anymore. That's, what's a better way of putting it? I would say now that I have my support elsewhere. It feels more like a tick box discussion here.” (Jenny, **Sociology**)*

I asked participants where they got support from for their working lives. Those who were mid-career spoke more enthusiastically about their networks via social media or their discipline than institutional sources of help. Several participants told me about accessing support via their employer, although the quality of provision and waiting times differed between institutions. Some focus help around a telephone service or short-term counselling, whereas others offer more ongoing support. One told me “I'm so grateful I could actually see someone and talk to them every week for months, that wasn't something I could get from the NHS and it's the only way I could keep working”.

Employer expectations are an issue, as reduction in workload and expected outputs is difficult to agree. While an academic was signed off from work, they were not generally expected to keep producing outputs or teach, but emails kept arriving and when they returned to work, the reduction in expected outputs that funders allow for medical leave or parental leave were not respected by all employers and phased

returns to work rarely lasted more than a few weeks. Participants were expected to return to maximum capacity near-immediately or take the hit on their career for not meeting their probation, performance or promotion targets.

Mental health was used as either a reason for not progressing in an academic career or a reaction to the pressures of academia. Academics often feel isolated, like Greg – “I’m not really part of the team here, because I might not be here next year, and most meetings aren’t aimed at me” - and that academia may be fundamentally broken or too messy to be functional.

The REF cycle brings its own pressures. The external timetable forces norms and cutoff dates for producing work and being employable. Senior male participants enjoyed a high level of respect and productivity that was not available to all academics, particularly not those earlier in their career. Most participants at least mentioned in passing internal REF audits and reviewing exercises, and advice they were given at various levels in their institution: colleagues, head of school, faculty, director of research. Some of this advice conflicted, and also conflicted with information they were receiving from external sources. As Gail (Nursing) put it: *“It’s fine, I’m used to it, but it is also constant. One cycle ends and the next begins, and it changes every time.”* This leads to the third theme of this chapter, where information and how it is interpreted affects the way people work and how they manage their lives.

4.5 ACADEMIC POLICY AND EVALUATION

The third theme of this chapter answers the question: **Where do academics and the librarians that support them get their working knowledge about the REF, academic careers and policy?**

Disciplines, professions, institutions and individuals all have something to say about the REF, successful academic careers and the role and impact of research-related policies. This is especially true when it comes to the REF Open Access policy, which came into force just as I was starting my fieldwork and brings together several of these strands. The policy itself is detailed in the Introduction chapter, but its implementation in UK higher education and the professional services roles brought in to support this all bring with them the baggage of years of REF ambiguity, interpretation and gaming. No institution or discipline wants to miss out on the quality-related funding connected to a strong REF performance, and compliance with the Open Access policy is now part of that.

STRATEGIES FOR MANAGING THE REF

Senior participants spoke about having developed a conscious strategy for dealing with the demands of the REF and competing with colleagues for promotion and

administrative roles. Andrew publishes the articles he expects to be submitted for the REF at the beginning of the cycle and then plans and writes one or more books for the rest of the time available. Siobhan submits articles to particular journals to “cover all bases” and then writes material and in formats closer to her actual preferences in her other writing periods. Their junior counterparts talked about the need to be strategic, but also the pressure to publish constantly and in the appropriate venues – which seems more tactical.

Requirements and therefore strategies change over time, and those who have had a longer career have a different perspective on what is “necessary” compared with newer recruits like Kate (Sociology): “If you are an early career scholar, you cannot wait three years for your article to be accepted. I mean you can wait that long for it being a hard copy, but you need to have that acceptance to get or keep a job. In which case, there's a compromise there between maybe the reputation of the journal or maybe how aligned it is with your preferences in terms of specialism compared with actually getting something out. You need articles accepted if not published.”

“Books are valued harder in some areas and in terms of the promotion thing I think it's pretty important. I mean, it used to be the base of your career. The first book got you your lectureship, the second one senior lectureship, the third might get you to professorship. It doesn't work like that now.”

(Siobhan, History)

The book came up time and again in these conversations and it was clear that the pressure to write articles and bring in funding conflicted with the preference of many of the non-STEM academics for writing books and book chapters. The REF advice itself is that venue of publication is irrelevant to the rating of outputs, but this is not how participants experience the REF and previous studies (see Discussion chapter for more on this) show that some REF panels do consider the type of input, length and venue of publication when assessing output quality.

DISCIPLINARY ISSUES

It is not that humanities and social sciences academics are not insular, or that all STEM researchers are, but my interviews demonstrate a pattern in that the humanities and social sciences researchers talk with minimal prompting about what STEM expect and do and how it differs from their disciplinary norms. My STEM participants talk in general terms about humanities (social sciences rarely get a mention) being “different”, but in no depth or detail. The gap in funding and support available to non-STEM academics does not go unmissed by humanists: “*I wouldn't single out STEM mentalities as being more insular than humanities mentalities, but they have all the money with which to practice their insularities.*” **(Chris, History)**

“The idea that there are so few researchers relative to the size of the field that there is almost no such phenomenon as scooping and that things can come

out in a slower and more leisurely fashion and I'm not sure they always understand why the level of investment at, in terms of technical production, you know, all the copy-editing, all the design and so forth, is really needed for an academic publication. And certainly, this is quite a general thing, academic monographs are seen as really expensive. Which I don't think they are, compared to academic journals, of course, but there's no point at which we see that individual price, as a rule. I mean, most people are not buying individual articles, they are getting these things in a way that's free to them, at close range, because of bundling and, er, so, yes it is completely different from what they are used to. And, of course, so they will assume, that if you have published something, that it is picked up by any index that matters to them. So, they assume that all of my publications are reflecting in the metrics that they see. (Chris, History)

This is a longer quotation that I have chosen to keep because it shows how polarisation and information gaps between disciplines have made their way into academic discourse and this rant packs in a lot of information. Chris speaks in a measured tone, but he is clearly frustrated with the way in which scientists, who “have all the money”, impose their culture and expectations on other members of the academy. This feeds through into the systems and evaluation methods used to manage the REF, probation, promotions and redundancies. Not all outputs are visible in Web of Science and Scopus, which feeds through to metrics (and also articles that discuss the size and nature of various fields) used for various purposes. Not all practices and behaviours are valued, which supports the literature on reform of scholarly publishing practices, and not all outcomes are equally desirable. During my fieldwork period, several participants’ institutions were undergoing redundancy and restructuring consultation exercises and Chris in particular felt that the decision-making processes favoured certain disciplines over others:

“The criteria that they are using - these are criteria to determine who is saved, rather than who is drowned, it always works that way - but they are things like level of grant income, and of course if you set a flat level of income then you are automatically systemically advantaging STEM people over humanities people. (Chris, History)

What makes an excellent researcher, and who makes the decisions? Most of my participants express doubts at some level about the ways researchers and their activities are evaluated, and this includes the REF. This in turn either affects their behaviour in terms of how and what they publish, or how they experience academia, or both. By observing my participants’ online profiles, I see changes over REF cycles and career stages to the types of formal and informal outputs they have produced. Most of those who used to blog have reduced this type of writing over time and those who published irregularly now publish more academic articles. The message that peer-reviewed articles are all that matters for the REF has been heavily internalised by participants. While historians and others need a book to get a job, and book

chapters in edited collections are popular for teaching purposes, they are required to produce articles for the REF and they know this.

“For humanities scholars it's really important – the book is what matters and it's really nice having a physical object, but they are regarded as quite important for job prospects and promotions and things. It's different for sciences – over in the medical school they were talking about it as a promotion criterion. And I think they actually said, well, it doesn't count. Books don't count. Articles are all that counts.” (Laura, Performance)

“It is not supposed to matter where it is published, an article or a conference paper or book or an edited book chapter. But in reality, it does. If I write a book chapter, it is for me or to help people with teaching. It won't get me anywhere for anything else.” (Greg, History)

The fieldwork for this project took place not just at the midpoint of a REF cycle but also shortly after the Stern report was published and participants were reacting to news stories and conversations they had experienced around planning for the next REF exercise. This led to further deliberations on the role of books for arts, humanities and social sciences and why longer pieces of writing were no longer accepted as the main outputs of a researcher.

“The reason that I don't just write books is that they are difficult with the REF. Yes, and this might change if the draft requirements are implemented. The goalposts shift a lot in academia. The goal if the requirement is for a certain number of journal articles, for publications I mean, they need considered to be of an internationally excellent standard and with no overlap between them so it's very difficult to do that if you just focused on books. I can't be repetitious in one REF - you might use the same concept in two or three different ways, but all the same, you know, that could potentially give me difficulty so I'm hoping it does drop to an average of two outputs per person.” (Andrew, Sociology)

Andrew, despite his strategic approach, found it uncomfortable to produce what suited the types of ideas he had (books, where he can explore a problem in depth) – which is also celebrated by his discipline internationally – and the then current interpretation of the REF in his institution, which required four “REFable” outputs from him per cycle. This was also alluded to by the other sociologists, the historians and the artists. The REF guidance changing to one output per researcher as a requirement and two as an expectation would mean that a book, which would still be double-weighted (equivalent to two articles) in the assessment, could count as the researcher's entire submission. As things stood at the time, they had to produce at least two articles as well as a book (if they published one) in the REF period, to have enough outputs, and those articles could not cross over in content or approach with the book or vice versa. This discourages the writing of books for most participants,

and that disadvantages them compared with scholars from other countries where the book is more highly valued and forces a form of output to which their research or the complexity of their ideas may not be suited.

'REF stars' (academics hired solely to improve an institution's REF submission) were perceived by participants as "article-writing machines" who brought with them a lot of funding and 'REFable' outputs either already published or ready to go. The change in REF rules was discussed in the Politics department where I worked, because it became clear that outputs written/published at one institution can no longer be taken to another institution for submission. This moves the time of hiring of these stars from after publication of great outputs to the writing or review stage and the relative merits of bringing these researchers in caused some debate around their value. If hiring on potential, said one colleague, it may be better to hire newer scholars with fresher ideas than people who just have a track record. A more senior academic countered that a track record is needed because the department was on the threshold of needing to submit more impact case studies to the REF and if they hired one more full-time equivalent (FTE) academic, they would need one more case study. It was considered unlikely that an early career scholar, who was not already thought to be a REF star, would be able to produce both excellent new articles and the work for a viable impact case study before the REF census date and there was already a lot of pressure on existing staff to improve the quality of the case studies they already had.

None of my participants developed their views on Open Access policy and related practices in a vacuum, and external sources had a large influence on the historians and STEM participants in particular, whereas other academics were less invested in the topic.

Historians were well aware of the blog posts and policy statements made by senior historians and the Royal Historical Society, which tend towards anti-Open Access messages, and the focus on articles over books. They either had published trade or crossover books, or had intentions to do so in the future, and therefore worried about the REF policy "coming for us and restricting who (which publishers) we can go with" (Greg, History). They also were concerned that the benefits of Open Access (OA) for scholars, in terms of engagement with the work they do, was overstated for those outside the sciences:

"I mean my book, it came out in 2013 and there's been very little response so far. And that's normal, it's the speed of it I find quite difficult to explain to people who don't have any experience with the humanities or possibly the social sciences that behave like humanities. So when I say to cognitive neuroscientists, you do know that our book proposals are peer-reviewed and then the book itself goes out to readers and they're like okay... I think they assume that you're just writing a long opinion piece and they don't understand why we would read it and cite books, why I use a lot of books in my work because I need more than

this bit of the idea. I need the whole idea so yes my OA articles do get more traction but it's all relative and if my book could have been that series of articles - which would have been really stupid idea - we said possibly 10 articles – it would have counted more for the REF and for Open Access benefits to me, rather than the world. A book can be double-counted, it can be counted with the weight of two articles if you're submitting it to the REF, but for the amount of time that goes into it then they really don't get why I do it or why people aren't that interested in OA in history.” (Chris, History)

WHAT INFORMS ACADEMICS' VIEWS ON OPEN ACCESS

Academics are also well-networked, especially on platforms like Twitter and ResearchGate, but their views on Open Access, the REF and repositories are much less hegemonic than those of librarians and their sources of information on policy and practice are often noisy and conflicting – in part due to the international nature of academia. Jenny typifies the Sociology approach, in that she relied on Open Access staff at the university to know what was required and what was legally OK for deposit, and found talking to colleagues inside and outside her department just made her feel more confused:

“Um, so I think someone was putting together a book about, an international handbook of [topic related to Jenny's research] and they wanted me to write the UK chapter. So I did and I put that on [name of institutional repository] and I said to them, but within the (IR) office, I've just sent this, I don't know what my contract says about it. Here's my contract, yeah, and they were like it's OK to upload a draft version, so they seem to know what's what. They said what about a sort of pre-publication Word document just saying, well if you want to copy, yeah, but a lot of journals are quite good at getting them up online.”

The argument made by my scientist/clinical medicine participants is that a) everything 'REFable' should be made available as gold Open Access anyway (an artefact of their work mostly being funded by funders with this requirement) and b) there are fewer restrictions on the sharing of preprints before publication, so you can get the benefits of OA such as they are (citations, reputation, social media increasing hits) from those. Earth Science has started its own EarthArXiv server, following on from BioArXiv and PalaeoArXiv, and David enthused about it. Social scientists sometimes publish what they call drafts on their own website or on Academia.edu, but they told me that they do not want those versions to be cited. Their draft documents usually include a disclaimer asking readers email before citing and so that they may send you the final version. These drafts are never hosted or imported by institutional repositories and are mostly unknown to librarians and research support staff at their institution.

Librarians are part of a well-networked profession, which is particularly true of those working on developing areas such as Open Access and research data management – like my participants. Their information about policy and implementation is constantly being updated by their own research, good practice groups, software user groups, the United Kingdom Council of Research Repositories (UKCORR), mailing lists, social media and more. The group of people working on research support is still small enough that there is not wide divergence between policy and practice nor implementations of the software they use. All the online guidance they use is similar in shape and content.

This has led to a kind of groupthink, or at least consensus, about what their role is and what academics should be doing when it comes to the repository and research information management system. While still talking about the wider benefits of Open Access in their online profiles and at conferences, for the most part they are focused on compliance with policy and that this is easy for academics to do and hard for librarians without employing more people to support their work. Little has moved on since my Masters study in 2013 in that respect, but the advocacy and strategic parts of most of their roles has now gone completely and it is process-driven. These more interesting areas are still a part of research data management roles (in smaller institutions undertaken by the same person working on Open Access and even electronic resources more broadly), outside the compliance requirement of data management plans (DMPs), but there is little room for individuality in research support and Open Access librarian jobs at present.

“We used to provide one-on-one support to quite a lot of people, and even though I'm quite happy to continue doing that, there's been a lot of pressure to say please do more like group training and things and don't spend all your time sitting down with people together. Because we're a bit short of time. We have not got the manpower and the demand is increasing. You've got basically since the policies came in and since we've had like some staff changes because [former colleague] left and then so we didn't have anybody in that grade like to lead the thing so there's been a lot of ups and downs over the past 6 to 12 months.

So, it's been a bit of just do what you can, and the more work we do, essentially, the more deposits we get in the repository and it takes time to process those and so the person responsible for doing that...I mean really, we all share it. The main role is the repository support administrator. It's like a mountain. So it's like the more work we do, the more time they've got to spend at their desk processing deposits, but I would think that it'll be better if we had like just somebody all of their days doing that work because that takes out a way to do more important things and yet we need that to be done.” (Natalie, librarian at a teaching-focused university)

Natalie did not mention advocacy or strategic work at all, despite being in a management role. Meeting with individuals and groups was still part of her job at the time of interview, but that was exclusively about policy and process and not either helping those people to deposit their work or talking about open scholarship practices and their benefits more broadly. Like Daniel and Marie, she wanted that work to be done by academic support librarian colleagues, but hers had become fixated on specific projects, like the ORCID identifier, rather than advocacy. Following the completion of this fieldwork, increasing numbers of library assistant jobs in processing deposits and metadata have been advertised in the sector, and this may relieve some of the pressure on librarians.

PUBLISHING AND OPEN ACCESS

When it comes to the role of academic publishers, participants had strong feelings, which may or may not be backed up by facts. Without being leading, I asked all my participants if they had strong feelings about particular publishers and publications. The majority of participants, excluding the practice-based arts, ranted about Elsevier, but less about their Open Access work (other than the scientists, who were well aware) than their ubiquity. The size of academic publishers was something that has not gone unnoticed, particularly as learned societies now mostly publish through the larger companies.

Hannah was wary of writing for smaller sociology or education specialist journals, Open Access or not, in case they were not considered to be important enough in her field. This is because she had feedback from colleagues and others in her field that her earlier articles were not published in ‘good’ journals. She did however value being read and her work affecting policy and practice, and saw that as ‘impact’ rather than the narrow REF definition:

“Actually, earlier in my career some of my articles are published with very low-rated publications that I didn't realise at the time, mmm,(reaches down from shelf) so this is in [journal] which is one of my best articles, but that journal doesn't help the rating at all and there's also (journal) which is a [educational campaign] journal and that's not very high rated either. So, I've got two articles out there that I kind of wasted, well in REF terms I wasted them. In terms of impacts I didn't, because they're both very impactful, so now though all I'm trying to do is publish in highly rated journals and do [popular non-academic website] articles, so the useful information is accessible to people.”

I asked Greg about Open Access, and he started talking about article processing charges and impact factors. When I mentioned the repository, he just showed frustration with the precarity of his role.

“What use is it being Open Access if nobody can read it for two years? I won’t be in this job in two years, I know that, if I don’t get something else then I’m not staying. I probably won’t still be in academia then.” (Greg, History)

Most of the early career researchers spoke about the need not just to publish journal articles, but the need to for them to be available quickly. They were more concerned about being read and cited than more senior academics, as detailed elsewhere in this chapter, and Greg’s lack of confidence in getting another academic job was not uncommon. Happily he secured a fellowship not long after the fieldwork, but it is not a permanent role. The advantages of Open Access and the institutional repository that the librarians speak about are not available to all. Greg felt, as did some other participants, that Open Access without paying meant a choice between publishing in a journal “nobody thinks is impressive, I’m trying to impress people here” (Greg) or waiting a long time for the article to be available, beyond the point where they would still be promoting it or even working on the topic.

Hannah (Sociology) was happy that the journals she often publishes in, owned by independent publisher SAGE, do not have any embargo and never have done so: “I can post both links on social media, the proper journal one and the repository one, and people who can’t access the former can read the latter straight away. It doesn’t change where I publish, but I think I get read more? What I write about is quite topical at the moment, so it helps.” Becky (Visual Arts), on the other hand, showed little awareness of embargoes as a concept and shared her publications as and when she felt like it on Google Drive and on Academia.edu, regardless of copyright or embargo rules. “If someone wants to read it, I’ll share it, and I’m more likely to share a link than an attachment if one person wants it because other people might like it too”.

“I don’t think of it (the repository) as Open Access most of the time, it’s just sort of there.” (Naz, Earth and Environmental Sciences)

When STEM participants spoke about green Open Access, they were keener on preprints than the repository because “it’s just there, people can comment on it or use it now, there aren’t any rules or delays and it makes the final version better”. Naz’s view is one I have heard before. The scientists deposit their publications in the repository because they are required to, but those links are not prominent on their social media or elsewhere in their online profile. Instead, discipline-specific preprint server links and versions of record are shared, or even suggestions that those who do not have access to the journal use pirate links like Sci-Hub. There are downsides to the cultural shift in some disciplines to preprints, as David points out – “you have some journals who say oh it’s been published already so we can’t take it” – but preprint servers and gold Open Access have more prominence in those fields than post-print repositories. However, participants were not keen to move away from peer review and publishing in journals, whatever the delays in the review and revision process, because “that’s the gold standard, to be taken seriously” (Naz) and “funders

need it, REF needs it, you have to tell your department where you plan to publish and if it will be REFable” (also Naz). The focus of librarians was also on supporting the article publishing process and deposit, and not preprints or other output formats. This leads to the fourth theme, where the increasing importance of research assessment for employment, promotion and the REF itself has had a demonstrable impact on how academics and librarians experience their work.

4.6 QUANTIFICATION OF WORK

The fourth theme answers this question: **How does the way research is measured and assessed affect the way academics and the librarians that support them work?** Apart from academics and librarians shaping their work towards their institution and discipline’s interpretations of the REF and what makes an eligible and high-quality output, universities and other organisations quantify work by monitoring productivity and attendance, subscribing to metrics services that measure research outputs and funding success and celebrating their university and subject rankings.

Participants were very aware of the various university systems that are meant to ensure accountability and transparency, learning analytics, the publisher and social network metrics and systems that the government imposes involving counter-radicalisation and border control. The student-facing metrics and the way they change student behaviour also worried some academics:

“So, you've got things like the NSS, the National Student Survey, you know, just been dealing with hours of stupid emails about that and they want to improve on the NSS results, but actually it's impossible to know whether the students would say something about assessment turnaround times if the NSS wasn't asking them about assessment turnaround time. There was one question, which was something like did your course intellectually stimulate you, but it came at the end of a very long, boring survey. By that point, most people know fuck-all, and they've got nothing to compare it to as well. They've never done anything else that is stimulating. They've only done one degree and I'm not sure what a lot of people think that means anyway.”

(Jenny, Sociology)

Jenny is quite critical of what the data generated actually means and whether it is useful by its own standards. Librarians monitor their own NSS scores, and also researcher compliance with the REF Open Access policy. Marie (librarian) estimates there are just over a thousand active researchers in her institution and she checks on compliant outputs for the institutional repository via monitoring research information management system Symplectic. She automates as much of the process

as possible due to limited time and other resources, but it forms a significant part of her role:

“Between our research office and us [library team] we’ll probably be able to pull all the data on researchers and compliance from Symplectic. We’ve got our monitor, which is quite good. So, you can manage your compliance using that monitor, so I use that to create compliance reports every two months. I do that for all the REF units of assessment. What we’ve done is we’ve put people into a group that’s their unit. It’s an estimate because not everybody will submit, but well they might eventually. Anyone that’s potentially submitting to that unit of assessment goes into the group and then I can report on that group and I’m seeing how their papers are looking. Obviously if it’s in Symplectic, because if it’s not in there then I wouldn’t have a clue but if it’s in there, whether it’s compliant or not, when I send the report out I give them a list of people who haven’t had anything accepted within the previous three months as a little reminder to go ‘can you just check whether they’ve had anything accepted that they’ve not added into Symplectic?’ So that’s kind of my way of saying to the coordinator you need to just ask people. We don’t go hunting [for research outputs by staff], which is another way we could do that but there’s no way we have time.”

Mock REF exercises are common in participants’ institutions, where they must submit their outputs to be reviewed by others in their unit of assessment. For some it was their immediate colleagues, and the feedback was welcome even if the exercise was stressful, but for others they felt that they were penalised for doing research in an area or using methods that were unfamiliar to someone in a different department but the same REF unit. Some participants were not permitted to submit articles they had written to journals unless they had passed muster at a departmental reading group that also focused on REF criteria.

While most knew the internal predicted REF scores for their research outputs, not all participants were particularly aware of how they ‘scored’ on external research-related metrics, which reflects my experience of working in a Politics department where metrics were mentioned in a meeting in the context of their use in world rankings of universities and departments. Some members of staff were conscious of their h-index number and citations, and others did not know they had been cited until they came across their name in someone else’s work. When I observed the participants’ online profiles I also checked their metrics using SciVal (Elsevier), and these were accurate for those participants who did tell me their scores. My participants were mostly dismissive of world rankings for universities and departments, with more senior academics accepting them as part of working life but not a major concern and early career researchers being more dismissive:

“There is so much noise about rankings and whether we are doing better than this department or that one or worse than last time...I find it hard to care.

Does it mean they are more or less likely to give me a permanent job?"

(Hannah, Sociology)

Chris (History) was very aware of the problems with how some metrics were used, due to his experience of the aforementioned redundancy consultation which explicitly stated that metrics would be used in the assessment criteria:

"The citation measures and the index they're using [Field Weighted Citation Index], I've forgotten the name of it as well because it's one that I've never heard of, it's not loaded in humanities. Whatever use it is, it's not even used by the kind of scientist that I would normally hang around with and it's simply..."

So, if I publish a monograph, it will never show up. If I publish in most of the journals that I could realistically publish in, it's unlikely to show up. Stuff in edited volumes, likewise, never shows up, so that's really quite powerful and it could be, and in terms I guess just of looking at your staff profile, if it's fed by the university systems, they (STEM researchers) look very productive because there's lots of titles there. And you know, they don't have to do a lot of work to put it in there because it's, kind of, it's gold Open Access, and it's picked up by Scopus or Web of Science."

Chris is angry and upset, but also well-informed – his most recent outputs were either not listed or had minimal and incomplete citations in Scopus, Web of Science and Dimensions. He works closely with STEM academics who were also not familiar with Field Weighted Citation Impact, FWCI, the index used in this case. When I checked my own score, it was similar to that of a then colleague who was much further ahead of me in their career because of the (technology-related) projects I had worked on and the journals my PIs had chosen. Our productivity, impact and citations were a long way apart by other measurements.

Only librarians mentioned alternative metrics or altmetrics, such as Twitter engagement: *"A new website weirdly I like is the Altmetric one, where you click through the donut then you can click through what looks like a map."* (Daniel). Natalie talked about how it fitted into her job and how she works with researchers:

"If the academics are gonna use it and engage with it then that to me is useful 'cause there's a reason to look at it and investigate it and every time we talk about altmetrics they get really keen. Because for them they can see who has tweeted them and stuff like that, because I don't think they really thought they could have that much control or that insight so I really like that."

We had a bit of a hoo-ha [in the library] recently over who is responsible for bibliometrics because I didn't feel that our team could do it, because our team was just me [in terms of librarians rather than support staff] and I don't know anything about bibliometrics. And we felt that was a bit more subject-specific because certain subjects like displaying different ways and things and academic

support got a bit huffy about it and said 'oh no, you should do it'. And I was like 'well, uh, I'll be happy to do it' and somebody got my job description that they had saved from like the website when it was available like two months down the line off the printer – yes, they had saved it for their own personal use - and then produced the document and said 'it's got the word bibliometrics'. Almost like 'Look, you have to do it!'"

A common theme for my library participants was subject librarians feeling like nothing to do with research support or scholarly communication was part of their job and rejecting opportunities to work with scholarly communication and Open Access librarians. The exception for this was Marie, whose role at a teaching-focused university is in a very small team that works well with other teams inside and outside the library, including the research office. Before her Open Access post, she spent half the week as a subject librarian and the other half as e-resources librarian, including the payment of article processing charges (APCs) for Open Access articles. Because the repository is new for her institution, metrics for researchers (bibliometrics or altmetrics) are not yet part of the conversation, but her team monitors compliance with the REF (then part of HEFCE) policy and Marie sends metrics on this to the academic departments:

"A lot of what I do is managing the institutional repository, so dealing with that, and it started out as a project. It was a three day a week project to get the institutional repository open for now to promote Open Access with the HEFCE policy and to get that all in place, procedures in place and all the workflows in place, for how we would manage when things were deposited to the repository. I also do all the advocacy side of it and starting to get people doing it (depositing) so that's where it started and then it's become a full-time job and I've taken on things like e-theses, so I deal with a lot of the stuff to do with the thesis and also we've got an open journals system so I've been piloting that and we're hoping to run that as a service so that's why it's expanded beyond kind of just the basics."

Feelings around metrics and what is captured by them are complex, and what is valued by the institutional and scholarly systems is not the same as what is valued by individual academics. This is a similar problem to the REF and software issues with non-standard outputs:

"I think it would be quite nice if you got some recognition for treating people [participants] well or research that had an impact on people's lives. Something like they wrote you an email or something, that that would be, hmm, something that was counted as much as a citation is. It's not given the barriers to doing it, but I think even in like in teaching metrics now it doesn't hold weight, there's nothing useful in it." **(Jenny, Sociology)**

Participants consistently discussed their work in context of whether or not it would be eligible for the REF, expressing frustration that ‘only what is counted counts’. There is a conflict between doing excellent work and not getting credit for work that does not contribute to REF assessment, teaching metrics and NSS scores. Systems, policies and training provided by universities tend to make assumptions about the types of research outputs researchers will produce, generally text-based and peer-reviewed as is the stereotype of a ‘REFable’ output. For some disciplines and subfields, curated art exhibitions or films or performances or various types of digital and physical artwork are common outputs. For others, it is software or events or community workshops – as the main output, rather than side projects, methodologies or outreach activities. Sometimes the lack of internal and external understanding of different types of outputs comes from institutional interpretation of the REF requirements, and sometimes from a lack of experience. Laura was quite positive about her institution’s approach to the latter, following a restructuring of departments and schools:

“The last time the school as a whole did the REF, it was mostly film-related creative writing work, which went into the English [submission] so they did very well with, you know, lots of stuff on communication and journalism and media. That's the sort of work they actually do quite well, so I think they kind of want to make sure they try to replicate that whilst also including drama and dance. Being with PE before, oh they must have felt quite weird. Yeah, so they've survived [the restructure, moving from a department with Physical Education to one with performing and visual arts], and potentially coming back in [to the school's REF submission], but it makes sense. That's quite interesting, so think they're being quite sensitive about it. Although yes, I'm saying we really need to make sure we actually give people time to do this.”

(Laura, Performance)

Becky (Fine Art), who is both a practising artist and an academic, has found tensions between the two worlds in terms of what counts as an output, who owns the copyright and why certain aspects of a piece or its creation exist at all. I will quote from the interview at length here because it explains the problems well:

“I think that's [ethics and making the work publicly available via university systems] something that needs to be properly fixed for us to do. I think it is stuff that still needs to be done, oh yes, and limited. Because you know we were a multidisciplinary project, and this is a case in point, where, you know, one of the artists wanted to get hold of the video files and we just went she can't because it's not in the ethics. We actually haven't asked them, we haven't said that's what we're going to do with those video files and I think she found it quite frustrating because for her practice that's exactly what she would go and do. As an artist, she often starts making material, so she would go and listen to recordings and

things and she couldn't get her head around it, but if you're thinking about that in terms of research, better managing research. But this is one of the problems, that, you know ,they hired the artist and I said , well, actually, in hindsight you should have had the artist from the start and they could formed part of the development of your ethics because they might have told you what sort of things they might like to do with it and then it could have been so you could put it in.”

Becky had a good understanding of both her university’s requirements and the expectations of artists and the conflicts between the two that was not equalled by those providing administrative support on either side of the project. This next part of the interview is interesting because it explores credit and participation in the research at different levels beyond public engagement:

“Because the artists they got, you know, one was our primary photographer and did visual practice and the other was an archivist and did a lot around almost performance art practice. She was quite interesting, and she often creates books. They [the books and photographs] were kind of our document that accompanied it. And the last one, who was the easiest of the three in terms of outputs was an animator and illustrator, so she was creating her own animations, so she knew what the copyright was. So, it was a case for her of listening to material, but the material then was influencing what she would create but it wasn't directly in it. If there was a mediation it is less troubling somehow. So, for example, you know she might have included things from stories that she heard on the projects, like one about a taxi driver who the lady he took from the group had lost her glasses, so he went and got a new pair ‘cause to get a new pair she would about to wait six weeks.

He just went down to Boots and he picked up some just because he wanted to make sure she could get going to the art group which was really lovely. So, in one of her installations, there was a pair of spectacles she had pegged on the steering wheel of a car, but you need to know about the research to know how and why it is there. That's not something you can easily capture, whereas for the photographer it took until quite late for her to decide how was she gonna work or what was she going to do, so she actually ended up producing almost like a written reflective journal of her experience and that was querying the methods being used by the research. One of the things that was done was an observational tool, and she was talking about this tick box exercise and how do you know what a negative effect looks like, which is one of the things looking forward I think for some of the research that's become uncomfortable. That sort of co-production with the photographer, they [the standard systems and processes of research] just hide.”

Colleagues did not understand that artists could themselves be researchers in their own right, if they were not hired and labelled as academics or participatory researchers:

“I'm going to remember distinctly the administrator from that [project] coming to the office one day and she said she's like yeah well one of the artists, she wants just to look at the recordings and I went okay, well did she look? She just couldn't understand why would you want to have big recordings and I was like well that's our research. What do you mean? Research material. She's not a researcher, so had to explain that actually artists do research and she's like, and it wasn't that she was antagonistic about it, she was just confused. She just didn't get it, it just didn't seem apparent to her but that's something that they do yeah so that was quite hard.”

While journal articles were published from the research project, the academics did not think of these as the main or ‘better’ outputs than the artworks and tried to be respectful of the artists involved. Ownership over the physical artworks, however, was a challenging concept:

“In terms of one of the papers that are getting, written the artists are named as sources on the paper, which is great, and they, I think, don't know how they feel about it. It can be quite uncomfortable. One of the artists bought a vintage car and transformed it – this was the animator – she still has the car but, I know that certainly my head of department says, well, how come how come the car's not here? And I was like, do we have space for a car? Where would you like to park this? Well there's an ownership, yeah, and I don't think they quite thought it through, and I had to admit I found it quite funny because some of the other senior researchers on the project were responsible for things like the research, artists engaging the public, that was their area of research. I just went, how did you not think about it, we'll have a conversation about that earlier? It just seemed quite bizarre to me”

When universities talk about managing diverse forms of research data, they are not generally considering having to think about contested ownership or storing something as large and awkward as a vintage car. Terabytes of digital data and paper archives present their own issues, but no data management plan documented what would happen to the vehicle and research data advisors are unlikely to be well-prepared to ask the relevant questions.

Daniel (librarian) does not receive many outputs of any type from the arts subjects and other areas like games design, and he did not mention alternative outputs beyond monographs. His assumption, as he is based at a teaching-focused university, was that they just were not particularly research active:

“[My advocacy work] is mostly about compliance because that's usually what they want to know about, so you start off doing the general this is the benefits of open and then all the questions relate to the compliance thing. I think the way we've done it is, we've said, this is what I have and if you need help then we're here to try and make it less painful. In some ways you don't feel like it's you

telling them that they've got to do it, you're saying this is what you're meant to do and then we can help you know. I don't get a negative response, just sometimes no response at all. It's quite nice when it's quite senior people that all say 'it's not difficult, just deposit the thing', and they're like 'why do I have to put it in there and what could she do?', you know? But it's good if you've got other academics that are saying it's not in there, so I can't count it for promotion or anything.

I don't hear much from some of the art subjects, which kind of worries me, but I think maybe that's just because they're not producing as many articles? I mean that they're doing more like monographs, so when I do the compliance reports or deposit stats then sometimes there's nothing in certain areas and I go 'surely somebody has written an article', because obviously our focus is only on articles. So, maybe it is that nobody's written an article in those three months, I don't know, or maybe the message isn't cutting through even though I've been out to the departments multiple times."

IMPACT AND INSTITUTIONS

Humanities, arts and social sciences participants felt there was a tricky relationship between what the REF counts as impact activity, what their institution encouraged them to do in terms of media and events work and the public engagement activities they do that are valued by the actual public. Only the scientists and those connected to health research felt their public engagement activities were both valued by their institution and the public equally and could demonstrate more of a link between these outputs and REF impact case studies. Chris (History) perfectly encapsulates these tensions:

"I see a big difference between research-based public activity - that is to say the stuff that we are encouraged to call impact - I think there's a big difference between that and most of what goes on. In terms of academics talking to the public then most of what we can usefully do by way of talking to non-specialists is not based on current research, it's based on older and established stuff. So, a lot of the stuff I've done for public audiences has not been directly research-based or it's been based on other people's research but not mine. So [popular historical figure] which we have done events about on a fairly regular basis, I have done zero [research of my own]. I use arguments that have been made by [biographer] and other people and he could maybe do that talk much better than I can, but you know there's only one of him."

I asked Chris how he thought this should be solved:

"It's yet more form-filling, isn't it? Realistically the only way you can capture it systematically and export it from one place to another would be to have some sort of database with some set of, more or less redundant, of lots of categories

that would be very annoying to fill in, because arguably if it's interesting and a real public engagement activity then it is not going to fit neatly into anybody's boxes. It's a problem that can't easily be solved by bolting new technologies onto the side. The thing that will be most useful would be will be attitudinal change, for this kind of thing being taken more seriously by senior managers in institutions.

I think there's perhaps too much willingness to just pay for the technical infrastructure, and not pay for the culture change we have seen that that will drive the change. We've actually gone backwards [in this institution] on how far this stuff is recorded. It used to be in a database system and now it's not. I mean, it is audited in the sense that every now and again we get an email urging us to send in the details all the stuff that we have done recently, but I feel like I'm doing all this in triplicate and in vain. It can only really count if it was to be part of the impact case study or something like that. I don't know where that information goes or what anybody does with it when it gets there.”

What happens with this information or at those institutions where all activities are logged in a research information system, including awkward ones that do not fit the standard output “types”, is not communicated to researchers or not in a way that they understand and appreciate. Siobhan (History) likes the freedom of writing blog posts and sharing other historians’ work, but that work is not valued by the institution in her mind because it is not captured by institutional systems and it is not submitted for the REF:

“I mean yeah the REF impact thing means that almost none of the blogging I do counts because it's not directly based on my own archival research. If it's not directly based on our own funded project then they don't want to know, which is super problematic for someone like me. I like to write about other people's work as well as my own general ideas, and because I'm talking to a public audience then even widely understood known and common theories in history are a novelty.”

Participants said that the university liked and encouraged them doing the engagement work, but that it was not considered part of their workload model or appreciated as ‘impact’ work if not attached to a specific research project where they were a named researcher. Despite being a lot more work for the academics than a short interview for the media, it was accorded a similar amount of respect and credit.

This leads to the final theme, where the tensions in the first four themes come together with bigger picture issues that lead participants to question how and why so much of what they read or are told is contradicted by other sources and their own experiences. They do not know how they are meant to manage all of this conflict and their own life and work without creating issues for their mental health and/or career.

4.7 CONFLICT OF PURPOSE

The final section in this chapter answers the following question: **What conflicts arise when the issues raised in questions 1-4 come together in real workplaces in the policy and funding environment of the period of study?**

Participants experience tensions raised by the difference in priorities between those of the government, institutions, disciplines and individuals. To be an excellent academic is like being a musical theatre star who can sing, act and dance: they must be able to produce 'REFable' outputs, bring in funding, meet the norms of their discipline for respect and citations and employability, take decisions that progress their career, keep up with the latest developments in their fields, be a good academic citizen when it comes to service work such as peer review and administrative roles in their department, score well as a good teacher and provide pastoral support to their students. This is exacerbated by the conflict between an institution's stated values and what actually happens: academic participants were told their university thrived on research-led teaching but did not have enough time to read and write enough for this to always be true and were frequently asked to teach on topics divergent from their own specialisms. Librarian participants were expected to advocate for Open Access as a public good and attract more deposits to the institutional repository, but REF policy compliance monitoring and systems management expanded to fill the time available.

What is needed to develop a career was a key consideration for both my library and academic participants. All my library participants have permanent jobs, but it was necessary for them to consciously move institutions or make sideways moves within the library structure in order to progress into their current roles and professional development activities were expected of them in order to "keep up with the job, the sector and to be employable basically. It's a competition to stay every time there is a restructure" (Daniel). The situation for the academics was much more contentious, and several participants had temporary roles. All had experienced precarity in their careers and had a keen sense of competing with others in their department, institution and discipline to get ahead.

It was also important to participants that they enabled others to progress, while recognising the barriers to entry in their profession. Four academic participants explicitly said they mentored early career researchers internally and externally or PhD students outside their institution. This was also a consideration for library staff, who were involved in special interest groups and work shadowing. Natalie is a BAME librarian under 35 years old (to be more specific could compromise her anonymity) and being different from the default in the profession has moved her towards helping others in their careers:

"In the library I'm used to being surrounded by women, well white women anyway. I walked into this [external software user group] meeting and it

was just all middle-aged white men and me. I think it felt so noticeable because sometimes I'd be like look around, you don't see a problem here do you? And they obviously don't because that's their life and they're used to it but it's definitely a problem. I don't think the library does anything about it. They'll put on at the bottom of forms, like, we, you know, encourage minorities to apply for this but I mean it's weird 'cause in my mind I could go through a Rolodex of all the people who aren't white in the whole sector. I feel a bit more exposed [as a BAME librarian] because sometimes I feel like all the people might be looking at me saying oh well she can do it, and so can I. I guess I've been more of a mentor and more visible to say you can do it if you aren't white. It's okay to look like me, working in libraries could be for you."

As with Natalie in the library, academics were particularly concerned to make sure the ways in which they diverged from dominant images of their field was visible to others coming through – be it LGBTQ+, BAME, disabled, working class, female or combinations of these identities.

Participants were clear that they knew there was a conflict for their career in doing what is necessary to get ahead versus being a good academic citizen and doing the work they really wanted to be doing. Coping with the competing demands of a career and managing time go hand in hand for historian Siobhan, as well as managing the expectations of people outside academia who don't understand the industry:

"I think a lot is just strategy. It's being willing to say no to the things that aren't going to help. It's also knowing that when senior people ask me to do stuff, their estimation of how long it's going to take you is very different to your estimation. They might not know how long it takes you to do that, but this is not unique. I think I mean the uniqueness of academia, if there is one, I think part is the responses of other people. As if you don't have a proper job, and that's always kind of challenging and problematic. I have learned to be resistant to demands that won't actually help my career, that don't count in the unwritten rules of this game, unless it's something I really personally want to do."

It is also a "game" you need to know when to leave, as she goes on to point out:

"There have been significant changes to the workplace since I was doing [postdocs], like when I was doing it there weren't that many, there were no zero hours contracts. There were relatively few people scraping a living by doing bits and pieces of teaching. You were all doing postdocs and it wasn't great, but generally we were employed for a full 12 months, you know? It was generally one to three years at a time. I think there's a difference. I think you may need to quit earlier." **(Siobhan, History)**

Greg, Sarah, Naz and Kate – the precariously-employed early career scholars in my sample – all agreed that they had decided on a point by which they would leave

academia if they had not secured a permanent job. As Naz (Earth Sciences) says: “there are rules that are written and ones that are not, but I have seen what academia does to people who don’t work out how to make this work for them. They get upset every time they see someone else win in some way and they don’t have a life anymore.” High levels of competition for jobs, funding, student numbers and more were visible to the new academics, but they felt they had little agency to avoid competition or even compete well while in temporary, precarious contracts.

Librarians working on Open Access and research support can feel out of step with the rest of the service – “Nobody knows what we even do,” said Natalie – and being outside the traditional work groups in the library and professional services makes it difficult to get support with the work they do from academic liaison librarians or the research office.

Academics and librarians would like to co-operate more and in different ways than funders ask for, but this is disincentivized. Lack of cooperation between universities and shared services for research support was an issue that particularly exercised my expert participants, see the Infrastructure chapter for more of their thoughts, and librarians also found this frustrating. They felt that lack of sufficient staff to do what is needed could be solved by working more closely with other institutions.

Redundancy was a hot topic at the time of this fieldwork. Departments at some institutions were closing down entirely. Others were being shrunk and merged. Professional services at most of the institutions I visited were undergoing or had recently undergone restructures and job losses, including in the library. Only the most senior participants felt truly secure in their roles and employment prospects. Chris was going through a redundancy consultation at the time of interview:

“Now the great hope, if you can call it that, is that enough people will take voluntary severance that they can make the saving they're looking for without any compulsory redundancies. If that happens, it's not great, because the usual thing that happens with voluntary severance schemes will happen. Which is that lot of relatively mobile, quite good people will disappear and anybody they were actually trying to get rid of in the first place will stay exactly where they were, so we'll have roughly the same set up with roughly the same teaching going on and a lot of new cheap and inexperienced people who are doing work that was previously being done by experienced people.” (Chris, History)

This academic’s concerns about the types of people who stay and go in a redundancy process reflect those of other participants around recruitment. Teaching of core modules is being covered by graduate teaching assistants and hourly paid staff, whereas research ‘stars’ are brought in to improve a department’s REF submission and long-term casualised colleagues struggle to find “proper permanent jobs, the sort

I was sure back when I finished my PhD I would get after a year or two of trying and was right – they aren't so lucky" (**Becky, Fine Art**).

Some of these issues are caused by the size of the organisation itself, and how efficiently that works both overall and in terms of individual departments and services. Some departments and services are perceived as siloed away from the rest of the university, and in the case of Oxford and Cambridge, the colleges literally are as they operate completely independently most of the time. This makes it difficult for those whose roles require them to work across colleges and faculties, and with other services, and leads to duplication of training and cancelled events. Academics do not always know who is responsible for what and when, and nor do library staff.

"I think the university is a bit of a juggernaut, it really doesn't, it does not work efficiently or effectively at all, and colleges still do their own thing. So, in the whole management of it, they are members of the university, but they're entirely autonomous." (**Alex, Oxbridge librarian**)

The priorities of those with the power to approve new posts are not always the same as the immediate needs of workers on the front line, and so even when hiring is not frozen, lack of available staff has time and pressure implications for both academics and professional services. Librarians working in research support acutely feel the lack of dedicated staffing and the increase in workload.

"The feedback I get from my local academic community is that they are frustrated with things like delays in switching off embargoes on papers that they paid processing charges for that should be Open Access; and should be open through the repository and also through the publisher, and we're not processing them that quickly our end. [Name of service] are hiring all these staff, but while that's nice, most of those new members of staff aren't dedicated to looking after the repository and it causes friction." (**Natalie, librarian**)

"I think last count we support about 950 researchers, and there's only two and a half of us – essentially, two. That's definitely not enough people, and it gets commented on all the time by academics: 'Is it just you really? How are we gonna cope in the next REF?'" (**Daniel, librarian**)

Some of the librarians assumed that the situation was better for academics, as they were aware of large numbers of researchers at their institution and new ones joining regularly. However, that was not how participants felt at the coalface, as they felt overworked and under-supported, in both research and teaching and, especially, in time to write.

"I'd think anyone who'd been fifteen years out of PhD would've been assumed to be in a better position. I'm just sitting on so much material, so given they're getting enough money for other people's jobs then time is the real

issue. Even, I mean, with teaching, time is the issue. When the room booking system doesn't work, we have to spend three weeks fighting over whether you'll end up teaching in a cupboard. It's not exactly admin, it's the support mechanisms around me.” (Siobhan, History)

Establishing relationships with colleagues took a significant amount of time for most participants, whether they had moved, changed role or had new people join the institution. This was true for both academics and librarians, who had to work with a wide range of professional services, library and academic staff.

“A good chunk of my first year, if you will, I found I had to kind of knock them to kind of actually bring me on board with stuff and be like, ‘Hey, I literally have working with you in my job description, like, you know, work with it.’” (Daniel, librarian)

This is not helped by the systems and processes I discussed earlier – they are not designed by or for the people who work with them and with little understanding of all of the above. Vendors may say they have the ways researchers work in mind, but this is clearly not true from my participants’ experiences of the systems and the number and complexity of the tools participants need to use for their work and personal lives. This makes it harder for librarians, who manage some of these systems, to support researchers as fully as is indicated in their job descriptions.

4.8 CHAPTER OVERVIEW

This chapter explored my data via five themes: how my participants work, manage their time, understand the REF, experience the quantification of their work and cope with the conflicts of purpose inherent in UK higher education. In the next chapter, I will discuss my findings in relation to my research question and the literature.

5 DISCUSSION

5.1 CHAPTER INTRODUCTION

This chapter will discuss some of the key findings presented in the previous chapter, focusing on six key topics found in the research data: the key drivers for being a (research-based) academic and the pressures or challenges they face, the culture of conformance and non-conformance with institutional tools or systems, academics' attitudes towards Open Access, academics' behaviour towards Open Access, challenges for librarians and the misalignment of professional attitudes between researchers and librarians. My findings show that the large number of tools and systems academics use in their professional and personal lives is barely considered by either the literature or librarians, who find institutional tools easy to use and difficult to resist or even shape. My research question was: What are the attitudes and behaviours of researchers concerning Open Access policies, processes and technologies and what are the challenges and opportunities for librarians who want to engage with researchers effectively? The discussion that follows demonstrates how I have answered this question.

The first section (5.2) on key drivers and pressures sets the scene, as academics' experiences of these characterise their responses to publishing, policies, tools, Open Access and librarians. Their conformance or non-conformance with institutional tools reflects their loyalties to their own work and their discipline ahead of their institution, in contrast with librarians. These first two sections (5.2 and 5.3), provide vital context for the discussion on the particularities of attitudes and actions relating to Open Access, and associated systems, tools, processes and policies. Open Access requirements and services do not exist in a vacuum. The next two sections (5.4 and 5.5) deal with academic attitudes and behaviours around Open Access, influenced by these factors. Section 5.6 deals with the professional and financial constrictions on librarians when supporting academics, which are the challenges to engagement I raised in my research question. In the penultimate section, the misalignment of professional attitudes between the two groups (5.7) goes some way to explain the gap in the literature this thesis intends to fill, where two sets of professional literatures and indeed professional practices (academic and librarian) rarely speak to each other. This section also shows where the opportunities for improved academic engagement with academics may lie.

Finally, in section 5.8 I draw together my findings with the theory I used in the literature review chapter and explain how looking at my findings through that lens grinding can help to move OA forward and allow deeper contributions from my research to emerge.

5.2 KEY DRIVERS FOR BEING A (RESEARCH-BASED) ACADEMIC AND THE PRESSURES THEY FACE

5.2.1 WORK LOCATIONS

Physical workspaces and access to space to work quietly at work or at home are both neglected by the literature on academic work, which pre-COVID (Abujarour, Ajjan, Fedorowicz, & Owens, 2021) only mentions academics who are only able to write at home in passing and without consideration of the wide variety of living environments researchers exist in beyond whether or not they have children (Adenipekun, Ajibola, & Oluwunmi, 2019). Senior academic participants in my research were not only more likely to have a suitable office on campus that they did not have to share, but also more pleasant and spacious homes in nicer areas due to a higher and more stable income. My early career participants either lived with housemates or with partners with less space and more noise (from neighbours) at home than their senior counterparts, and yet had to work from home more often as they found it extremely difficult to read or write in their shared open plan offices on campus with minimal room for books and papers. These were used mostly for teaching prep, and they had to book meeting rooms to talk to students or research participants. This has an additional impact on their use of technology, as early career researchers were more likely to use the university's VPN and services they could access from personal devices and more likely to have their work email accounts on their mobile phones.

5.2.2 WORK PRACTICES

Academics have found that because some of their work can be done anywhere, they end up being expected to be very responsive at all times. Coping with emails, particularly since the advent of the smartphone, has been a problem for many workers in different professions. Gail Kinman (in Reisz, 2015) found that a “considerable proportion of academics saw their personal and work time as inextricably linked, so emails were read and replied to anywhere and any time”. Some of my participants saw this as part of the flexibility of academic life, a benefit of the freedom to manage their own time where possible (De Angelis et al., 2009; Kinman, 2014). However, it was more commonly a stressor to be managed (Jerejian, Reid, & Rees, 2013), both due to the sheer volume received (Pignata, Lushington, Sloan, & Buchanan, 2015) and the desire of my participants to respond quickly and be seen to be working.

Most of my participants worked with a combination of analogue and digital practices for reasons of both preference and necessity, something Löfgren (2014) observed as a change from methods to a intersection of technologies and personal habits, where

scholars developed their own combinations and ways of working just as they had with the physicality of index cards and loose-leaf papers. As with Löfgren, my participants used different techniques for different styles of writing and shaped by both cultural convention and aesthetics. However, the ability of digital technologies to permeate the work-home barrier is both a challenge of the rapid changes in the academic workplace (D. Barton & McCulloch, 2018) and an increased pressure for more junior scholars, who struggle to write in their open-plan offices with minimal room for papers and have to work from home or third spaces. For these researchers, it is less about the agility of switching between different modes of working and more the difficulty of being unable to switch off at all. Some academics felt that they were being urged to learn new software and technical skills, at the expense of their limited research time. Blogs in some fields take an activist bent, urging psychologists or historians to learn how to code or use discipline-specific open tools if not develop their own software (Bartlett et al., 2019), but this is not motivating to most and has not become domesticated within professional development norms.

5.2.3 EXPECTATIONS AND THE REF

Time and again my findings concur with previous research that there are both different and more expectations of early career researchers (ECRs) compared with the experiences in an earlier era of their senior counterparts. They are expected to work harder, have published more often and to bring in more funding than their predecessors would have at their career stage, and with more precarity and worse work-life balance (Cannizzo et al., 2019; Raynor, 2019; J. Smith, 2017). Senior academics face many challenges of their own but with more resources to meet them. The early career pressure to meet probation targets, metrics to avoid redundancy and promotion requirements (Cannizzo & Osbaldiston, 2015) while feeling little loyalty and support from their institution makes it understandable that they are reluctant to invest time in institutional profiles and tools, despite being monitored for productivity and outputs (Cannizzo et al., 2019). Resistance from ECRs is rare as they attempt to play the neoliberal career “Game” (Kalfa, Wilkinson, & Gollan, 2018) while having minimal institutional power. The combination of pressure to succeed within the marketised academy and the elitist way in which research and mental health are framed in universities has an outsized impact on ECRs (Maclean, 2016).

The requirements of the REF and its interpretation by disciplines, institutions, departments and individuals both drives and constrains researcher behaviour in my data. This is partially documented in the literature, but the extent to which it shapes academic careers and behaviour is underestimated in favour of either defences of research assessment, contrasting REF guidance and practice (Dix, 2015a, 2015b; Stern, 2016; Torrance, 2019), gasps of despair (Anon, 2015) and rants about neoliberalism and control from researchers usually in the later stages of their career

and with more power to shape their disciplines than they generally admit (Morrish, 2015; Olssen, 2016).

My participants were aware that they did not have the union (Grove, 2018; Indignant Academic, 2016) or institutional support to boycott or the power to ignore the REF; but they built strategies around it to continue their careers – more successfully as senior academics. The REF approach to “excellence” in both outputs and careers is mirrored by other funders, especially in a UK context, and while accountability for public money is important, the consultations from Research England with academics perhaps do not reach enough researchers at the coalface to avoid many of the problems with units of assessment and the interpretations by both REF reviewers and various organisations with the power to affect researcher behaviour. The REF particularly had an effect on my early career participants, and this is reflected strongly in the literature, where both the shaping of outputs and careers (Marcella et al., 2018) and the need for a strategy to work around it (Tusting, 2018) are borne more intensely on the shoulders of junior scholars who dare not ignore these pressures in case that is the one thing ruling them out of a permanent academic job.

5.2.4 WORK-LIFE BALANCE

Unsurprisingly, my participants follow the academic trend of struggling with their work-life balance. The categories of demands defined by Branch, Chapman, & Gomez (2020) (institutional, spousal, parental and personal) do not map exactly to my findings, but our conversations centred primarily around the institutional and personal as a result of my use of the Visitors and Residents maps. It is apparent from my findings that those dimensions were insufficient to capture or explain everything that was going on in my participants’ use of tools, but for a different reason – that there are tools and work tasks that are common to both in different ways, and the branding and identity aspects of being an academic that influence their social media presence and more besides. The logistical tasks taking up much of the time in Branch et al’s ethnography also characterise the problems with work my participants described, and the institutional repository and other scholarly communication tools and tasks would fall into that category. Administrative and logistical work is resented by academics, especially when it creeps across the home-work boundaries (Sang, Powell, Finkel, & Richards, 2015), and early career researchers find autonomy difficult within the constraints of the weight of these tasks and the monitoring and management measures that accompany them (Cannizzo & Osbaldiston, 2015). Their identity as “authentic” academics is less certain as a result, as their experience of academic time clashes with their motivations for being an academic (Blackmore & Kandiko Howson, 2011; King et al., 2014). Their mid-career colleagues also feel the loss of personal connection to the work on which they spend most of their time, in comparison with technical, funder and management demands (Cannizzo, 2018), but

being a good “team player” involves spending more time on work than life (Cannizzo et al., 2019). That my academic participants spoke about their jobs in ways that suggested they had a poorer quality of working life than my library participants is not unexpected (Fontinha, Easton, & Van Laar, 2019), nor that academic workload allocation models add to the weight of control measures (Saltmarsh & Randell-Moon, 2015) rather than improving their lives.

The long hours culture (Birkinshaw & Cohen, 2013) of academia arguably exploits academics’ sense of duty and love of their work to excess, and only my more senior participants felt able to escape it. The persona of what Sang et al call the “ideal worker” or “ideal academic” (Sang et al., 2015) is shaped more by structural than individual factors. Researchers with more power, status and job security feel able to resist it in a way that younger, more precarious researchers cannot as their place in academia is not yet assured. Academia itself has changed: my senior participants were aware that their early publication and funding records were enough to secure their first permanent jobs but that was a different time, and these would not be acceptable now. The long hours worked by academics at all stages are expected in the sector, but performance management measures seemed to have less of an impact on a) senior academics b) men, which is also in accordance with the literature. Those same academics felt more able to refuse to use institutional tools or hack them to their own ends, and to produce their own websites to promote their work rather than rely on university profiles or academic social networking services. The further they get in their careers, the more freedom they have to escape some of the tasks or roles that got them there and arrange their time to better suit their ways of working.

The impacts of mental health on academic work and associated productivity expectations on my participants are partially supported by the literature (L. D. Berg et al., 2016; Erickson, Hanna, & Walker, 2020; Maclean, 2016), particularly the way in which this is mostly conceptualised by the individuals as an individual problem requiring individual responses (Huppertz et al., 2019). Autonomy is one of the great freedoms and joys of academic work, however not only is it experienced by my participants and academics in the literature as something that is being eroded from UK academia but also it can lead to researchers feeling isolated and that their inability to produce work when unwell is their responsibility. Stress for my participants was higher in roles that were temporary or under threat of redundancy, or for those who had spent many years in that kind of uncertainty, which is consistent with previous quantitative studies (Fontinha, Van Laar, & Easton, 2016).

There are disciplinary and type of institution differences in priorities for retention in those redundancy cases, such as reliance on metrics, student numbers or funding success, and also for promotion to more senior positions. The UK is of course different from countries that have formal tenure and promotion systems, and open-ended contracts with a probation period are as close to permanent as UK academics get. My academic participants were at a mixture of career and probationary levels, but all bar the post-doctoral researchers were on open-ended contracts. The early

career academics seemed less sure of what was required to secure their position, even if they had an open-ended contract, but engaged more in online networking specifically to be attractive to employers rather than just to promote their work or out of personal interest (Jordan & Weller, 2018).

“Quit lit” as it is often termed is more common in a US context, and more recent articles about the decision to leave academia tend to be published on personal or disciplinary blogs rather than in academic journals (Kendal & Waterhouse-Watson, 2020) for obvious reasons. The reasons given for leaving partially accord with those shared by my participants – need for a reliable salary, restrictions on international mobility, lack of autonomy, work-life balance – but stop short of the recommendations given by one of my participants for knowing when to leave. That participant had a series of temporary postdoctoral roles at elite institutions and felt that they would advise others to leave academia at an earlier stage, despite now having an open-ended contract. The lack of advice for those in similar positions is a real gap in the literature.

5.2.5 PUBLISHING AND PRESTIGE

The widely accepted pressure to publish (N. Butler, Delaney, & Spoelstra, 2017)) was deeply felt by all my academic participants, and some of my librarian participants also published in academic journals in order to gain status with the researchers they worked with as well as disseminate their ideas and best practice. The researcher’s need for self-promotion was near-universal in my study: it was important not just to publish or even to be read, but to be seen to have published (Gendron, 2008) and try to improve the metrics and reputation by which one might be measured. Traditional scholarly activities like research, teaching and publishing in reputable journals (Jamali et al., 2015) still form the bulk of my academic participants’ work, and the librarians’ work still mostly supports this activity.

As for journal prestige, however scornful some of my participants may be in general terms about its importance, their actual practices required consideration of publication outlet and their careers benefitted from the prestige conferred by “top” journals (Coate & Kandiko Howson, 2016; Fyfe et al., 2017; Siler, Haustein, Smith, Larivière, & Alperin, 2018). My professorial participants were aware that they had the freedom and power to publish where they liked, but when co-authoring with junior scholars allowed them to choose the journal and pushed for those most respected within the discipline. Participants’ publication strategies generally involved a mixture of general interest, disciplinary and subfield journals. Open Access status or lack thereof only troubled the STEM academics involved in OA activism. Only those academics who already had prestige or who would gain prestige from publishing OA could prioritise beyond external rankings of journals. Publication speed was more important to those participants who were early career or changing

jobs, and senior academics were aware of the delays inherent in prestige academic publishing (Nosek et al., 2015) and their effects on PhD students and postdocs.

My participants were very conscious of being monitored and measured as academics, but generally had a lack of awareness of their own publication metrics (Andrews, 2018, 2019b) and the extent of the quantification of academic life. This disagrees with the level of “obsession” observed in the literature (Gruber, 2014), which is more aligned with management and even the librarians, some of whom were very invested in the idea of metrics, than individual academics. The very established tools of bibliometrics and citations (Kate Williams, 2020) were only of passing interest, most of my participants barely or never looking at data about their outputs and those who did being more interested in the reading and downloading statistics available from Academia.edu. This may be why a lot of the arguments around Open Access fail to move these academics. It is not that they are against OA, but only the STEM academics were excited about increasing the pace of research breakthroughs via wider availability and citation advantage via increased legal or illegal access to their outputs (Correa et al., 2021) was not a motivating factor for sharing their work, despite what they admitted was self-promotional behaviour on social media. Perhaps funder requirement is the only driver for OA that really matters to the majority – it is reasonable to infer that this is behind the dramatic increase in journal article availability in the UK.

What “counts” as an output (Nadim & Randall, 2013; von Jungfeld, 2014) remains an important issue for many academics in the arts and humanities and parts of the social sciences. My participants were frustrated at the lack of capacity to fully accept heterodox research outputs within the technologies they were asked to use, their colleagues’ understanding and, perhaps most importantly, the REF. Even where non-standard artistic outputs are accepted, the writing about them is seen as more important. The literature still seems not to consider the challenges of these outputs beyond storage, display, preservation and description (Meece, Robinson, & Gramstadt, 2017): a legacy of the authors being either library workers or LIS academics. Issues my participants presented such as arguments with creative partners over copyright, research ethics and ownership of physical artefacts are not covered in the literature on institutional repositories or research data management, nor research collaboration. While there was a rash of early 21st century articles on the merits or otherwise of academic blogging (A. Edwards, Housley, Williams, Sloan, & Williams, 2013; Fitzpatrick, 2010; Gill & Donaghue, 2016) and the emergence of platforms like The Conversation and LSE Impact for sharing research with wider audiences, the mainstream press and trade books were important to my participants but generally considered as a time-sucking add-on or bonus for their academic work despite a much wider readership and greater impact on thinking and practice in the spheres they seek to influence.

This leads me to what counts as “impact” in UK academia (Ayres, 2018; Chubb & Reed, 2018; Stern, 2016), and my participants repeatedly bemoaned the narrow

focus of their institutions on the REF definition and impact case studies, with a demand for other outreach work from employers and audiences but little in the way of rewards. Neither the technical systems nor the recruitment, retention and promotion criteria are good at valuing outreach and engagement work (Raynor, 2019; Singh et al., 2019) or non-standard outputs with high impact on the general public but not connected to a specific research project by that individual academic. This work is socially, artistically and otherwise beneficial but not rewarded in meaningful ways if not part of a funded project or case study. This makes it difficult for those earlier in their careers or under threat of redundancy who are interested in this kind of work to justify doing it as it would have to happen in their own time.

5.2.6 WORK IN A TIME OF UNCERTAINTY

Participants complained that there was a lack of support for collaboration between institutions in general, as did the librarians. Outside of funded research projects requiring project partners to work at different universities, institutions are considered to be in competition for students, funding and reputation at all times and academics are individualised and put in competition with each other (L. D. Berg et al., 2016; Torrance, 2019). This is also the case with software and services, and academics are required to change accounts at best and entire systems and sets of tools at worst while there are large amounts of replication across universities that could be consolidated.

The combination of precarity and threats of redundancy made my academic participants at all levels feel uncertain and frustrated. Precarity is not unusual (Megan & Mason, 2020; UCU, 2016, 2019) nor a temporary discomfort in UK higher education, as previously discussed, and the sector is reliant on casualised labour on a more than occasional (Gill, 2014) or postgraduate teaching experience basis. Universities themselves have admitted that the level of casualisation has massively increased in under a decade with over 50,000 fixed-term staff at Russell Group universities in 2017-18, an increase of 31% from 2012-13, with a sizeable impact on researcher wellbeing (Russell Group, 2020). The themes of precarity, exploitation, lack of support, and lack of career progression (Lopes and Dewan, 2013) were echoed by my early career participants, who similarly talked about reaching a breaking point where they may have to leave the sector they love while not really engaging with the potential for collective struggle via the trades unions to improve the sector (Wånggren, 2018)– believing both in their own personal shortcomings and the role of “luck” (Loveday, 2017). The lack of investment by precarious and threatened academics in institutional systems is unsurprising when considered alongside the lack of investment by institutions in their wellbeing and careers, and investment in other social networks to improve their prospects, despite the gatekeeping of senior academics (Van den Brink & Benschop, 2014) and despite

the platforms' gendered drawbacks where women and transgender people receive more abuse (Binns & Bateman, 2018; Hines, 2017; Pearce, 2020; Vera-Gray, 2017). Uncertainty and its shaping of information practices is not an unknown phenomenon as a barrier to participation in tools, services and meetings (Willson & Julien, 2020) and the difficulty for precarious and overworked academics to form physically-based networks within an institution or local area makes collaboration and cooperative action difficult.

5.3 CULTURE OF CONFORMANCE AND NON-CONFORMANCE WITH INSTITUTIONAL TOOLS OR SYSTEMS

5.3.1 PLETHORA OF TECHNOLOGIES

My participants' maps showed they used a wide range of tools and systems that often crossed over between personal and institutional domains. Something that was particularly notable was the dominance of Google apps and services for many academics and librarians, whether or not Google was the approved provider of office software at their institution (Nunn, 2019), and where it was it was easier for the academics to conform with university expectations of their software use but more difficult for them to avoid looking at institutional email (Eve, 2021) or calendars outside their scheduled working hours. If a participant had a family or hobby Google calendar, this meant they felt more comfortable using Google for all their appointments where possible. The user experience of Google apps and the smooth experience on smartphones often formed part of the discussion with participants, contrasted with Microsoft Outlook and other products in the Microsoft suite.

There are multiple gaps in the literature on this topic, as at the time of writing other studies have not tried to understand the complexity of the technological environment in which academics find themselves in UK academia. Most articles concern themselves with a single technology or quantitative comparisons of a small group of platforms. The sheer volume of tools and services used by academics, both analogue and digital, is not documented outside this thesis or even acceptance that this is the case. Some of my participants run their own websites. Many access institutional systems from their personal devices. Several have an interest in hacking and/or improving the institutional systems software towards their own ends, something which might be regarded as a "queering" approach. The LIS literature in particular seems to be ignorant of the information behaviour of academics in this context (I. D. Gordon, Cameron, Chaves, & Hutchinson, 2020), and initiatives around OA and compliance consider interoperability with other institutional tools (Amorim, Castro, Rocha da Silva, & Ribeiro, 2017; Brown, Alvey, Danilova, Morgan, & Thomas, 2018) but not those that academics also use in their personal or professional lives outside those provided.

The prevalence of Google products in my data exemplifies the blurring between consumer-level technologies and software and enterprise technologies and software known as IT consumerisation (Junglas, Goel, Ives, & Harris, 2019; Klesel, Weber, Walsdorff, & Niehaves, 2019), making boundary objects (Star, 2010) out of certain tools and services. Increasingly, workers expect the software and devices they use at home to be reflected in the workplace, and for software and devices to operate in familiar ways. Employee technology choice requires employee “empowerment”, which is as we have seen not a problem for academics, who prize their autonomy and flexibility at work. Users who are comfortable with the technologies they use and have permission to use those they prefer are more effective and experience relative advantage (Junglas et al., 2019), which concords with my findings. Most institutional software is niche and specific to the higher education sector, excepting the office software also well-represented in my data, and library and OA related software is no different. Google Scholar is the only consumer product where library integration is inbuilt, and it is widely used outside of academia despite its deprecation from the main Google product pages. Reversed IT adoption outside of Bring Your Own Device (BYOD) policies (Barlette, Jaouen, & Baillette, 2021) is rare in higher education, but more nuanced approaches from libraries to the “threat” of academics choosing and adapting the tools and services they use would be more helpful.

While librarians in my study and in press releases for vendors of institutional software eagerly anticipated or praised the role of automation in easing deposit in institutional repositories and other scholarly communication processes, such as integrations with Web of Science and Scopus and a Jisc connector, the failures of automation are not documented. Since the introduction of the REF OA policy, some of the extant automation has led to additional administrative “faff”, as deposits of outputs on acceptance for policy compliance purposes cannot pull in information from DOIs or publication databases and those same databases have, my academic and librarian participants told me, clashed with manually entered data when those outputs have been officially published. This creates problems for repository staff and academics alike, if the issues are noticed. The selling points in the early days of CRIS, such as the ease of academics’ claiming outputs found by databases or importing data from other sources, are overridden by the compliance requirements and the lack of interoperability with journal management systems. Academics still have to be relied on to deposit manually when they receive a notification of acceptance and this has to be checked and released manually by library staff and any embargo checked and applied. There are well-rehearsed arguments for (Ferguson et al., 2020) and against (Shearer, 2020) publisher embargoes on green OA, but not on the knock-on effects on academic labour and administrative processes.

5.3.2 HACKING AND HACKED OFF

Academics sometimes undergo additional labour to improve their experience of software. The relationship most academic participants had with the VLE could best be described as “complicated” and frustrating (Mashroofa, Haleem, & Jahufer, 2020), as they struggled to make the systems work well for their needs – bar one, who had found it worked well with her pedagogical style. While several of my participants either minimised their use of the VLE or used their technical knowledge to bypass its front end to add material, neither the support material provided by institutions nor studies of the software and its use has taken the poor user experience and temptation to use workarounds into sufficient account. The use of VLEs at some institutions to monitor student engagement (JISC, 2016) and their central role in remote and blended learning has not led to great improvements in their usability or academics’ desire to conform with institutional expectations of their use.

While all of my academic participants had profiles on the university website, their search engine results were mostly dominated by academic SNS such as Academia.edu or social media like Twitter, including results for individual journal article titles beyond the publisher website. The use of social media for self-branding in academia is common (Duffy & Pooley, 2017; Duffy & Pruchniewska, 2017) and participants understood on some level that they gave their work and profile greater visibility than institutional platforms, even if they had not run searches like some of my participants to check how they appeared online. My study confirmed their suspicions: university profiles and institutional repositories appeared lower in searches for their names and output titles than publisher websites, social media and academic social networking services. Given their precarity and lack of visibility without these platforms, social media controlled by individual researchers and used well to boost their profile and expertise is a justified form of the digital possessive or possessive individualism.

There is limited understanding from those who purchase and maintain institutional software of the barriers to using and hacking systems. Not all participants had the technical skill or comfort level to use the systems fully (Mashroofa et al., 2020), and there are no studies of the workarounds and hacks and few articles about the alternative tools and systems academics like those in my study use to customise and improve their experience at work through what could be termed “queer use”, particularly when the tools were not designed for that purpose and therefore their use goes beyond adaptation or personalisation. Academics like to think of themselves as autonomous and heterodox thinkers and personal efficiency and comfort was more important to my participants than conforming with institutional expectations unless there were consequences for non-compliance.

5.4 ACADEMICS' ATTITUDES TOWARDS OPEN ACCESS

The drivers and pressures of being an academic and culture around conformance and non-conformance in academia are an important context for academic attitudes towards Open Access, which I will now go on to discuss. How academics who are not deeply invested in Open Access activism or the highly engaged affective publics (Reilly, 2021) that could be dubbed “fans” of OA feel about Green Open Access now that it has been established for many years is a perspective that is missing from the literature. Most recent studies are of Global South countries or predate the announcement of the REF OA policy, or merely count deposits. My participants did not really consider anything but the version of record being Open Access to be “proper” OA, which favours gold OA (Pinfield, Salter, & Bath, 2017) and the small number of journals that allow deposit of the publisher version. The author accepted manuscript (AAM) is perceived as more of a “draft” version, which they would prefer others not to cite, and this issue for green OA has not been explored fully by other researchers. One academic (Solly, 2021) recently suggested that the non-paywalled AAM could be doctored with deliberate errors in order to drive readers towards the paywalled version of record. He was not joking about the problem, even if his solution was not entirely serious.

There is a wealth of activist literature promoting the benefits of OA and self-deposit (Jamali, 2017; La Manna, 2020a, 2020b; Piwowar et al., 2018), but green OA policies and repositories could now be described as “mature” in the UK (Huang et al., 2020) and academics’ general lack of interest in it (Ten Holter, 2020) compared with gold OA or other priorities should have raised more alarm in the scholarly communication practitioner and research communities. However, librarians have tended not to deposit their own work in repositories (Emery, 2018).

All my academic participants thought making their work freely accessible online was important in the sense of being something they should probably do, but few believed that was a priority when publishing or working out how to share their outputs. Their choice of publishing venue, lack of knowledge about embargo periods and permissions for sharing versions of their manuscript and so on demonstrated this. Awareness of the REF Open Access policy was vague (Zhu, 2017) among participants in sociology, history and the practice-based arts. They knew it existed, but most did not know the exact rules or when they applied. Librarians found some disciplines, particularly those in the arts, were not that responsive to information, training and queries about deposit requirements and compliance with the policy (Zhang & Watson, 2017)..

Compliance with publisher policies, as opposed to funder or REF requirements, is left to librarians to understand and check (Gadd & Troll Covey, 2019). My participants found it a confusing and difficult aspect of OA. While librarians knew about Sherpa Romeo, a database for checking publisher policies, most academics were not aware of its existence or found its layout complicated and they were not

interested enough in OA to check it every time they published an article. The language of publisher policy is legally watertight but deliberately opaque, one participant believing that it was meant to make academics feel uncertain when they read it, thus avoiding copyright infringement by not uploading any version of their paper anywhere. The lack of standardisation within let alone between publishers and the number of potential options – embargoes of different lengths, different versions allowed to be shared, permission to deposit in a repository, permission to upload to an academic social networking site, permission to upload to a personal website – means that is hard for academics to know without looking what an individual title will let them do with their article.

As you would expect from the literature on the topic (Maryl, Błaszczńska, Szulińska, & Rams, 2020; Severin, Egger, Eve, & Hürlimann, 2018) and the resources produced by librarians, academic publishers and research offices, my participants perceived policy, practice and guidance around Open Access to be predominantly focused on STEM researchers. The humanists tended to be additionally frustrated that scientists dominate the funding and OA model conversations (Eve, 2015), are often able to get their article processing charges (APCs) paid and are considered to be more productive due to their volume of mostly collaboratively-authored outputs. Librarians knew that their models of what research looks like were mostly applicable to the sciences, but those disciplines also dominate the departments they work with. Whether paying APCs or enabling deposits in the repository, that increased rate of publication meant the librarians processed more STEM outputs and had more requests for training or support from scientists.

Humanities and social science academic participants were also keen to talk about the importance of academic books for getting and keeping jobs and the devaluing of book chapters due to the REF. A sustainable model has yet to be found for Open Access books (Adema & Hall, 2013; Adema, Mars, & Steiner, 2021; Universities UK, 2018). Its importance to certain disciplines is understated in the literature, especially the image permissions and other issues involved with digital books when images are often only licenced for small print runs (Spence, 2018). In some fields, trade (for a popular audience) books are both desirable and eligible for the REF, or “REFable”, and this is under-theorised and under-supported in OA discussions and policies. My participants queried their freedom to publish if they have to publish books or chapters in OA for future REF exercises, as it restricts their choice of publishers especially outside the UK and especially if they have no funding and no in-house academic publisher. My participants expressed the view that many aspects of OA do not really work for arts, humanities and social sciences (AHSS) scholars. Nor do many aspects of the REF. The REF OA policy covers most outputs by STEM researchers and few by AHSS. The tools, services and support available reflect this majority and do little to address AHSS concerns or appreciate a multiple view of OA practices.

5.5 ACADEMICS' BEHAVIOURS TOWARDS OPEN ACCESS

Having considered attitudes to OA, the ways these translate into behaviour are another matter. Much of the literature on academics' engagement behaviours with OA initiatives, research information management systems/CRIS and institutional repositories is written by librarians and/or representatives of academic publishers and software vendors (Bryant et al., 2018; Clements & Proven, 2015; De Gruyter, n.d.), and imply that Open Access is popular and easy to do or counts deposits at a specific institution or group of institutions (Msomphora, 2019). Diagrams of workflows and processes make it seem like publishing and depositing new articles is a daily process, as opposed to something most researchers do a few times a year at most. My academic participants did not feel at all close to any of the tools and services related to OA and were not regular users of the systems. Only one was a real OA enthusiast and only a couple even mentioned librarians as a source of information and support. As they become more aware of it through policy and promotional efforts, academics remain sceptical or just not very interested in Open Access and it is demonstrably not in their interest to move it up their list of priorities (Pinfield, 2015; Pinfield, Wakeling, Bawden, & Robinson, 2020, pp. 23–25). This means their behaviours reflect this lack of engagement.

The literature documents a great amount of enthusiasm for preprint and draft culture in advancing research (J. M. Berg, 2016; Neylon, Pattinson, Bilder, & Lin, 2016; Sarabipour et al., 2019) although only one of the scientists in my study was at all keen on making their work accessible in this way. Some had been “bitten” before by misinterpretation of work they had made available at an early stage or shared off the record stories of colleagues whose Open Access work had led to abuse via the media. Peer review was important to participants, as was readers being able to understand the context in which their work was published – retaining a degree of control over their words and how they are read, something that appears to be an expression of possessive individualism. This accords with recent notes of caution about the lack of scrutiny applied by the media and others to unreviewed work in healthcare and technology (van Schalkwyk et al., 2020). Despite all the criticisms of peer review (Coble et al., 2014; Oransky and Marcus, 2016; Ritson, 2016), authors remain invested in the process.

It was clear from my data that as in the literature my librarian participants failed to recognise the administrative burden for academics, particularly those trying to secure employment, of needing to update and maintain multiple places to log, deposit and promote their work. Something librarians do every day as their main job becomes smooth and quick, whereas it is just another deprioritised bureaucratic task for academics (Nash, 2019). Depositing in the institutional repository is a necessary evil for UK academics due to the REF policy; but logging every research-related activity in the CRIS – required by some of the institutions in my study – is labour-intensive work. Preprints would just add to that burden for many, without the

credibility and esteem benefits of journal publication in most disciplines (Soderberg et al., 2020). Academics complained that their unusual research data and research activities were difficult to enter and deposit in the systems they were required to use (Nadim and Cooke, 2011; Nadim and Randall, 2013; Pinfield et al., 2014) and research data management was seen by librarians as a nice-to-have but not a priority beyond data management plans. Engaging academics with OA is necessary and can be difficult enough, without adding further levels of “open scholarship” which are of minimal interest or requirement.

OA is undoubtedly at high adoption levels in the UK but also does not seem to be the focus of attention of many academics. More than 50% of 2020 articles in the Dimensions database are available OA in gold or green (Hook, 2021), for the first time, but OA is still not culturally accepted as the norm by academics. The literature on OA only platforms a very select set of voices and only people who engage with it as an issue are engaged with it as a practice. Most of my participants are not engaged with it. It is still very hard, especially in some disciplinary areas, to make the work that is most important to them available OA in a way that they value. My participants have no easy answers to the problems of lack of time or the way they are incentivised to disseminate their work.

There are no individual or societal drivers for most AHSS academics to make their work available as OA. There are only sticks with which to beat them for non-compliance, and if the policies were removed by funders and the REF then the rate of OA would fall dramatically. Reviews of policy and practice in the UK are yet to fully take this into account, discussions of OA monographs aside. The threat of alienation from policy is real, with recognised difficulties for researchers with policy implementation (Lilja, 2020) and should the policy drivers from funders and the REF be removed the OA adoption rate for many disciplines would soon falter.

Google Scholar have just announced they are taking a “stick” approach to OA, which they dub “Public Access” (Google, 2021), experimenting with a new section on Google Scholar profiles that “helps” researchers to track their compliance with OA mandates and marks in red outputs that their algorithm says should have been made available. Google Scholar encourages researchers to upload those articles to their public Google Drive, rather than an institutional repository. This approach does not account for digital preservation (Borgman et al., 2015), curation or persistence of those links – unlike a properly-managed repository. Once more there is no attempt to engage with the problems AHSS face with making their work available, including image permissions and a lack of public interest in their work.

At the time of writing, UKRI are about to announce the results of their consultation on OA policy for UKRI-funded research and Research England will launch a consultation specific to the REF policy on which this thesis is focused later in 2021 (Research England, 2021). It is to be seen what approach they will take to these problems and whether the lessons of policy implementation over the past ten years

have been learned. However managers in UK academia have already started to sound like librarians with their talk of and discomfort with the bureaucratic compliance requirements of their roles (Mackay, 2021).

5.6 CHALLENGES FOR LIBRARIANS

There are many constraints on librarians in their attempts to help researchers engage with Open Access and the systems used in scholarly communication. Some of these restrictions are self-imposed, some come from their institution, some are built into the technology and still others are inherent to their professional culture. While librarians usually self-define as “professionals” (including “information professionals”), the restrictions I will go on to discuss put them at odds with Freidson’s (2001) narrow definition of professionals. They have limited control over the content and goals of their current work, both of which being tied to their service and institutional strategy (as is common for professional services staff), and they are far from free of the bureaucracy of institutional, government and funder policy requirements and the demands of the market – be it academic publishers, software vendors or the competition between universities for students and research funding. While many of my academic participants mentioned trades unions while talking about the terms and conditions of their work, the librarians did not. The split in unions between job grades in many UK universities (UCU for higher grades, Unison for lower) may contribute to this lack of agency in librarians to change and improve their work.

The literature is ageing and rather scant (Ashworth et al., 2014) when it comes to librarian and academic use of the same tools and time and willingness to learn how to use systems that are part of daily work in the library and quarterly at best in academics’ lives, especially for institutions where staff time is at a premium and therefore the work cannot be fully or mostly mediated. My data speaks to this gap in understanding, where the interest of some academics in hacking tools to make them work better for their purposes and the interest of some librarians in customising options in scholarly communication systems has some similarity but both are outlier groups. Most librarians get on with using the tools as provided and believe they’re quick and easy to use because they are designed for the people who purchase them (library staff and senior management) and most academics do their best to use the tools under sufferance or avoid them as much as possible.

The size, efficiency and organisation of some academic libraries and issues with distribution of resources in the recruitment to new posts is not covered by the literature in a practical sense. New roles for librarians are theorised, but there is little on the need for other parts of the library to work with the research support team and nothing on the replication of parts of subject specialists’ work by other parts of the library or the research office in bigger and more complex universities. This was a

clear problem for my participants, who became unsure and defensive of their role and found generic job descriptions added to the sense that their role could be subject to either mission creep or effective downgrading at any time as suited the needs of the “business” (university).

There has been a further reduction of scope and freedom in scholarly communication roles since my Masters research (Andrews, 2014a). It would be difficult to argue now that my librarian participants and others in similar roles are “cross-boundary” or “unbounded” (Whitchurch, 2008a) professionals or even “blended” (Corrall, 2010) as their roles become more and more bounded and constrained by the requirements of policies, processing, monitoring and compliance. This is compounded by the continuing problem of most institutions, including those of the majority of my participants, having insufficient library staff in the roles needed to provide a full service in support of researchers. The push to do “more with less” (Abell & Coolman, 1982) is ceaseless in the history of academic libraries, but the numbers of staff and students they individually and collectively serve has never been so high (SCONUL, 2019). Initiatives like transformative agreements to publish gold Open Access (Jisc Collections, 2018) increase OA outputs at high prices without changing scholarly communication culture and yet librarians in the UK have limited power to resist their rise and their effects on library budgets.

5.6.1 VISIBLE AND INVISIBLE INFRASTRUCTURE

One of the issues for librarians is that they mostly operate invisibly, however heavily they brand their systems, services and resources. They are vital infrastructure in higher education but are not seen other than when an academic realises that they do not know something or cannot do something. This is not a true research partnership between researchers and library staff, but professionals supported by “domestic work” (Star & Strauss, 1999). The software and policies librarians use are much more visible forms of infrastructure than the people in this sociotechnical system because they, the systems, do not work seamlessly for researchers.

Libraries are saddled with a plethora of institutional systems that are not always smoothly interoperable and not designed with users in mind. The library literature partially considers the problem of duplication of effort, via each academic library running its own institutional repositories with limited use of staff collaboration or shared services (Arlitsch & Grant, 2018), and the user experience of students, library website users (Gullikson, 2020) and repository readers finding outputs (González-Pérez, Ramírez-Montoya, & García-Peñalvo, 2018). There is limited attention paid to the experience of academics depositing their own outputs (Kim & Oh, 2020; Msomphora, 2019) and none to the idea of institution-level scholarly communication systems being designed or redesigned around researcher needs. New subject or task specific “open” tools pop up on a regular basis, but these are not adopted at

university level and few were mentioned by my participants. Other systems such as journal submission system ScholarOne are equally clunky if not more so, but the potential rewards for academics using them are greater and so they see a point to their use, whereas repositories and similar were seen by my academic participants in a similar light to unrewarding institutional administrative systems for purchasing and expenses management.

This raises the question whether as a set of services the library is really designed with research-based academics in mind. Staff charts show few roles in research support, putting their needs secondary to those of taught students in the library mission, and those roles and services that do exist are built around funder and policy requirements. My data shows institutions have continued their convergence around a small number of providers of repository and research information management software, mirroring the split in my participants between the office software giants Microsoft and Google, and there is limited opportunity to shape the development of these tools towards researcher needs even if the librarians had time and knowledge to aid that work.

5.7 MISALIGNMENT OF PROFESSIONAL ATTITUDES BETWEEN RESEARCHERS AND LIBRARIANS

My findings agree in part with the literature on what motivates researchers and how these motivations conflict with institutional and REF demands, although this is an area that has been given limited attention in itself. This conflict results from an idealised academic past and belief in the authentic self for the researcher (Cannizzo, 2018), contrasted with academic governance, careers dictated by funder demands and anxiety caused by precarity in work (Loveday, 2018). Enthusiasm for research itself is central to fulfilment in academic work (Wilson & Holligan, 2013), but the pressure to publish, performance management actions related to the REF and monitoring of targets demotivate and upset researchers (Franco-Santos & Doherty, 2017). Librarian approaches to academics fail to understand the complexities of these conflicts, pushing towards compliance with institutional and funder policies as a motivator rather than a barrier to their passions. This is a change from the advocacy approach taken early in UK OA initiatives, which focused on the individual and societal benefits of making research openly available (Andrews, 2014b).

Librarians have long touted access to statistics on outputs as a motivating tool for academics when deciding whether to engage with Open Access (Bower, Sheppard, Bayjoo, & Pease, 2017), and opportunities to use e.g. data mining techniques on manuscripts are written about excitedly by enthusiasts but are yet to make it into the consciousness of most academics, including my participants. Most barely looked at statistics, metrics or alternative metrics (Martín-Martín, Orduna-Malea, Ayllón, et al., 2016), despite the enthusiasm for them in scholarly communication circles.

Library and academic perspectives on “workflows” and processes are vastly different, and the literature on workflows from a library and scholarly communication perspective seeks to model and contain ways of work via typology and enthusiasm (Bosman & Kramer, 2016; Hazzard & Towery, 2017; Ward et al., 2015) rather than responding to the “messy” (Leurs, 2017; Malcolm & Zukas, 2009; Smart, 2009) nature of research and writing understood by sociological approaches to academic work. In an attempt to define researcher workflow, Clague (2018) notes its heterogeneous nature outside STEM but does not question the usefulness of a definition. A study on research data management workflows (E. Mattern, Jeng, He, Lyon, & Brenner, 2015) made visible some of the elements of academic work that are “invisible” in the standard research lifecycle models but sought patterns to create new disciplinary workflows instead of accepting that the highly personal and individual processes they elicited from their participants were something librarians have to work with rather than try to contain.

Librarians lack recognition of the scale of the administrative and time burdens on academics, and this is something the literature is unsurprisingly quiet on – LIS academics and practitioners not recognising the problem, and researchers of work in higher education generally not writing about librarians. This empathy gap, at least in the literature, makes librarian attempts to engage with academics more likely to fail at scale. The institutional and other systems librarians are required to use for their work are small in number compared with those demanded of academics, and their work weeks are more contained and respected by management at most levels. My academic participants only engaged in a limited way if at all with training and workshops run by library staff, and emails and appointment requests relating to these events are lost in the vast deluge of information they receive on a daily basis. The best way for the library to help is to remove these burdens by doing some of the work, but there are currently insufficient library staff for this to be sustainable. University libraries reported a drop in full-time equivalent (FTE) library staff numbers of 10% between 2007-8 and 2017-18 and an increase in student (10%) and academic staff (20%) numbers over the same period (SCONUL, 2019).

Nothing has been done to either address blockages or accept agonistic pluralist (Hansson, 2010; Mouffe, 1999) approaches to openness. The impression given by managers and policymakers is that everyone must reach a consensus and agree with the pathways set. Compliance with policy and conformance with the accepted institutional approach are still the goals. Repository services that are heavily or fully mediated by librarians lead to more deposits in the institutional repository, which is why well-resourced institutions like the University of Glasgow mediate the process as much as possible (Ashworth, 2016; Ashworth, Mccutcheon, & Roy, 2014). There is nothing in the literature to contraindicate this fact. However, this produces multiple problems for less lucky librarians trying to engage with researchers (Daoutis & Rodriguez-Marquez, 2018; Dobson, 2016; Huang et al., 2020), such as sustainability as output numbers grow, financial and operational issues with reference to staffing

and other resources, and librarians' own feelings about culture change towards "openness" and their roles as "compliance checkers". This was also raised by my participants in this study and in my Masters dissertation project (Andrews, 2014a).

The "laborious" nature of the work required to engage researchers was raised in a recent SCONUL Focus article (Seller, 2020) about email reminders in REF-related systems. This team received negative feedback from users about the length of time it took to deposit their work, deposit deadlines (for REF policy compliance) were often missed and researchers experienced Open Access as an administrative burden rather than something beneficial to them as academics. My findings show that this is a problem beyond the author's institution and one that has persisted since the REF policy was first mooted. The author's use of Symplectic Elements to send out automatic email reminders received more enthusiastic feedback from the few academics who did engage, something I have experienced in a former role, and reduced the burden on library staff while increasing deposits both within and outside the scope of the REF policy. It is not clear from the article how many emails were actually opened and actioned, and this is where my findings on participants' experience of emails and the volume they receive add some much-needed context.

Part-time work in academia is not really part-time. Academics, particularly if early in their careers and/or precariously employed feel like they are "always on" (Allmer, 2018), and put in extra unpaid work especially if they are disabled (Inckle, 2018), but there is no similar literature about library staff. Academics feel a duty to their students, their research and their disciplines that goes beyond commitment to their current jobs – which they are well aware are not overly committed to supporting them in the long term, whether or not they have an open-ended contract. Tenure does not exist in the UK, and the threat of redundancy and restructure is ever present for both librarians and academics.

Professional networks are important to how both librarian and academics form their opinions on Open Access and other topics, but the role of "librarian groupthink" (Katopol, 2015) such as misconceptions about the ease of repository use are not explored in the literature. While there are few genuinely shared scholarly communication services in the UK, apart from Jisc's underused research data service and the British Library's shared repository pilot for independent organisations, there is much more consensus between my librarian participants and between those librarians and the literature than there is between academics even within the same discipline. Librarian groups on social networking tools and mailing lists have developed conscious and unconscious ideas of best practice that are rarely critically interrogated.

All my librarian participants had a strong sense that their professional loyalty was to their institution and its priorities first, and then librarianship as a profession. Library professional literature does not talk about this, but it is evident in the focus on authors' own workplaces and increasing engagement or deposits or celebrating

policies within their own institutions rather than at a higher level such as discipline, region or country. Academics both in my study and beyond have fairly weak ties to their institutions, barring perhaps Oxford and Cambridge in the UK context. They move institution far more often than librarians during their careers, partly due to precarity and partly to advance their research, and their loyalties are to their fields, disciplines, peers and “authentic” selves. Library approaches to academics rarely take this into consideration, despite noting higher engagement from some disciplines than others. While departmental strategies may tie themselves to institutional priorities, just as library service strategies do, this does not filter down to the individual academic. Their students are important to them, if they teach, but their colleagues and their professional community and even recognition tends to be beyond their department and university.

Librarianship is a predominantly female profession (Levesque, 2020; Schlesselman-Tarango, 2016), excepting senior management, and thinks of itself as being quite progressive despite well-documented issues around race (Hampton & Meulemans, 2020; Schlesselman-Tarango, 2016) that my participant Natalie also suffered – often being the only woman and only person of colour in the room at OA technology meetings. Open Access advocates are predominantly male (Hayes, 2017) a characteristic they share with other types of openness such as open source software (OSS) (Dym & Fiesler, 2020; Fiesler & Dym, 2020) despite academia as a whole being more gender-balanced. Again, there is more inequity at senior levels. Another group that has had issues with the tensions around culture, priorities, values and technology is fandom communities, who have clashed with OSS advocates (R. Winter, Salter, & Stanfill, 2021) despite both being communities of making developed around shared enthusiasms.

5.8 THEORY AND LENS GRINDING

I will now return to the theory I presented in the literature review chapter earlier. Why is the theory important? It points to another way of understanding OA policy, processes and technologies. The reason everyone was so enthused in 2002 was not to place bureaucratic burdens on academics, to drive private sector innovation, to sell software and software consultancy services or to provide value to the taxpayer. It was about society and the public and furthering the sum of human knowledge. The theory takes us back to that, reminds us why it was all so important and why the policies, processes and technologies of scholarly communication exist in the first place. Going back to theories of the commons, possessive individualism, queer use, infrastructure and agonistic pluralism make the situation seem less glumly inevitable. It is possible to take the gains from UK policy successes, the vast increase in availability of research outputs, and move forward in a way that engages and supports more researchers and readers. The conversations we have about OA do not have to focus

on compliance or Creative Commons (CC) licences (Donabedian & Carey, 2011; Mallalieu, 2019) or benefits to the individual researcher.

Sara Ahmed writes powerfully about policies coming into existence without coming into use (Ahmed, 2019, pp. 12, 34-41, 177, 197-217), and a history of use being experienced as “ease”. While OA policies are implemented in the UK and functional in the sense of the OA availability of research outputs, they are not known for their ease or embedding in academic priorities and work days. Ditto the technologies provided by universities, which can be either ignored most of the time or used in ways that better suit the researcher. The focus of policy and guidance on the researcher rather than the disciplinary or research community and their relationship with the public plays into the damaging concept of the digital possessive (E. Gordon, 2014) and an atomised precarious researcher and how policy etc hasn’t helped with those destructive ideas of competition and individualism that poison any benefits from OA. The range of acceptable CC licences (and none, in the case of most Green OA) don’t placate the reluctant or do anything to support pluralism and yet encourage even more individualism. Outputs are variously owned by the author who can transfer their copyright, a portable unit for the REF that can make an individual more employable, belong to the funder, belong to the version of record, are owned by the taxpayer who funded them (if the work was even funded). They are however not fully treated as a common good, at least not in the way knowledge (Macias Vazquez & Alonso Gonzalez, 2015) or education (Gerrard, 2015) are constructed as resources in common ownership, even by open knowledge advocates. Authors still assert ownership and control over where their work appears and take a possessive (E. Gordon, 2014; Macpherson, 1962) approach to their outputs, which are an individual public good but not a collective one (Marginson, 2011). Open Access advocates in academia treat their own expertise and outputs as possessions that they can choose to share, rather than works for hire or communally controlled.

I could argue that only CCo and Public Domain are actual public goods because the attribution required for the next most permissive Creative Commons licence, CC-BY, is a barrier to some forms of reuse and remix. Attribution or credit is a mark of ownership or possession, even when sharing. Academics want attribution and citation at every stage of their work and prestige where possible, but most do not use the CRediT taxonomy (Altman & Avery, 2015). Academics and librarians both perform or enact open differently when they are talking about someone else’s work or a side project rather than their own main research, because their colleagues are motivated by credit and prestige and value it so they have to play the Game. Or at least they say so, using other people as an excuse. Therefore, academics are motivated by credit and prestige and/or the system shapes them to behave in certain ways. My participants for the most part accept that they have to play the Possessive Individualism aspect of the Game to thrive, and Queer Use is finding ways to work around those expectations and constraints and not accepting the system as it is. Everyone in UK academia is living with a tension between the ideal and the system.

It is only human to care about getting credit and what ultimately happens to your work, beyond monetary gain.

Policy could encourage socially just attitudes and behaviours and not just compliant ones. Infrastructure like repositories could be collectively owned and supported rather than institutional, to avoid competition and support collaboration.

Relationships remain antagonistic between OA enthusiasts, academic publishers and OA refuseniks – rather than taking an agonistic attitude, each side is polarised and wishes the others to capitulate. This reflects the “culture wars” (Jersak, 2018) prevalent in the UK and US on many other issues and the “digital dissensus” (Andrews, 2020a) that surfaces the loudest and most oppositional voices in times of uncertainty. However, continued polarisation is not inevitable.

Mol’s conclusions on the problems with viewing politics as a set of incompatible choices are relevant to the tensions this thesis found for OA policy, processes and implementations at the individual, institutional and disciplinary levels:

“One: if we think in such terms then we risk the ramification of options everywhere—with the consequence that they end up always seeming to be elsewhere. Two: the interference between various political tensions is such that each time one thing seems to be at stake (say: anaemia) an unquantifiable number of other issues and realities are involved as well (say: sex difference). And three: the various performances of reality in medicine have all kinds of tensions between them, but to separate them out as if they were a plurality of options is to skip over the complex interconnections between them. And then there is a fourth problem. Who is the actor who might decide between the options? Might, or should, this be a patient-customer making choices between discrete goods available on a market; or should it be a patient-citizen trying to organize the health care system for the benefit of all? Or, again, are the crucial moments not those where 'patients' act as an agent, but rather those where they (we) are defined, measured, observed, listened to, or otherwise enacted?” (Mol, 1999)

Mol’s example is concerned with healthcare and patients, but the crucial moments for OA in the UK and for the arguments of my thesis are the points where academics and librarians are “defined, measured, observed, listened to, or otherwise enacted”. A single approach to OA that speaks of (consensus-seeking) pluralism clearly would not work for the reality experienced by my participants. The interconnections between issues and approaches are visible from the rich and complex context of this study. Debates between approved actors taking different positions would not change those tensions nor a “winning side” ameliorate them. Only a multiple or specifically agonistic approach to OA will work.

5.9 CHAPTER OVERVIEW

In this chapter I have discussed my findings in the context of seven major themes: the key drivers for being a (research-based) academic and the pressures or challenges they face, the culture of conformance and non-conformance with institutional tools or systems, academics' attitudes towards Open Access, academics' engagement with Open Access, restrictions on librarians and the misalignment of professional attitudes between researchers and librarians. I have also explored the way the theory I ground back in the Literature Review chapter has further developed my analysis and understanding and points towards a different future for OA. This leads me to my conclusions, where I define my contributions and make recommendations for future research and practice.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter draws together the work preceding it, linking the questions originally posed at the start of the study to my findings and analysis. The main aims of this thesis were to describe researcher attitudes and behaviours concerning Open Access policies, processes and technologies and to investigate the effectiveness of librarians when engaging researchers to participate in OA.

The chapter summarises the findings via revisiting the research question and discusses the contributions to knowledge, theory, methods and practice. It concludes with recommendations and suggestions for future research.

This study has addressed the objectives set out in Section 2 of this thesis. I have critically reviewed the existing literature on Open Access (OA) policy and practice and the wider contexts of academia, technology development and the professions. 14 researchers and 4 librarians were participants in my connective ethnography, which combined semi-structured interviews with online participant observation and visual methods. The data were analysed via informed thematic analysis, providing a rich understanding of the way OA policy and systems fit into academic lives in UK higher education and why librarian attempts to engage researchers in OA are largely unsuccessful.

The research question, aims and objectives set in Section 2 have been met. The study has identified and examined the main drivers for being an academic and the pressures and challenges that face them. I have recorded and analysed their responses to academic publishing, OA policies, tools, engagement with policy and advocacy and librarians. The objective to develop a more rounded and contextual understanding of where OA tools and services fitted into academic use of technology was achieved via the innovative use of the Visitors and Residents mapping method. The mismatch between librarian and researcher experiences of OA was explored in depth, while exposing and showing understanding of the restrictions facing librarians in a compliance-focused scholarly communication environment.

I was aware that my own position could impact on the study, as I have been employed as an early career researcher and also as a library worker. I come from a performing arts background but am a social scientist now, which affects how I view disciplines, and I have a history as an Open Access advocate and activist who has spoken at conferences and volunteered on OA projects. Meta-reflexivity (M. S. Archer, 2010) for me meant critically reflecting on my internal conversations and questioning myself when drawing my conclusions and making recommendations, but also being critical of policies and organisations. Brew et al suggested that “In some ways, the people whose mode of reflexivity is meta-reflexivity could be the most helpful in policy implementation as their focus is likely to be on the smooth and

equitable functioning of the university community as a whole” (Brew, Boud, Lucas, & Crawford, 2017). I would argue that may be true of me, but I have more of a focus on equity and full inclusion of underrepresented minorities than I do the smooth running of institutions. That social justice concern will influence my outcomes in a way that “professional neutrality”, which makes value-laden assumptions of its own (Macdonald & Birdi, 2019), would not.

6.2 RESEARCH QUESTION REVISITED

My original research question was: **What are the attitudes and behaviours of researchers concerning Open Access policies, processes and technologies and what are the challenges and opportunities for librarians who want to engage with researchers effectively?**

I also divided the research question into three parts in the introduction and addressing these individually clearly demonstrates how it has been answered.

1. What are the attitudes of researchers concerning Open Access policies, processes and technologies?
2. What are the behaviours of researchers concerning Open Access policies, processes and technologies?
3. What are the challenges and opportunities for librarians who want to engage with researchers effectively?

6.2.1 ATTITUDES OF RESEARCHERS

In answer to the first question, researchers have a range of attitudes to policies, processes and technologies depending on their career stage, discipline and institution. However, only a small number were actively enthusiastic about OA as opposed to just agreeing that in principle it was a good thing. Academics who are not invested in Open Access as a topic in itself do not think of OA as a priority and were not interested in Green OA in particular. Awareness of the REF Open Access policy was low among participants in arts, humanities and social sciences. Publisher policy language is difficult to understand and does not repay the investment in trying to decode it. Academics see technologies relating to OA in the same light as other institutional systems such as purchasing and invoicing software or the virtual learning environment (VLE). They do not feel close to the systems and tools like repositories are not embedded in their regular ways of working, unlike tools that cross the personal and institutional boundaries like social media and Google services.

6.2.2 BEHAVIOURS OF RESEARCHERS

In response to the second question, the implementation of policies and processes had a negative effect on researcher behaviour. All my researcher participants found the Open Access technologies, policies and technologies complicated and frustrating. The distance academics feel from OA tools and systems is reflected in their actual use of these, which is a few times a year for most. Engagement with OA is almost completely related to administrative demands such as compliance with REF and funder policy and requests from management. Librarians are not the main source academics look to for information on OA policies, processes and, to a lesser extent, technologies. This tends to come from peers and disciplinary arguments and is far more influential on their behaviour.

6.2.3 CHALLENGES AND OPPORTUNITIES FOR LIBRARIANS

The answer to the third question follows from the first and second, in that attitudes and behaviours of researchers towards OA form a big part of why it is so difficult for librarians to engage with them. The complex technological environment and lack of time to manage a large number of competing priorities and demands push librarians out of the way and render them invisible to academics. Librarians have limited capacity to reduce the frictions involved in OA systems and policies. Their centre of gravity is close to that of their institution which makes it hard for them to understand researchers, who are more autonomous and are driven by priorities relating to their discipline and career rather than institutional strategy.

Open Access policy has worked well in the UK in terms of increasing Open Access to research but very badly in terms of making researchers care about it more than other priorities and the library's Open Access systems are not designed for how most researchers work. Take away the policies and the high rates of compliance would disappear.

6.3 CONTRIBUTIONS TO KNOWLEDGE

This section states the contributions I have made to knowledge and explains why they are important.

6.3.1 EMPIRICAL CONTRIBUTION

My study is different because I set researcher behaviour in a wider context of the pressures on them and particularly how these pressures are instantiated in a tangle of technologies and processes. This a way of shifting attention in the debate which has tended to focus just on evidence of compliance or the opinions of those with the

most polarised attitudes towards OA, rather than behaviour and constraining contexts.

What we know now that we did not know before this study is that maturity of Open Access policy and practice in the UK has not led to enthusiasm for or even acceptance of OA for most researchers but rather a sense that it is all about compliance and fuff. The UK is an international leader in terms of high OA adoption according to the data, but there is not widespread cultural acceptance of the modes of actually achieving OA. The top down approach via policy and monitoring is effective but not engaging. There are hearts and minds issues about the way OA has been implemented, particularly outside STEM. In principle researchers agree with OA, but in practice they are uncomfortable or disengaged with the way it is done and the additional bureaucracy and technological complexity it has added to their already technology-heavy lives. This debate is also playing out the take-up of the Open Science agenda, which I discussed in the literature review. My study's scope was restricted to OA, but there is a wider debate going on around research data management (RDM), Open Data and FAIR data principles (findability, accessibility, interoperability, and reusability) where lessons could be learned.

An important contribution of this thesis is to provide a new way of looking at the experiences of academics in relation to OA policy and practice. My study illustrates that there is a clear need for more qualitative research into this area, particularly in the UK, in order to deepen our understanding of the experiences of academics alongside those of others in the OA space. My research question was not about librarian or researcher perspectives by themselves but linked the two in order to shift the debate. Previous research has tended to focus either on researchers from a disciplinary or metadisciplinary perspective or on librarians' own perspectives. This thesis has given greater emphasis to the relation between the two groups. My contribution draws attention to the importance of professional relationships both within and between institutions, towards collaboration and away from competition. All library work needs to be looked at in this light.

Unlike most LIS studies, I chose not to count the number of repository deposits or percentage of outputs made OA as successful implementation of policy in itself. The questions have shifted from why OA is good or how do we get researchers to make their work OA to understanding what frictions remain in the process. The debate needs this shift back to how researchers think and feel about OA in order for the culture to really change.

Researchers in education and sociology studying academic life will benefit from the insight this study offers into:

- tensions between librarians and academics in UK higher education,
- the technology environment in which new interventions sit, and

- the effects of the REF policy’s implementation on issues of work-life balance, managing administrative tasks and interactions with professional services staff.

Those studying librarianship as a profession will gain a better understanding of the pressures facing academics and the lack of visibility librarians have in academic lives as well as the issues that confront librarians hoping to influence researcher attitudes and behaviour. These include a lack of time and physical space for many researchers to do their work, ever-increasing administrative and bureaucratic workloads and their attachment to their discipline ahead of an institution which may not employ them for very long.

Other research communities that may find this study useful are those involved in policy research, as this study provides insights into policy implementation and technologies used to support OA. My work shows the limitations of policy in changing culture, since it appears that if the policy drivers were removed then most academics in my study would no longer engage with OA. This study shows that OA is associated with compliance and fuff rather than enthusiasm. Researchers in science and technology studies will recognise that this is the trough of disillusionment in the technology hype cycle. OA still feels top-down and imposed, and this conflicts with researchers’ much-valued autonomy. It is not yet embedded in cultures, priorities and routines.

As OA reaches maturity in the UK, with long-standing and pioneering funder and institutional mandates and well-established institutional and subject repositories followed by national policy and compliance mechanisms, this study contributes a clear snapshot of the impact of that maturity on researchers in the middle of the first term of the implementation of the REF OA policy.

6.3.2 METHODOLOGICAL CONTRIBUTION

My main methodological contributions are twofold:

1. The use of Visitor and Residents mapping in LIS.
2. Recognition that there is a third “Professional” axis that is missing from these maps, which I recommend could be added in further developments of the method.

I asked about the whole universe of the technologies used by researchers to provide context to understand how OA and other work-related technologies fit together. I was interested in the fact that the line between what is OA or scholarly communication-related technology, and what is not, is very fuzzy. The tools in those liminal spaces, such as social media, are not just used for both personal and institutional purposes but for a third purpose that would be reflected in this new

axis: professional identity. Academics are often “residents” of tools and services that are intended to build connections and outward-facing expertise outside of their institution or even discipline and yet are not purely personal.

6.3.3 RECOMMENDATIONS FOR FUTURE RESEARCH

My study is a qualitative, small-scale study that cannot be used to produce generalisable “rules” about either academics or librarians. My interpretations of the findings are those of a researcher who has a foot in each community and a long-standing interest in Open Access and related issues. These are less flaws than limitations of the study, but I have worked reflexively and been transparent at all stages of the project. If the resources were available, there is scope to extend this study by working with a much larger sample across all the REF units of submission and a wider range of librarians in UK universities. This would help to confirm and further develop the research, while maintaining its rich qualitative character and respect for the complex environment in which UK Higher Education currently finds itself. Such a follow-up study would be particularly useful once UKRI and Research England publish the results of their consultations into their respective OA policies and their implementations. It would also be useful to use the same methods to explore scholarly communication initiatives at an earlier stage of policy and implementation in the UK such as research data management, research software development and the academic ebooks pricing crisis.

Future research could additionally be conducted in countries that have similar research evaluation regimes to the UK, such as Australia, and those that take a tenure and promotion approach such as the United States of America. Neither are as developed in terms of OA policy and practice as the UK.

6.3.4 RECOMMENDATIONS FOR PRACTICE

▪ LIBRARIES AND INSTITUTIONS

The main recommendation for librarians and institutions is that more resources are needed in order to more fully mediate OA processes and reduce friction for academics, as these are the most successful library services for OA deposits according to past studies and the continuing friction and faff is something raised by my data. This would involve reallocation of resources, including staffing, towards this area to treat it as a priority and some consolidation of competing services in bigger institutions, as suggested by librarian participants. Librarians in this study who work outside those heavily-mediated services struggle to engage with academics in arts, humanities and social sciences disciplines and this can only be addressed by

changing systems, processes, workflows and language to reflect the reality of research outside the sciences. The drivers for many in these disciplines simply are not there and new arguments have to be made. If librarians do not want to be seen as compliance monitors, and they say they do not, this engagement gap needs to be breached.

My research also illustrates needs of academic staff that libraries should take into account in the design of policies and services. Early career researchers often do not do their reading and writing work on campus and libraries and research support staff who support them need to take the lack of private space for this group into account. Academics who are not OA activists mostly are not that interested in the topic so are reluctant to sign up to training or discussions around it; therefore, new ways to engage this disengaged majority are crucial. The usability participants complained about and the SEO value of systems (as seen in my online participant observations) is a problem that requires more librarian intervention: academics find institutional systems cumbersome to use and the effort is not repaid as repository results do not always appear high in searches compared with personal social media and publisher sites.

▪ OA ADVOCATES AND POLICYMAKERS

Open Access advocacy organisations and policymakers need to deliberately focus on reaching out to arts, humanities and qualitative social science disciplines, and could provide a valuable service by helping researchers to understand journal and publisher policies on Green OA (beyond the confusing language and interface of Sherpa Romeo) and to lobby for better terms. Funders can and should use their influence to move the OA conversation away from compliance and back towards the positive aspects of making work available openly, helping researchers who are not in disciplines with a lot of public, industrial or medical interest to improve the impact of their work outside of the narrow REF definition. Grant application reviewers could allocate higher scores to researchers with experience of different types of public outreach events and outputs such as trade books and art and performance as this may improve their status and value in the academy. We can see from existing policy compliance that funders have the power to reward behaviour and therefore change cultural norms in UK higher education.

6.3.5 CHAPTER OVERVIEW

In this chapter I opened with a statement of how my research objectives have been met and how my positionality could have impacted on the research (6.1). I have summarised my findings and linked them to the research questions (6.2). I went on to state my contributions to knowledge and recommendations for practice (6.3). The concluding sections of this thesis are my references and appendices.

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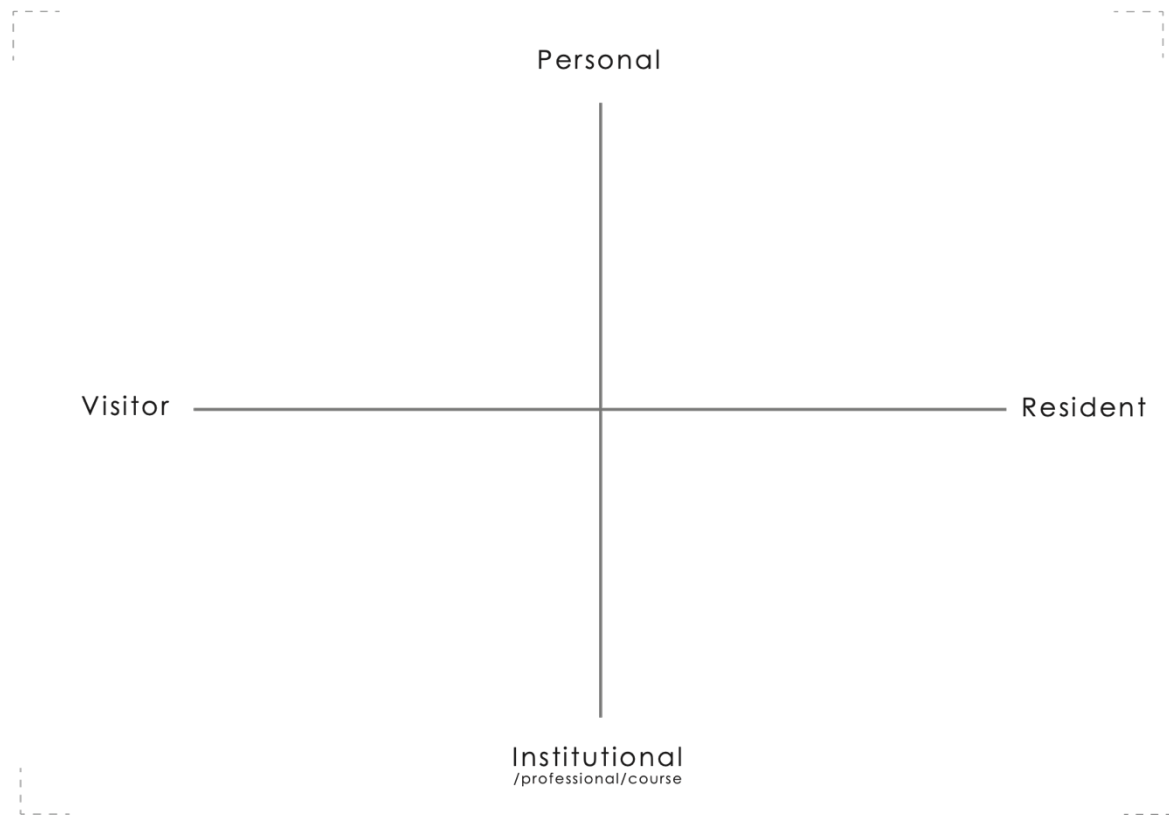
8 APPENDICES

8.1 INTERVIEW SCHEDULE

1. What do you do?
2. What interests you at the moment?
3. Can you talk me through an example of a recent publication/project, what have you done with that?
4. [use the workflow prompts, start drawing/writing]
5. Is that typical?
6. [if not, repeat workflow]
7. I'd like to talk to you about how you use digital tools more generally.
8. [explain and use V&R template]
9. Where do you put stuff? Information about your outputs and the outputs themselves?
10. Why do you do that?
11. Who/what influences that?
12. Has it changed much since you started?
13. Do you have to do it or want to do it?
14. What would you ideally do?
15. What do you advise other people to do?
16. What do other people in your department do differently?
17. Are there any academic publishers or journals that you feel particularly drawn to or want to avoid?
18. How about tools and services?
19. Do the tools you use fit the way you work?
20. Do you have your own website?
21. Do you look at the metrics/hits/citations?

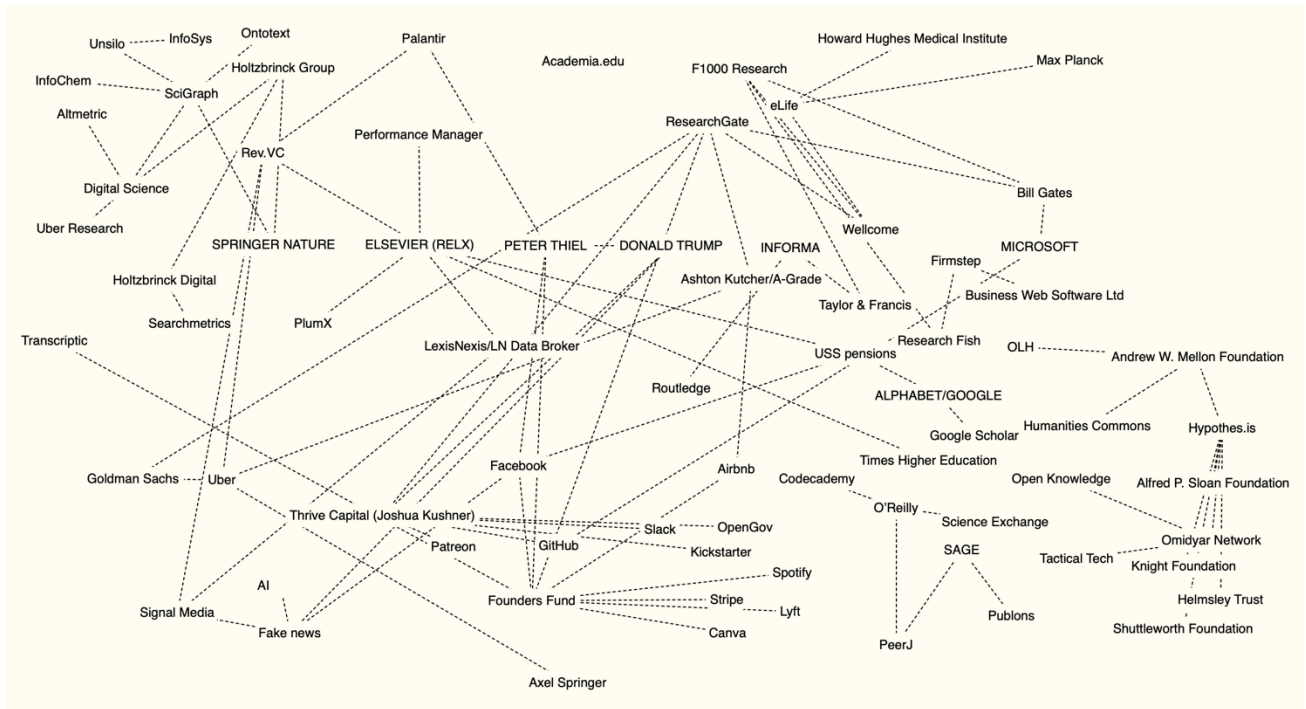
22. Do you feel like you are in control of what happens to your work and data about it?
23. [dig deeper]
24. Do you have enough time to get everything done that you want and need to do?
25. What do you think you'll be doing a year from now? 5 years?

8.2 BLANK VISITORS AND RESIDENTS MAP



8.3 POWERPOINT SLIDE OF SCHOLARLY COMMUNICATION CONNECTIONS

This diagram shows how funders, technologies and scholarly communication companies are connected. I originally made this in 2018 to present at conferences. I used Techcrunch and other sources on technology funding to research it, but it is incomplete as more and more connections are added and the big companies consolidate their holdings.



8.4 ETHICS CLEARANCE



Downloaded: 05/06/2017

Approved: 05/06/2017

Penelope Andrews
Registration number: 150112525
Information School
Programme: PhD Information Studies

Dear Penelope

PROJECT TITLE: Faffing about: gatekeepers, values and flows in research sharing infrastructures

APPLICATION: Reference Number 013617

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 05/06/2017 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 013617 (dated 26/05/2017).
- Participant information sheet 1031144 version 1 (26/05/2017).
- Participant information sheet 1029259 version 2 (24/04/2017).
- Participant consent form 1029156 version 2 (24/04/2017).

If during the course of the project you need to [deviate significantly from the above-approved documentation](#) please inform me since written approval will be required.

Yours sincerely

Larah Hogg
Ethics Administrator
Information School