

**HUMANS, HIGHER EDUCATION AND TECHNOLOGY - A
CORPUS-ASSISTED DISCOURSE AND GENEALOGICAL
ANALYSIS OF THE IDEA OF A UNIVERSITY**

By

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A thesis submitted to the University of Birmingham for the degree of
DOCTOR OF PHILOSOPHY

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DEDICATION

I would like to dedicate this thesis to everyone that has supported me along the way. To my wife especially, Chloe has supported me with encouragement and patience when I have been writing in early mornings, late evenings and weekends. Thanks for not getting annoyed when I have been glazed over thinking of ideas or trying to think through a tricky theory. Our son, Owen Matthews was born at the end of my doctoral journey and I am looking forward to spending more time with Chloe and Owen on new adventures. We have lots to look forward to.

My parents, Gareth and Sheila Matthews didn't go to university but many of their insights and perspectives on the world have been more important than any lecture I have attended.

Completing this thesis is the end of 10 years of part-time study while working. Starting with an Open University Social Sciences degree in 2011 and then part-time PhD in 2016. I am looking forward to the next chapter which I hope to include research and teaching and collaborating with existing and new colleagues.

ACKNOWLEDGEMENTS

I would like to acknowledge the following people for their help, support and friendship throughout the process of me writing this thesis. Firstly, Dr Ben Kotzee for his collaboration not just as a supervisor but also as a co-author. Ben's feedback and support has made me a better writer and researcher and his influence on this work has been vitally important. Professor Mike McLinden has been my secondary supervisor and I have also collaborated with him on a separate paper along with Dr Celia Greenway which, I would have included in this thesis had there been space. The article (Matthews, McLinden, Greenway, 2021) is not only a piece of work that I am very

proud of but also helped me to develop as a researcher working with two busy senior academics who have always been very generous with their time.

I have juggled being a postgraduate research student with working full-time. Since June 2017, this work has taken place at the University of Birmingham where I have also been a student. This at times is a difficult double and split identity to be negotiated, often having to consider which role you are assuming in meetings, chance conversations walking across campus and logging into computer systems! At times I have felt like an Anthropologist more than a social scientist – working in a higher education institution as well as researching the very idea of a university. Seeing many sides and aspects of the university (a triangulation in academic research-speak) has helped and inspired me to think more deeply about some of the more pragmatic challenges of the contemporary university. In carrying out full-time work at the University I owe a great deal of thanks to Ian Myatt who gave me a job at the University and had faith that I could combine both roles effectively. I count Ian as a mentor and though not my manager anymore is generous with his valuable time to offer support and guidance. Whilst working and studying at the University, I have also secured my first academic position working in the unlikely place of the School of Physics and Astronomy. This is thanks to Professor Nicola Wilkin who I am extremely grateful for giving me an opportunity to work in her team and to develop a new programme which includes many of the ideas explored in this thesis.

Dr Reza Gholami has also been extremely generous with his time in supporting me from a teaching perspective. I taught with Reza on the undergraduate module, *Education Policy and Social Justice*. This has been an invaluable experience to develop my teaching practice but also to develop new ideas for research further. I look forward to returning to the module to provide guest lectures and hopefully to work with Reza on

future projects. Those that I have mentioned I would particularly like to thank for treating me not as a student but as a colleague and collaborator – I believe that this is vitally important to the idea of a university and I hope this comes through in the thesis.

I have made many new friends whilst working and studying at the University and there are too many to list here but one who I couldn't leave out is Major Dr Scott Parsons, a fellow student and now very good friend. Another unlikely pairing, Scott is a former Major in the US Army, philosopher and teacher at West Point University, New York. Scott turned up one Saturday morning, late into a research methods class, we got talking about music and the rest is history. I have visited Scott and his family in New York several times and have become very good friends with Scott, his wife Clare and their two sons.

Outside of the University of Birmingham I have been very fortunate that academics have given me the opportunity to present my work and to encourage my writing. In particular, Petar Jandrić, Professor at the University of Applied Sciences in Zagreb (Croatia) and Visiting Professor at the University of Wolverhampton (UK) has been extremely supportive and encouraging from publishing my first ever journal article in his excellent *Postdigital Science and Education* journal to asking me to write book reviews (Matthews, 2019b, 2020b, 2020c) which proved to be one of the best experiences for improving writing and extending knowledge in the fields of Science and Technology Studies (STS) and philosophy of technology. Petar didn't just randomly select books that he needed reviewing, but chose titles in which he thought would fit with my research. In particular, the influence of Andrew Feenberg's *Technosystem*, which I reviewed in 2020, is evident in this thesis. Petar also kindly invited me to collaborate with him and several other authors on a collaborative writing project (Jandrić *et al.*, 2020). I also contributed to the journal's Networked Learning Editorial

Collective (NLEC) community definition (Networked Learning Editorial Collective (NLEC) et al., 2021) I am also very grateful to Dr Janja Komljenovic at Lancaster University for inviting me to guest lecture on the excellent Lancaster Higher Education PhD programme, present in the Centre for Higher Education Research and Evaluation webinar series¹ and to be a feature on their Higher Education Research podcast series².

These connections and friendships are not measured as a quantifiable output of the academic global community but they are vitally important, in the words of this thesis, in the idea of a university.

My thesis is presented in alternative format which incorporates works in the format of a peer reviewed journal articles alongside more traditional PhD thesis chapters. Articles are published or have been submitted for publication and currently undergoing peer review (4.2). Each published article has gone through peer review, editorial and publication processes and has been incorporated into the thesis in its published form. Below are the six incorporated articles. Three have been co-authored with my PhD Supervisor, Dr Ben Kotzee, School of Education, University of Birmingham. I am first author on all three co-authored works with Dr Kotzee. We collaborated on these works between 2017 and 2021 after I decided to pursue the route of alternative format after assembling a corpus of university texts for analysis. We have developed a way of collaborating whereby we talk about ideas and I go away and carry

¹ Adam Matthews: A genealogy of the idea of a university, from Kant to the unbundled digital university <https://www.youtube.com/watch?v=oRY4N35ZQqA&feature=youtu.be>

²Teaching Excellence Policy with Adam Matthews <https://anchor.fm/chere-lu/episodes/Teaching-Excellence-Policy-with-Adam-Matthews-ejbmqb>

out analysis and a first draft of the work and then we refine with Ben's role as editor and reviewer. We then 'bounce' the article back and forth, interspersed with meetings to discuss the articles as well as the broader thesis. Writing the chapters of this thesis have worked in a very similar way.

Single authored papers included in the thesis are my own work. However, I would like to acknowledge the support, feedback and contribution of editors and reviewers in helping to develop the articles which have been very much improved with their input and comments. Ethical approval was granted for this research by the University of Birmingham on May 23rd 2019 and assigned reference **ERN_19-0814**.

Chapter 4 publications

Matthews, A. and Kotzee, B. (2019) 'The rhetoric of the UK higher education Teaching Excellence Framework: a corpus-assisted discourse analysis of TEF2 provider statements', *Educational Review*, pp. 1–21. doi: 10.1080/00131911.2019.1666796.

Matthews, A. and Kotzee, B. (2021) 'Bundled or unbundled? A multi-text corpus-assisted discourse analysis of the relationship between teaching and research in UK higher education', Forthcoming.

Chapter 5 publications

Matthews, A. and Kotzee, B. (2020) 'UK university part-time higher education: a corpus-assisted discourse analysis of undergraduate prospectuses', *Higher Education Research & Development*, pp. 1–16. doi: 10.1080/07294360.2020.1713730.

Matthews, A. (2020d) 'Sociotechnical imaginaries in the present and future university: a corpus-assisted discourse analysis of UK higher education texts', *Learning, Media and Technology*, pp. 1–14. doi: 10.1080/17439884.2021.1864398.

Chapter 6 publications

Matthews, A. (2020a) 'Blurring boundaries between humans and technology: postdigital, postphenomenology and actor-network theory in qualitative research', *Qualitative Research in Sport, Exercise and Health*, pp. 1–15. doi: 10.1080/2159676X.2020.1836508.

Matthews, A. (2019) 'Design as a Discipline for Postdigital Learning and Teaching: Bricolage and Actor-Network Theory', *Postdigital Science and Education*. doi: 10.1007/s42438-019-00036-z.

In the following table I provide an overview of the publications that I have authored in my time as a PhD student, as well as the conference presentations that I have made. Where the paper or conference presentation was co-authored, I indicate what my contribution was.

Publications while studying for PhD (2016 – 2021)			
Title	Reference	Type	Description
Networked Learning in 2021: A Community Definition	Networked Learning Editorial Collective (NLEC) et al. (2021) 'Networked Learning in 2021: A Community Definition', Postdigital Science and Education. doi: 10.1007/s42438-021-00222-y.	Peer-reviewed journal article.	Single-authored publication.
Bundled or unbundled? A multi-text corpus-assisted discourse analysis of the relationship between teaching and research in UK higher education	Matthews, A. and Kotzee, B. (2020) - Out for peer review	Peer-reviewed journal article.	Joint-authored publication. Idea for paper: Matthews Literature review and theoretical framing: Matthews and Kotzee Data collection: Matthews Data analysis: Matthews Writing: Matthews and Kotzee
Rising to the pedagogical challenges of the Fourth Industrial Age in the university of the future: an integrated model of scholarship'	Matthews, A. McLinden, M. Greenway, C. (2021) 'Rising to the pedagogical challenges of the Fourth Industrial Age in the university of the future: an integrated model of scholarship', Higher Education Pedagogies https://doi.org/10.1080/23752696.2020.1866440	Peer-reviewed journal article.	Joint-authored publication. Idea for paper: Matthews, McLinden and Greenway Literature review and theoretical framing: Matthews and McLinden Data collection: Matthews Data analysis: Matthews and Greenway Writing: Matthews and McLinden
Sociotechnical imaginaries in the present and future university: A corpus-assisted discourse analysis of UK higher education texts	Matthews, A. (2020) 'Sociotechnical imaginaries in the present and future university: A corpus-assisted discourse analysis of UK higher education texts', Learning, Media and Technology https://doi.org/10.1080/17439884.2021.1864398	Peer-reviewed journal article.	Single-authored publication.
Blurring boundaries between humans and technology: postdigital, postphenomenology and actor-network theory in qualitative research	Matthews, A. (2020) 'Blurring boundaries between humans and technology: postdigital, postphenomenology and actor-network theory in qualitative research', Qualitative Research in Sport, Exercise and Health https://doi.org/10.1080/2159676X.2020.1836508 .	Peer-reviewed journal article.	Single-authored publication.
Philosophy of education in a new key: Who remembers Greta	Jandrić, P. et al. (2020) 'Philosophy of education in a new key: Who remembers Greta Thunberg?	Invited collaborative	Single-authored publication.

Thunberg? Education and environment after the coronavirus	Education and environment after the coronavirus', Educational Philosophy and Theory. doi: https://doi.org/10.1080/00131857.2020.1811678 .	writing piece	
Review of Mark Honigsbaum (2020). The Pandemic Century – A History of Global Contagion from Spanish Flu to Covid-19	Matthews, A. (2020) 'Review of Mark Honigsbaum (2020). The Pandemic Century – A History of Global Contagion from Spanish Flu to Covid-19', Postdigital Science and Education. doi: https://doi.org/10.1007/s42438-020-00170-z	Invited book review.	Single-authored publication.
Review of Andrew Feenberg (2017). Technosystem: The Social Life of Reason	Matthews, A. (2020) 'Review of Andrew Feenberg (2017). Technosystem: The Social Life of Reason', Postdigital Science and Education. doi: https://doi.org/10.1007/s42438-020-00125-4	Invited book review.	Single-authored publication.
Learning Design as a Guiding Principle for Technology, Pedagogy and Content	Matthews, A. (2020) 'Learning Design as a Guiding Principle for Technology, Pedagogy and Content', in Özkan, A. D. (ed.). SELECTED PROCEEDINGS OF EURASIA HIGHER EDUCATION SUMMIT EURIE 2020, Istanbul, Turkey, p. 144. Available at: https://eurieeducationsummit.com/wp-content/uploads/2021/04/Eurie-2020-Conference-Proceedings-book.pdf .	Conference paper	Single-authored publication.
The part-time undergraduate puzzle	Matthews, A. (2020) 'The part-time undergraduate puzzle', HEPI, 14 February. Available at: https://www.hepi.ac.uk/2020/02/14/the-part-time-undergraduate-puzzle/ (Accessed: 25 March 2021).	Invited blog.	Single-authored publication.
UK university part-time higher education: a corpus-assisted discourse analysis of undergraduate prospectuses	Matthews, A. and Kotzee, B. (2020) 'UK university part-time higher education: a corpus-assisted discourse analysis of undergraduate prospectuses' Higher Education Research & Development. doi: https://doi.org/10.1080/07294360.2020.1713730	Peer-reviewed journal article.	Joint-authored publication. Idea for paper: Matthews Literature review and theoretical framing: Matthews and Kotzee Data collection: Matthews Data analysis: Matthews Writing: Matthews and Kotzee
Review of Mark Coeckelbergh (2017). Using Words and Things:	Matthews, A. (2019) 'Review of Mark Coeckelbergh (2017). Using Words and Things: Language and Philosophy of Technology.',	Invited book review.	

Language and Philosophy of Technology	Postdigital Science and Education. doi: 10.1007/s42438-019-00094-3.		
The rhetoric of the UK higher education Teaching Excellence Framework: a corpus-assisted discourse analysis of TEF2 provider statements	Matthews, A. and Kotzee, B. (2019) 'The rhetoric of the UK higher education Teaching Excellence Framework: a corpus-assisted discourse analysis of TEF2 provider statements', Educational Review, pp. 1–21. doi: 10.1080/00131911.2019.1666796.	Peer-reviewed journal article.	<p>Joint-authored publication.</p> <p>Idea for paper: Matthews Literature review and theoretical framing: Matthews and Kotzee Data collection: Matthews Data analysis: Matthews Writing: Matthews and Kotzee</p> <p>The paper was awarded the University of Birmingham Graduate School Michael K. O'Rourke Best PhD Publication Award for the College of Social Sciences.</p>
Design as a Discipline for Postdigital Learning and Teaching: Bricolage and Actor-Network Theory	Matthews, A. (2019) 'Design as a Discipline for Postdigital Learning and Teaching: Bricolage and Actor-Network Theory', Postdigital Science and Education, 1(2), pp. 413–426. doi: 10.1007/s42438-019-00036-z.	Peer-reviewed journal article.	Single-authored publication.

Conferences and talks while studying for PhD (2016 – 2021)			
Title	Date	Type	Description
Society for Research into Higher Education - Quality in the networked digital university	26/27 May 2021	Invited Talk	Single-authored presentation.
How Do You Measure Education in a Life? Re-thinking Assessment for a Digital Society – EdTech update	28/29 April	Invited panel member	Panel member responding to brief.
Critical approaches to technology in education - Programme name: BA Sociology and Education Studies	20 th March 2021	Guest lecture	Single-authored presentation.

- Name of the module: Education Policy and Social Justice - Module convenor: Dr Reza Gholami - Academic year: 2020/2021			
EURIE 2021 – Eurasia Higher Education Summit, Online – Panel session on the difference between distance and online Learning	5 th March 2021	Invited conference presentation	Single-authored presentation.
Reflections on the future of continuing and flexible forms of higher education – Institute of Continuing Education (ICE), University of Cambridge) – UK university part-time higher education: an analysis of undergraduate prospectuses	7 th January 2021	Invited conference presentation	UK university part-time higher education: an analysis of undergraduate prospectuses Adam Matthews, Lecturer and Dr Ben Kotzee, Reader, School of Education, University of Birmingham Joint-authored presentation. https://www.ice.cam.ac.uk/event/reflections-future-continuing-and-flexible-forms-higher-education
Centre for Higher Education Research and Evaluation webinar series at Lancaster University – A genealogy of the idea of a university, from Kant to the unbundled digital university. https://www.lancaster.ac.uk/educational-research/events/a-genealogy-of-the-idea-of-a-university-from-kant-to-the-unbundled-digital-university https://www.youtube.com/watch?v=oRY4N35ZQqA	27 th October 2020	Invited webinar	Single-authored presentation.
Discourse analyses of marketing artefacts. - Programme name: PhD in Educational Research - Higher Education	9 th September 2020	Guest lecture	Single-authored presentation.

<ul style="list-style-type: none"> - Name of the module: Understanding Policies and Practices in Higher Education (UPPHE) - Module convenor: Dr Janja Komljenovic - Academic year: 2019/2020 (Cohort 25 of the programme) 			
EURIE 2020 – Eurasia Higher Education Summit, Istanbul – Online Learning Design	21 st February 2020	Conference presentation	Single-authored presentation.
Borders and Boundaries – Debating the limits and boundaries of education (Lancaster University) – – UK Universities’ discourses on part-time and flexible learning: a corpus assisted analysis of higher education prospectuses	3rd July 2018	Conference presentation	Single-authored presentation.
Part-time, flexible and lifelong higher education in a digital world a corpus discourse analysis	13th June 2018	Poster conference	Single-authored presentation.
<p>‘TEF what next?’ A HE SIG themed seminar – Talking Ourselves into Gold: an analysis of TEF provider submissions</p> <p>“Three of the papers had a distinctively ‘policy’ focus. Building on the work of Beech (2017), Ben Kotzee and Adam Matthews (a PhD student) reported back on their corpus study of all 232 provider submissions made to the TEF. Their content analysis revealed, perhaps not surprisingly, that ‘research-led teaching’, ‘learning gain’ and ‘employability’ all featured highly in statements from successful submissions, while other factors such as ‘widening participation’, ‘flexible learning’ and ‘part-time study’ appeared to be afforded less importance.” https://www.bera.ac.uk/blog/tef-what-next-a-report-on-a-bera-he-sig-seminar</p>	16 th March 2018	Conference presentation	Joint-authored presentation.

ABSTRACT

The idea and purpose of the university is contested both historically and in contemporary discourse. Moreover, imaginaries of the future of higher education are dominated by technological disruption. The aim of this thesis is to undertake an original analysis of this development from a social and technological perspective. This provides an original contribution to knowledge in analysing both the social and technological implications of the ongoing development of the university as a social institution. I conceptualise the genealogical development of the modern university as Mode 1 Elite Ivory Tower, Mode 2 Mass Factory and Mode 3 Universal Network. I trace the genealogy of the modern university through these modes and conduct an empirical study of the contemporary idea and purpose of the university through corpus-assisted discourse analysis (CADA) of UK university texts totaling over 18 million words. This analysis is structured around the relations between humans, higher education and technology. Key findings from each of these relations are drawn together to see the social and technological disruption of the idea of a university as not separate entities but relational in the Mode 3 Sociotechnical University. These findings indicate that current Human-Higher Education relations discourse is dominated by student employment outcomes and research activity of the university as a marker of quality. Moreover, education and research are at risk of being severed and unbundled from each other. Higher Education-Technology relations discourse shows that universities describe technological disruption of the undergraduate degree with technology as an end in itself or modest instrumental ‘fixes’ to pedagogical issues. Moreover, the three-year campus-based undergraduate degree at the age of 18 dominates despite the affordances of digital technologies and policy advocating widening of access. Human-Technology relations are often characterised as humans and education being determined by technology. This technologically deterministic position opposes society determining technology (social constructivism). I reject both of these extremes to fuse together the social and technological aspects of the university drawing upon the postdigital, postphenomenology and actor-network theory. This provides the conceptual framework for the development of the Mode 3 Universal Networked Sociotechnical University. The Mode 3 University opens the university socially and technologically to many more actors including private organisations, specialist roles, diverse students, technology, culture and the wider public. These

all have an influence on constructing the idea of the present and future university. The challenge for universities is to articulate the idea and purpose of a university in these new and emerging social contexts. Based on empirical analysis of UK university texts I conclude that the idea and purpose of the current university is broadly still, the Mode 2 Mass Factory and Mode 3 is now beginning to emerge.

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CHAPTER 1 - INTRODUCTION

1.1 Introduction

The idea and purpose of a university has been debated and contested by academics, administrators, students, politicians and the wider public for centuries. Such debates have centred around the question of whether university research and education are essentially private or public goods. Key to these debates has been the struggle between two different academic values: the freedom to pursue and disseminate knowledge as an end in itself and instrumental knowledge discovery and dissemination to serve the needs of society and the economic market. Over the years, answers to these questions have shifted as universities have grown and social and political environments have changed. Trow (1973) described the pattern of growth of the modern university as one of elite access (a small number of the population enjoyed privileged access to a university), changing over time to mass democratised higher education (many nation states are now targeting access rates of 50% of the population). Following Elite and Mass phases, Trow describes the potential of moving to universal access. Such growth over the past 200 years has contributed to the ever-changing mission and make up of individual universities and the sector more broadly. Importantly, who gets to set this agenda has been described as a ‘discursive battle’ (Krejsler, 2006). *Ideas* about what the university essentially is and *words* about what is valuable about the university, shape the being of the university, determines its place in society and, for that part of the population who go to university (upwards of 40% in the UK) sets the purpose of their academic development and access to bodies of existing and emerging knowledge.

The contemporary university student has been positioned by many (Guilbault, 2018; Nixon, Scullion and Hearn, 2018; Cone and Brøgger, 2020; Page, 2020) as an instrumental consumer of education, seeking ‘value for money’ (Jones, Vigurs and

Harris, 2020) and a return on their personal investment in future paid employment rather than as pursuers of self-development and interest (Koops *et al.*, 2016). In practice, researchers have found that students' attitudes are not binary opposites, but a more complex relationship exists with students' attitudes to engagement with a university degree³. For example, Brookes *et al* (2020), find a balance of student perspectives; students value personal growth, enrichment, societal development and progress. Similarly, Tomlinson (2017) found that students' perceptions of higher education are not wholly consumerist but that they do voice concerns relating to receiving a 'return' on their own personal (time and money) investment.

As far as university academics go, perspectives and experiences of academic roles have also changed and the nature of the role of the academic has been debated extensively in the development of the modern university. Academic training to conduct research and teaching is valorised in the fact that the entry qualification into an academic career is a *research* doctorate. Moreover, it is a well-known fact that academic advancement in the university often depends upon research performance more than teaching performance. However, most academics are employed to teach undergraduates and the relationship between academics' research and teaching activity is highly contested. This relationship has been termed the 'research teaching nexus' (Tight, 2016). As the university as a social institution has grown and come under the influence of new management models and specialist roles (marketing, IT, instructional design, admissions, library etc), the dual role of the academic as researcher and teacher has come under pressure and, in many universities, has been 'unbundled' (McCowan,

³ In England students are charged £9,250 per year or go into government provided debt for access to an undergraduate degree. This thesis focuses on the UK higher education sector which is regulated by the Office for Students.

2017). Such divisions of labour and increased professionalisation of diverse roles, internal and external to the university are often dictated by pressure to grow ‘market share’ which in many cases involves new technologies introduced to the university which require specialist skills such as design, technology and media production (Morris et al., 2020). In popular discourse the university is painted as an anachronism in need of ‘disruption’ to meet the needs of the labour market (Chamorro-Premuzic and Frankiewicz, 2019)⁴ and the tools to achieve this disruption are often technological (Jeffrey, 2018)⁵.

The study of technology in education is broad, diverse and multidisciplinary, much like higher education research itself (Gumport, 2008; Branco Sousa and Magalhaes, 2013). Perspectives on technology include disruption, enhancement and transformation of education (Mayes *et al.*, 2009; Flavin, 2016), critical perspectives on technology, questioning the autonomous and uncritical enhancement of learning (Bayne, 2015) and understanding the diversity of what enhancement means (Kirkwood and Price, 2014). For many, technology is seen as neutral, apolitical and simply a tool to be used to improve efficiencies in higher education or deterministic in that technology enhances education without question. Such approaches often compare outcomes between ‘classroom’ and ‘online’ and its effectiveness (Salmon, 2002; Luckin, 2010; Laurillard, 2012; Ni, 2013; Salmon and Wright, 2014; Young and Perović, 2016; Chen et al., 2018; Gündüz and Akkoyunlu, 2020). Moreover, digital technologies and ‘EdTech’ have become highly lucrative industries in which technology companies are

⁴ This is written by employees from employment consultants ManpowerGroup.

⁵ This is written by an Education and Skills Practice Leader at professional and services company PwC.

entering into the university to provide products and services which impact upon the idea of a university (Komljenovic, 2020; Perrotta, 2020)⁶.

It is clear that digital technologies have a part to play in the ever-expanding remit of the university in a move towards mass and universal access, but critical approaches are required rather than wholesale technical solutions and uncritical techno-optimism. Such solutionism is often characterised as neutral and objective and a linear development of technology adoption which is inevitable (Morozov, 2013). Critical challenges for EdTech in the 2020s include digital in/exclusion, platform economics in an age of artificial intelligence, divisions of learning across humans and machines and neurotechnology, IT industry actors, datafication and unbundling of the university degree along with changing professional roles within the university (Bayne, 2020; Selwyn *et al.*, 2020).

Responses to these challenges outlined in this introduction will have a direct impact upon the idea of a university and its future role in society. Moreover, there are myriad responses to these issues. I hold that by tracing some of the dominant ideas of the last 200 years and current discourse on the university, this analysis, can help to critically engage with the future idea of a university.

1.2 Research question

With this introduction in mind, the overarching research question that I will answer in this thesis is:

How do UK universities discursively construct the idea and purpose of undergraduate higher education today and what part is technology playing in ‘disrupting’ this idea

⁶ EdTech venture capital has grown from \$0.58 billion in 2010 to \$16 billion in 2020 (Holon IQ, 2021).

and purpose?

1.3 Methods and methodology

Discourse regarding the idea of the university can be found in many texts (and speech) made by a variety of actors and organisations in the battle for dominance in promoting *their* idea of a university. In this thesis, I focus on texts created by UK universities themselves in order to study the discursive battle regarding the nature of the university, and the role that technology plays in it.

In my thesis research, I carried out discourse analyses of some of the most important texts produced by UK Higher Education Institutions (HEIs), including responses to the regulatory frameworks of the Teaching Excellence Framework (TEF) and Research Excellence Framework (REF), university prospectuses which promote the university to prospective students in a global marketplace, and strategy documents which communicate future plans for the university. The sheer volume of institutional text produced by UK universities poses a challenge for academic analysis. By collecting together (over the course of my research) HEI texts, all available publicly for download, I amassed a corpus of HEI texts in excess of 18 million words and 2000 texts⁷. Studying these texts comes with at least two advantages for the researcher: (a) these texts are regularly produced and are publicly available and (b) the texts produced by different

⁷ In total across the whole thesis I use 2321 texts written by universities which make up 18,528,438 words.

TEF 2017 statements – 232 texts and 1,742,438 words

REF2014 environment statements – 1911 texts and 10,749,633 words

2018/2019 undergraduate prospectuses – 90 texts and 5,673,799 words

2020 university strategy documents – 88 texts and 362,569 words

universities are all highly comparable and follow a standard format (in the case of the REF and TEF documents a standardised, externally mandated format). Methodology and methods are outlined in detail in Chapter 2 as well as in each particular empirical study. Four empirical corpus-assisted discourse analyses are presented in chapters 4 and 5.

Next to this empirical work, I also trace the strands of history of the modern university to map out its genealogy, this acts as both a literature review but also traces historically the emerging discourses and ruptures in the idea of a modern university from Kant's 1798 *Conflict of the Faculties* to the modern day. To frame my genealogy of the university, I adapt Nørgård, Mor and Bengtsen's (2019) and Trow's (1973) historical and developmental framework :

- Mode 1: the university as the autonomous elite ivory tower in the Enlightenment period.
- Mode 2: the university as a factory producing knowledge for societal market driven needs for mass participation in the neoliberal knowledge economy.
- Mode 3: the networked university as a complex network assemblage of actors inside and outside of the university, both human and non-human with universal access in the socially and technologically networked society.

Tracing the genealogy of the dominant ideas of the university of the past along with wider social and political environments (Enlightenment, neoliberalism, knowledge economy and network society) and current UK university discourse allows for opening

up, genealogically, emerging future possibilities and ruptures in the ever evolving and contested idea of a university.

1.4 Theoretical framing and approach

Oliver (2013) observes that much work has been done to understand teaching, learning and education, but education and technology lacks its own theoretical basis. Oliver holds that technology is often seen as an instrumental tool to achieve a desired educational end and states that the social is ignored, seeing technology as instrumental cause and learning as an effect. Taking a similar sociological and critical perspective of technology in education, I draw upon fields of Philosophy of Technology (PoT) (Coeckelbergh, 2020), Science and Technology Studies/Science Technology and Society (STS) (Hackett *et al.*, 2008; Sismondo, 2010) and Digital Sociology (Marres, 2017; Selwyn, 2019a; Lupton, 2020) to provide a social and critical perspective in the analysis of the idea of a university looking at both the ‘Ed’ and ‘Tech’ of EdTech. Such an approach sees beyond digital communication technology in education as ‘virtual’, as in some way not real, but instead materially and socially embodied into higher education assemblages (Gourlay, 2021).

An account of educational technology that can only explain “education” and not “technology” runs the risk of dealing naively with an important part of its field of study. The consequence of this is a failure to provide convincing accounts of the link between technology use and learning. (Oliver, 2013, p. 31)

Selwyn and Facer (2014) similarly observe a lack of research in sociology of education into the social implications of technology; a field is developing however that can be broadly termed sociology of education and technology (Facer and Selwyn, 2013) and critical perspectives on educational technology are emerging further in the wake of the 2020 Covid-19 pandemic (Castañeda and Williamson, 2021). Adding a social and

critical perspective allows us to see the opportunities and risk with social and political aspects of technology in higher education (Jones, 2019a).

An emerging research area is incorporating Science and Technology Studies (STS)⁸ with education research to bridge the gap between technology and education (Hamilton and Friesen, 2013; Bayne, 2020; Gourlay, 2020). STS is an interdisciplinary field drawing upon sociology, history, philosophy, anthropology and other social sciences to study social impact on technology and technological influences on society. Closely linked to STS is PoT which involves philosophers reflecting upon technology which underpins many of our daily tasks which in popular discourse is seen as a tool for our own ends or not seen at all as technologies become embedded and normalised into everyday life. STS and PoT allow researchers to go beyond technologies achieving absolute outcomes (essentialism), technology determining education (technological determinism) and technology as a tool for instrumental means (instrumentalism). I use such approaches to critically reflect upon popular discourse on technological solutionism unquestionably ‘disrupting’ and thus improving and ‘fixing’ education, incorporating the idea of a university and technology.

In order to fuse together sociological and philosophical perspectives on higher education and technology I draw upon a framework by An and Oliver (2020) sketching a relational picture in which humans, technology and education are not external and mechanical black boxes but influence one another. For An and Oliver, three separate relationships need to be studied: human-education, education-technology and human-technology. This removes the instrumental and mechanistic ‘enhancement’ of education

⁸ Also termed Science, Technology and Society.

as cause and effect but encourages negotiated meanings between humans, higher education and technology.

In its broadest outline, the thesis is structured around study of An and Oliver's Human-Higher Education-Technology triangle. I hold that if we do not have a clear picture of the relationship between humans and higher education (Chapter 4) then we cannot understand the relationships between technology and higher education (Chapter 5) which then must be informed by wider social perspectives on human and technology relations (Chapter 6). This approach looks to break the cycle of waves of hype around new technologies in wider society and adoption in education - writing, printing press, photography, broadcast media (radio and TV), computing, internet, artificial intelligence and data and whatever the future holds. These constant waves for An and Oliver (2020) cause doubt and confusion around technology in education and this framework allows for a more consistent and grounded view of the relations between humans, higher education and technology.

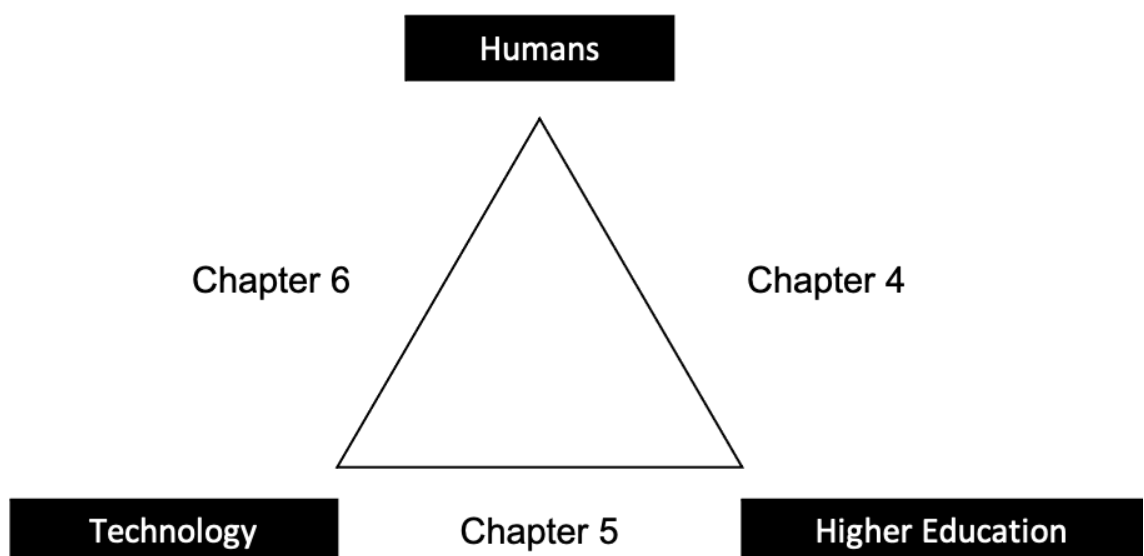


Figure 1 – Humans, technology and higher education. Based on (An and Oliver, 2020)

In this thesis, I fill a gap in the literature by empirically analysing the current and past discourse on higher education and technology alongside theoretical and conceptual positions taken from STS, PoT and higher education studies.

In Chapter 4, I pay attention to the Human-Higher Education relation. I hold that it is important to analyse contemporary discourses on the purpose and idea of a university and the relationship between its two main tasks: teaching and research. In Chapter 5, I pay attention to the Higher Education-Technology relation, I hold that due to the presence of hype and promise of technology reshaping higher education, it is important to analyse the influence of technology and associated affordances. Lastly, in Chapter 6, I pay attention to the Technology-Humans relation looking outside of education at a case study of data tracking and use theoretical positions of social constructivism of technology and technological determinism and the middle ground between both extremes which combine the social and the technological. Taking a middle ground which incorporates the social and the technical allows for deeper analysis of the emerging Mode 3 networked sociotechnical university. These include mediating the material and embodied positions of technology and the social, using postdigital, actor-network theory and postphenomenology. I follow this up in the second part of Chapter 6 by critiquing technological deterministic discourses in education and use design theory and actor-network theory (ANT) to put forward ways forward which embrace humans, higher education and technology and the human and non-human.

Following this introduction, I continue by outlining methods and methodology, combining critical discourse analysis, corpus linguistics and genealogy (Chapter 2) and follow up by tracing the genealogy of the modern university across the Mode 1 Ivory Tower, Mode 2 Factory and Mode 3 Network (Chapter 3). In Chapter 7 I bring together the corpus-assisted discourse analyses and genealogical history of the present into a

discussion and relational whole as advocated by An and Oliver (2020). This brings together humans, technology and education with the social, political and technical as a unified assemblage in the ever growing and expanding contemporary university which considers the potential future paths and genealogical ruptures of the emerging Mode 3 Network University. I also include a reflective perspective on the limitations of the study as well future research agendas and possibilities.

CHAPTER 2 – METHODOLOGY AND METHOD

2.1 Introduction

This thesis consists of a collection of peer-reviewed published articles made up of empirical corpus-assisted discourse analyses of texts produced by UK universities on human-higher education relations (Chapter 4) and higher education-technology relations (Chapter 5) as well as more theoretical analyses of the relations between humans and technology (Chapter 6). Each integrated publication (chapters 4-6) has its own methods and conclusions and make up a thesis in alternative format (Mason and Merga, 2018). This chapter (Chapter 2) lays out the overall methodological approach used in planning the thesis and outlines the specific methods that were used to collect and analyse data.

The structuring methodological approach of the thesis is a ‘genealogy’ in the sense made famous by Foucault (1975). For Foucault, a genealogy is an analysis of social structures and systems in terms of their history; a genealogy shows why social forms (like the university) are constituted as they are due to contingent historical features (rather than due to abstract rationality or necessity). The genealogy of the university that I present in this thesis shows that our current idea of what the university is has come into being historically; moreover, it shows how the idea of the university is not static, but is constantly changing. According to Garland (2014) there is not one method that can be identified as ‘Foucauldian’; rather, theory and methodology in the style of Foucault consists of (a) a historical theory of how ideas emerge and change in discourse and (b) a toolbox of resources and ideas to be used and manipulated by the researcher in their own context.

Instead, what Foucault provides to us is a series of quite specific, precisely theorized analyses, each one mobilizing a customized methodology designed to address a theoretically defined problem from a strategic angle of inquiry. This

same problem-solving approach – together with the remarkable fertility of Foucault's thinking – is what led him to develop new (or extensively revised) concepts for each new project on which he embarked and for each new kind of phenomena he sought to explain. (Garland, 2014, p. 366)

Foucault himself believed that methodology was about taking others' work and forming and reforming it for the requirements of the research question at hand, to 'deform it, make it groan and protest' (Foucault and Gordon, 1980, p. 53). I reform and rework a genealogy and history of the present to open up ideas and debates to inform the future idea of a university, tracing a genealogical line from the past, through to the present and into the future to fuse the idea of a university which has developed over the past 200 years and how this idea has or is being 'disrupted'.

After presenting the overall methodological approach (here in Chapter 2), I begin the task of analysing the idea of the university genealogically. First, I present (in Chapter 3) a genealogy of the dominant ideas of the university based on a reading of famous texts about the idea of the university as well as exploring key social theory of the time. Chapter 3 serves as a literature review but it also highlights the historically dominant ideas of the university in a social context and highlights how these ideas have ruptured and changed as the university itself changed over time from being a relatively small institution, performing a specialist role in society (the 'Mode 1 Ivory Tower') to an integral part of our industrial system (the 'Mode 2 Factory') to being a part of a networked society and knowledge economy (the 'Mode 3 Network University'). As such, chapter 3 is not a 'mere' literature review, it is itself part of the genealogical discussion showing how (based only on a reading of historical texts) we can already begin to understand how the idea of the university has evolved - and is still changing. In Chapters 4, 5 and 6 I build on the Chapter 3 genealogy with a discourse of the present as

articulated by UK universities themselves in a range of institutional texts to answer the research question of this thesis:

How do UK universities discursively construct the idea and purpose of undergraduate higher education today and what part is technology playing in ‘disrupting’ this idea and purpose?

The empirical approach employed in chapters 4 and 5 combines methods of corpus linguistics and discourse analysis (corpus-assisted discourse analysis (CADA) (Baker *et al.*, 2008) to study a range of institutional texts produced by UK universities between 2017 and 2020. The contexts in which the analysed texts were produced include (1) regulatory exercises which required institutions to respond to Government regulations as evidence of teaching and research excellence; and (2) marketing contexts in which universities use public texts to ‘sell’ the idea of a university to prospective students and to communicate the mission of the university in the future.

This chapter (Chapter 2) unfolds as follows. I give an overview of the theoretical framework employed in the thesis (2.2) followed by an overview of discourse (2.3), critical discourse analysis (2.4), and computational corpus linguistic analysis (2.5). I outline my use of quantitative corpus linguistic methods and qualitative discourse analyses as a mixed method approach of corpus-assisted discourse analysis (2.6). I then outline the genealogical methodology of Chapter 3 (2.7). I conclude with a review of others’ work using discourse analysis on the subject of the university (2.8) and my own contribution to the field of CADA in the context of higher education and a summary (2.9) of my methodological approach.

2.2 Theoretical framework (humans, higher education and technology)

This is a thesis about technology and higher education. It investigates the way that the idea of the university is being changed due to technology in this time period (the early 2020's). As the structuring idea for the thesis, I adopt a theoretical framework proposed by An and Oliver. In the title of a recent paper in *Learning, Media and Technology*, An and Oliver (2021) ask: 'What in the world is educational technology? Rethinking the field from the perspective of the philosophy of technology'. The authors argue that many studies into educational technology see technology and education as separate entities; most discourse of 'educational technology' expresses 'substantial thinking' that positions technology as playing a supporting role, merely providing the latest functionality to be applied to education. In this context, technologies in education become mere tools to be used or a technology controlling student and teacher. An and Oliver criticise this thinking and hold that we need a new way of thinking about the relationship between education and technology.

Rather than understanding technology as an independent causal force that has effects on education, the essence of educational technology can be rethought through a relational frame that consists of relationships between human-technology, education-technology and human-education. This offers a new way to frame our understanding of educational technologies, considering the triangle of relationships among humans, technology and education; there is no longer any straightforward 'impact' in some simple, mechanical way, but instead, purposeful action and negotiated meanings developed through these relations. (An and Oliver, 2020, p. 10)

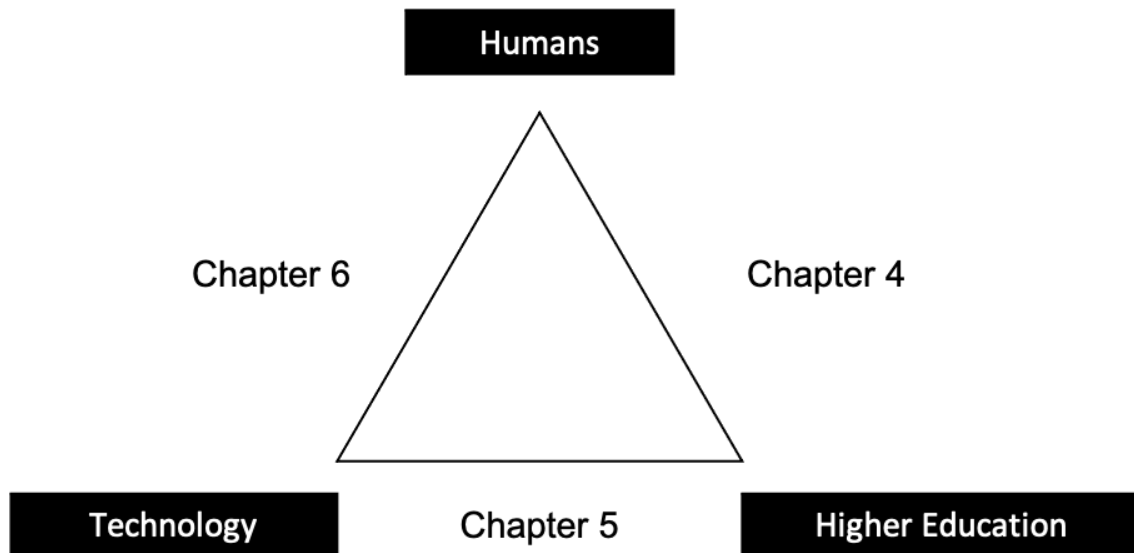


Figure 1 – Humans, technology and higher education. Based on An and Oliver (2020)

I adopt An and Oliver's framework as a structuring device for the thesis. This framework is depicted in Figure 1 as a triangle in which there are three relationships, between: humans and higher education, higher education and technology and technology and humans. Using this framework, I conduct a discourse analysis of these relations in the contemporary UK university. Chapter 4 presents two studies investigating the relationship between humans and higher education today; Chapter 5 presents two studies investigating the relationship between higher education and technology and Chapter 6 presents two studies investigating the relationship between technology and humans. The findings of all three of these chapters are brought together in Chapter 7 in a discussion of the idea and purpose of the contemporary university against the backdrop of its genealogical development.

2.3 Discourse

The object of study in this thesis is *discourse* about the university and more particularly *writing* about the idea of a university by universities. Mills (2004) identifies

three broad 'layers' of discourse. Mills bases these layers on the unpacking of the following quote from Foucault:

Instead of gradually reducing the rather fluctuating meaning of the word 'discourse', I believe I have in fact added to its meanings: treating it sometimes as the general domain of all statements, sometimes as an individualizable group of statements, and sometimes as a regulated practice that accounts for a number of statements. (Foucault, 2002, p. 80)

Mills describes the first element of this quote from Foucault as *discourse* in that it makes up the structure of society and the understanding of particular subjects and objects (i.e. the university) as a general domain of all statements. Second, discourse as an individualizable group of statements are groups of utterances which then go on to produce 'a discourse' in the sense of the particular structures affecting writing and talk which then crystalises into a common way of talking or writing about a phenomenon. Third, a discourse (a regulated practice that gives structure to the way that people tend to make statements about a particular subject matter) then contributes to the structure of *other* discourses and becoming coherent as one overall discourse at meta level within society. These differences work hierarchically to structure social practices and society for Foucault from the broad societal down to the individual text or statement. I am analysing discourse at the level of a domain of all statements and individual statements which contribute to a wider societal discourse on the idea of a university.

Gee (2008) describes discourse and different conceptualisations as hierarchical with two levels - Discourses (with a capital D) (that more or less takes in Foucault's two higher levels) and discourses (with a small d). The capital D is significant for Gee in that a Discourse is a way of being, doing and acting in different environments and one has to gain entry to different Discourses:

Most of what a Discourse does with us and most of what we do with a Discourse is unconscious, unreflective, and uncritical. Each Discourse protects itself by demanding from its adherents performances which act as though its ways of being, thinking, acting, talking, writing, reading, and valuing are “right,” “natural,” “obvious,” the way “good,” and “intelligent” and “normal” people behave. In this regard, all Discourses are false—none of them is, in fact, the first or last word on truth. (p221)

Howarth (2000) elaborates on the wider societal importance of Discourse as a world of signifying practices and objects. Howarth (2000) holds that that the specific systems of meaning that we find in Discourse shape and form the identities of subjects and objects in these systems (i.e students, academics, technologies, universities). In short, the ways that we talk and write about students, academics, technologies and universities in Discourse are not only ways that we talk and write, Discourse influences what the subjects and objects are and what actions they perform.

Language for Gee, a text or a single sentence, is a card to be played in a wider Discourse. For example, different language is used in the home environment than in the workplace and to be inducted or educated into these different environments is to be provided with a ‘Discourse map’. Small d discourse is the text and language used which contributes to the wider, broader Discourse (Gee 2015). Figure 2 depicts the structure of Discourse drawing upon these concepts of discourse (Foucault, 2002; Mills, 2004; Gee, 2008). In this hierarchy 1) Discourse is the unconscious, ‘how things are represented’; 2) discourses are the group of texts and speech acts which contribute to and keep Discourse stable; and 3) a discourse is a text or individual utterance.

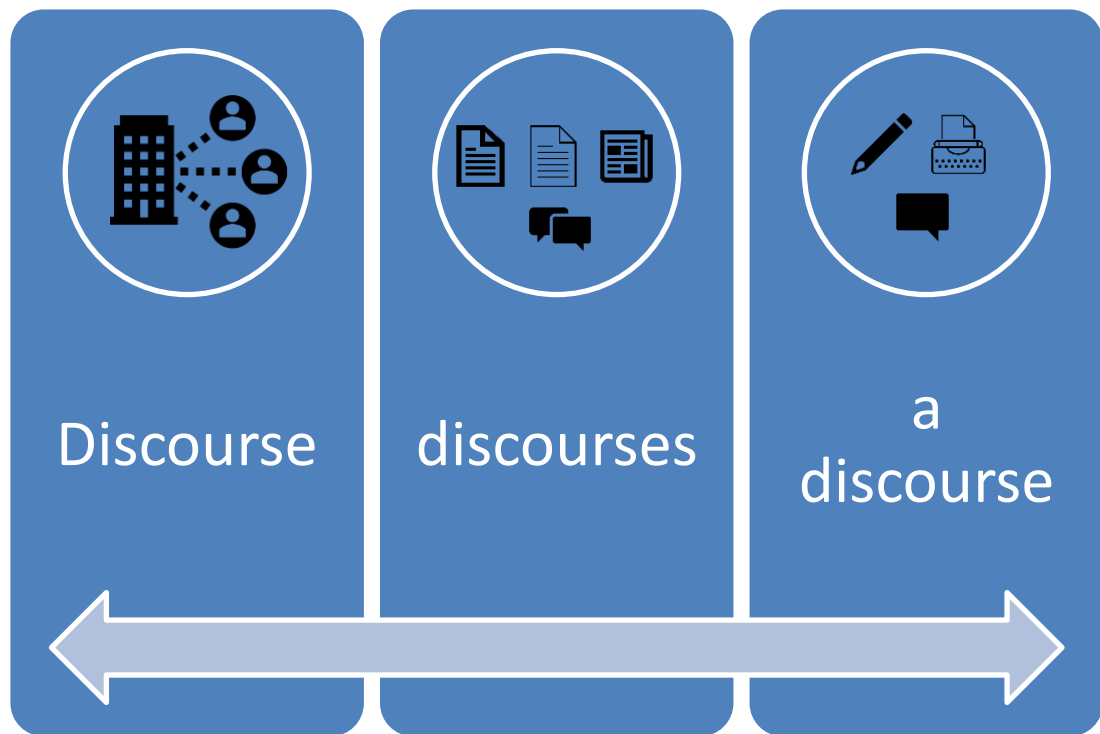


Figure 2: Discourse layers based on Foucault (2002) and Gee (2008) and Mills (2004).

Burr (1995) describes the challenge of defining ‘a discourse’ and attempts a broad definition:

A discourse refers to a set of meanings, metaphors, representations, images, stories, statements and so on that in some way together produce a particular version of events. It refers to a particular picture that is painted of an event (or person or class of persons), a particular way of representing it or them in a certain light. (Burr, 1995, p. 48)

This shows that texts and broader semiotics have a deep impact on what can be thought and what can be done and form our identities discursively in different contexts. Sawyer (2002) traces the archaeological history of discourse from the 1940s whereby discourse was understood to be a unit of language larger than a sentence and the term has been expanded across many disciplines with different definitions and methodological uses across linguistics, psychology, sociology, philosophy etc. Sawyer

(2002) states confusion regarding the nature of discourse has emerged due to the wide use of the term across disciplines, and the developments within and between different fields. These developments and the interdisciplinary character of the study of discourse can be seen in this chapter which describes a methodology which draws upon linguistics, social sciences, philosophy and computing. Each discipline has used and adapted different concepts of discourse into their own research methodologies. I map out my own interpretation and use in this chapter which I broadly ground in the social sciences and more specifically, sociology.

Discourse analysis

Gee (2011) differentiates between two forms of discourse analysis – descriptive and critical. I will describe first, a more neutral and descriptive discourse analysis before moving onto critical discourse analysis which is much more focused on the political and holders of power within a Discourse (Gee, 2008).

A descriptive discourse analysis aims to objectively identify what is said and how it is said without any political or critical aspect or analysis, for example social injustices. A descriptive discourse analysis is aiming for neutral and objective analysis. A descriptive discourse analysis may also be called a content analysis (Berelson, 1952; Holsti, 1969).

Content analysis is a research technique for the objective, systematic and quantitative description of the manifest content of communication. (Berelson, 1952, p. 18)

New computational methods in the 21st century has made conducting objective and rigorous content analysis much easier than before. Although reflexivity is still important in that different software have different affordances and functionalities. Descriptive analysis of text has been made much simpler thanks to digital computer

readable texts and the availability of software to analyse these texts. The approach of corpus linguistics and computational text analysis has been widely adopted in linguistics, computer science and the computational social sciences (see section 2.5 below)⁹.

Discourse analysis is defined by Seale (2004) as a qualitative method which studies textual meaning (talk and text) and investigates how these discourses shape social categories, knowledge and relations. Whilst highly diverse, all analyses of discourse use language in one form or another as an object of inquiry to inform wider out of text discourses (as described above and shown in figure 2). This can be spoken language, text, signs and images.

A unifying feature of analyses of discourse is that texts that are used are ‘naturally occurring’ in that researchers capture text and talk in context (Bryman, 2008, p. 2). Speer (2009) contrasts ‘natural’ and ‘contrived’ data in social research in that the former is advocated by conversation analysts and discursive psychologists and the latter characterised by researcher intervention to illicit viewpoints and perspectives from research participants such as in interviews or focus groups. All texts in the present study are ‘naturally occurring’. Stubbs (1983) defines discourse analysis as the sociolinguistic analysis of natural language. Stubbs describes speech acts as actions which have contexts. For example, the texts used for analysis in this thesis are produced by universities, are designed to meet different ends and have different contexts and styles. Stubbs describes discourse as relations between language, action, knowledge and situation. The person saying or writing a text, has an aim in mind, the text created is an artefact to be read in that it is to be understood by the reader. This transaction shows

⁹ The term corpus linguistics however isn’t always used and computer science use the term Natural Language Processing (NLP).

how Stubbs' relations of language, action, knowledge and situation can be linked.

Discourse and speech acts are described by Stubbs as 'a kind of socio-psychological swamp' which is complex:

It is well known to linguists that hearers and readers have a powerful urge to make sense out of whatever nonsense is presented to them, and this in principle has obvious relevance to a practical study of rhetorical devices used in advertising, political manifestos and so forth. (Stubbs, 1983, p. 5)

This complexity and many different uses of discourse as an object of study shows the wide use and potential use in research. The texts used in this study have authors or a group of authors with an end in mind (success in regulatory frameworks, student recruitment, institutional prestige etc).

While the discipline that is devoted to the study of language is Linguistics, there are some differences between how Linguists and other Social Scientists analyse discourse. While Social Scientists from fields like Sociology, Political Science and Education have looked to linguistics for research methods and theory, it must be acknowledged that Linguists are more interested in languages as languages and social scientists are more interested in what language use reveals about society. Linguist Halliday (2003) acknowledges that language is deeply embedded in the social and that often those researching in the field of linguistics may focus on looking inward at language without looking outward at the social context of language. Halliday, however advocated opportunities to look for relationships between language and society. Bridging a gap between linguistics and the social sciences is the sub discipline of Sociolinguistics.

When one becomes interested not only in characterising or describing language use, but also in what language use reveals about society or influences (and is influenced by society), an opportunity to study language more *critically* emerges.

Adding criticality to analysis of discourse allows us to identify where power relations lie in being able to dictate the discourse (and how discourse is used to manipulate power) and critical analysis is then a methodology to identify alternative futures. This takes us into the field of Critical Discourse Analysis (CDA).

2.4 Critical discourse analysis (CDA)

When researchers analyse discourse in a critical manner, Foucault is the go-to writer and thinker. In the *Orders of Discourse*, Foucault (1971) describes discourse as what can be written or spoken when many discourses can co-exist relating to the same object or phenomena. Identifying dominant discourse and who has power to decide and impose that discourse is of great interest to critical discourse analysts. Foucault describes the author of a text as immersed in discourse and a product of common Discourse (depicted in Figure 2) which can be seen clearly in normative ways of thinking and doing which is then reproduced socially in text and speech. This is a discursive formation of truth and knowledge and one of Foucault's main interests was how this common discourse comes to be.

Above, we have seen that linguists like Stubbs and Halliday have already broadened out the interest of linguistics from the study of language alone into a study of language in social context. However, other Socio-linguists, like Fairclough (2003) have taken methods and perspectives from the field of linguistics to the social sciences and are best known for adding a critical perspective to discourse analysis. Fairclough is keen to stress that his methodology of discourse is written by a linguist for the social sciences:

So, text analysis is an essential part of discourse analysis, but discourse analysis is not merely the linguistic analysis of texts. I see discourse analysis as 'oscillating' between a focus on specific texts and a focus on what I call the 'order of

discourse', the relatively durable social structuring of language which is itself one element of the relatively durable structuring and networking of social practices. Critical discourse analysis is concerned with continuity and change at this more abstract, more structural, level, as well as with what happens in particular texts. This link between those two concerns is made through the way in which texts are analysed in critical discourse analysis. Text analysis is seen as not only linguistic analysis; it also includes what I have called 'interdiscursive analysis', that is, seeing texts in terms of the different discourses, genres and styles they draw upon and articulate together. (Fairclough, 2003, p. 3)

From Fairclough's description of CDA we can see a link (oscillating as Fairclough says) between Discourse and discourse as articulated by Gee (2015) above (see Figure 2). Fairclough lays out textual discourse analysis as social events linking the text to wider social practices and other texts. The questions that can be asked of texts for Fairclough include: what social practices or network of social practices can the text be framed within? How is difference dealt with? (Included or excluded?) Are assumptions ideological or seen as normalised? What types of speech functions are used? - Metaphorical? Statements of fact? Predictions etc? How are social events represented? What is included/excluded? How are they represented? How are the social actors represented? These discursive representations as discourse are deeply embedded into the social construction of practices and ideologies; for example, in the context of this thesis, the purpose and practice of a university in a variety of texts is examined. Fairclough drew upon Foucault's work to develop his dialectical theory of the relationship between the textual and the social. This dialectical relationship, Fairclough linked to meaning-making as part of the discourse associated with a social field or practice (i.e in my work the university) and ways of construing the world from a particular social perspective (i.e in Chapter 3: Enlightenment, neoliberalism, knowledge economy and network society) (Fairclough, 2016). Much of Fairclough's work focused

on the critical analysis of global capitalism and neoliberalism (Fairclough, 2000) from a transdisciplinary perspective looking at political discourse but also language in the marketization of the university (Fairclough, 1993). Fairclough's work on the university analysed academic job descriptions, prospectuses and course descriptions.

Kendall and Wickham (1999) describe Foucault's critical analyses of discourse (for instance, his analyses of prisons, schools and hospitals in *Discipline and Punish*) as 'productive' in that Foucault shows how spoken and written texts are responsible for producing knowledge and understanding of a specific phenomenon such as criminality, mental illness, sexuality, etc. Foucault shows how knowledge, ideas and what are seen as objective natural truths are created by discourse and impact upon the non-discursive such as the body and other materiality. Indeed, the *criticality* of Foucault's approach lies in this sensibility; criticality is the idea that language and power are intertwined. Many have compared and contrasted Foucault's critical perspective of the social with a Marxist analysis of power (e.g. Stoddart (2007)). Such contrasts between Marx and Foucault broadly find that Foucault's approach goes beyond economic and class structures of power and includes also the discursive framing of knowledge whereby those with the least power come to see inequalities and social structures not only as normative but they themselves reinforce and reproduce them.

Graham (2005) acknowledges Foucault's insistence on not setting out a clear framework or discursive analytic method but attempts to set out a 'journey' and 'conversation' (what I call a 'sensibility' above) for researchers rather than a set of rules to be followed which is grounded in a critical analysis of analysing discursive formations of knowledge which appear to be objective and positivistic. The critical aspect of CDA then is one of considering how a concept has come to be that way and who has the power to legitimate such discourse.

To Foucault, the ultimate ethical and political function of eventalization was of course to challenge the institutions of power that depend upon these traditional ideas for their legitimacy and acceptance. (Wandel, 2001, p. 368)

Another discourse analyst approaching texts in a critical nature is Van Dijk (2016). He agrees with a Foucauldian approach whereby a critical approach to discourse is to be 'sociopolitically committed to social equality and justice' (p63). Thinkers influenced by Foucault (such as Fairclough) look at the text and the social as I have outlined above. Van Dijk agrees and elaborates upon the social in terms of 'epistemic communities'. Epistemic communities form to have shared understanding of particular phenomena (Van Dijk, 2014) – i.e. academics, management, administration, students, government, public.

Epistemic communities are often grouped together within an organisation. As Simpson and Mayr (2010) describe, institutions and organisations when analysed are not easy to define, buildings do not 'speak' or 'write' themselves but comprise of a complex set of actors where power to speak is contested through various hierarchies in institutional discourse (Drew and Heritage, 1992) - epistemic communities. We must then acknowledge a complex relationship between writer(s), the text and readers (Askehave and Swales, 2001) and wider societal cultures and norms.

This can help to think about Discourse in how it forms but also its influence - in the case of this thesis, the idea of the university and the undergraduate degree. News media has been approached in a similar manner to respond to what some might see as news outlets purely reporting on world events in an objective manner. Fowler (1991) rejects the idea that news is neutral and a deliverer of reality but a product of an industry with a bureaucratic and economic structure with relations to other industries and government and 'it reflects and, and in return shapes, the prevailing values of a society in a particular historical context' (p222).

Van Dijk (2016), later adds a third element to his own take on CDA – psychological cognition of the individual, describing CDA as forming a triangle of discourse, cognition and society. Here we see how an individual reads a text in a different way based on their own cognitive abilities and mental schemata and individual experiences of knowledge, attitudes and ideologies. And the same can be said of writers of texts. This inclusion of the reader and writer of a text can also be found in the tradition of Structuralism and Post-Structuralism. Roland Barthes declared the death of the author and birth of the reader to highlight such active and interpretative reading of texts (Barthes, 2001). I do not add this cognitive aspect to the research method here but acknowledge the interpretative nature of texts in which each writer and reader bring their own experiences and perspectives to. Moreover, I acknowledge my own interpretative analysis of texts alongside more quantitative corpus methods¹⁰.

Next, I move more specifically to methods and the combination of quantitative computer analysis of texts and how these corpus linguistic methods have been combined with CDA to offer a mixed method and triangulatory approach to university texts in light of the methodological perspectives in this section.

2.5 Computational corpus linguistic analysis

Corpus linguistics is a method used by linguists rather than a subfield of linguistics (such as syntax, semantics, sociolinguistics, etc) and a corpus-based

¹⁰ It is questionable whether such quantitative methods are wholly objective and neutral as I have selected a software, texts and the functions of the software and method of analysis. However, in reporting my quantitative results and method, these are reproduceable for objectivity.

approach research methodology can be utilised in many of the subfields of linguistics (McEnery and Wilson, 1996). As described in section 2.3 above, discourse analysis has been used as an approach to texts in research across various disciplines, with linguistics being the primary field of language analysis interested in structures and differences in language use. Also, as described above, due to the presence of language in every academic discipline, in particular the social sciences, the analysis of texts has grown.

A corpus (plural ‘corpora’) can simply be defined as a collection of ‘real life’ (naturally occurring) texts that are collated for quantitative analysis. An important distinguishing feature of linguistics using the corpus approach is that corpus linguistics studies real world text, not ideal or made-up text. Stefanowitsch (2020) holds that corpus linguists study authentic language:

In other words, authentic language is language produced for the purpose of communication, not for linguistic analysis or even with the knowledge that it might be used for such a purpose. It is language that is not, as it were, performed for the linguist based on what speakers believe constitutes “good” or “proper” language. (Stefanowitsch, 2020, p. 23)

In other words, a corpus of naturally occurring text can reveal how language is actually used. Corpus linguists and social scientists carrying out discourse analysis are interested in studying *authentic* texts, after all, if one wants to study how text influences society (and vice versa) it is natural to study texts that are really used to communicate within society. For this reason, discourse analysts often turn to corpus linguistics (rather than to other branches of linguistics) for insights and methods. Corpus linguistics and similar computational methods have grown in popularity in recent years due to 1) increased access to texts due to the internet and 2) increased computational power, which in the 20th century may have been restricted to specialist university departments

or research companies. Today many homes have access to the same computational power required for such analysis. The computational analysis of texts also has a natural home in computer science departments and such analysis of what is broadly termed as ‘big data’ has seen a rise in both academic and commercial techniques to analyse large bodies of text as described by Wiedemann (2013) in the use of computer-assisted analysis of textual data in qualitative social science research. The computational social sciences are using ever developing techniques to harness big data for new analysis of data but also computational analysis which would traditionally be carried out by human eye, for example methodologies are being developed for computational grounded theory (Nelson, 2020) and topic modelling (Daenekindt and Huisman, 2020) which theme texts and discourse computationally. More specifically, computer science terms such analysis of texts as Natural Language Processing (NLP), (Bird, Klein and Loper, 2009). NLP is often embedded into sociotechnical systems whereby language is analysed for a specific end, for example persuasion in marketing and politics. Sun, Luo and Chen (2017) reviewed NLP techniques for ‘opinion mining’ with the prevalence of user generated content on social media and other platforms. Mautner called for critical discourse analysts to ‘get wired’ and use electronic web-based corpora for critical discourse analysis (Mautner, 2005b)

Having explained the basic approach used in corpus linguistics, we can now turn to the specific techniques used in the field. Corpus linguistics broadly uses frequencies, collocations and concordances to analyse quantitatively assembled corpora of texts (McEnery and Wilson, 1996; Stubbs, 1996; Stefanowitsch, 2020).

Frequency

Frequency analysis counts the number of occurrences of specified words or terms within an assembled corpus. According to Baker (2006) language is not a random

affair and frequency lists are the easiest way to show how certain words dominate particular texts. Moreover, when collecting hundreds or thousands of texts in a corpus, Baker holds that frequency analysis can be used to discover the patterns which govern what can and cannot be said (i.e. dominant discourse) and corpus analysis can reveal interesting patterns of language use.

Frequency analysis affords two possible entry points into the text. 1) we can specify a keyword of interest (deductively/a priori) or we can look to words that emerge as most frequent or most interesting as we go (inductively). We may also look to one corpus or compare against one or more corpora. Deductively researchers can take specific words and search the text for them. Frequency according to Baker (2010) can be an indicator of markedness within corpora. The frequency of a word in an assembled corpus however is only part of the story and can be misleading without further analysis. For example, in chapters 4 and 5 I report relative frequency which enable comparison between corpora of different sizes and also how many of the keywords are found in documents within an assembled corpus¹¹.

In line with the broader social sciences, corpus methods when using quantitative methods afford the use of statistical methods not only to identify frequency but to identify whether the differences are statistically significant. In the broad social sciences, the most common test of significance is the p value. However, in corpus linguistics, the most frequently used measure of significance is loglikelihood (Brezina, 2018; Gabrielatos, 2018). I use frequency analysis extensively in this thesis, most notably in

¹¹ For example, if you have 20 documents making up a corpora and a keyword appears in just 1/20 texts then further analysis should look at that specific text and questions should be asked about the true distribution and markedness of the keyword in the corpora. This is reported as ‘dispersion across texts’.

Chapter 4 and 5. A statistical approach to word frequency and keyness is used and described in Chapter 4.

Collocation

Collocation analysis is the identification of those words that most frequently appear next to (or close to) an identified keyword or phrase. Firth famously held that ‘you shall know a word by the company it keeps’ (Firth, 1957, p. 11). By using collocation analysis techniques, one can, as Firth says, move from simply identifying how frequently a word is used to identifying the context in which it is most frequently used. Collocation analysis is an exclusively deductive approach in that you approach the corpus with keywords in mind. Both frequency and collocation analysis are highly quantitative in that searches and results can have statistical analysis and thresholds applied to them to achieve answers to specific research questions. These parameters and analysis are decisions made by the researcher and as stated by Brezina (2018) are important as corpus linguistics is a scientific method of analyses with empirical evidence which should be reported so that results are replicable.

I have used two measures of collocation in this thesis. Frequency of collocation shows the prominence of a collocation and also the frequency of the word in the corpus. This can tell the researcher how frequent the word is in the whole corpus and whether it is exclusively a collocate to a specified keyword. A further statistical analysis used regarding collocations which I have used in this study is Mutual Information (MI). An MI score is an association measure, it tells us how strong a collocate is in the relationship between keyword and collocate. By calculating an association measure such as MI we can go beyond frequencies observed which can include many function words (the, of, is, and etc) which do not tell us much about the keyword in question.

The MI association measure involves asking whether the collocation appears by chance alone and MI in particular highlights exclusive collocations (Brezina, 2018).

Concordance

Software used for corpus analysis is often called a concordance program. Concordance lines are lines of text formed by placing a keyword at the centre and displaying a fixed number of words (say three, five or ten words) either side of the keyword. A

concordance analysis is an essentially qualitative analysis that gives the researcher a rapid, in context view of a keyword or phrase. Taylor (2018) argues that the ease of use and accessibility of concordance software (such as AntConc, CQPWeb, Sketch Engine, Wordsmith Tools etc) has facilitated research into a broad range of texts.

Table 1: A selection of concordance lines for 'outcomes'		
Left	Node	Right
evidenced to lead to excellent	outcomes	for our students. This is
term intervention and support. Student	Outcomes	and Learning Gain Employment and
be significant as the educational	outcomes	result in a 'graduate premium'
are required to set learning	outcomes	both for overall course and
implemented across the institution. Positive	Outcomes	for All (SO3) The contextual
is designed to secure positive	outcomes	for all. These high DLHE
enhance their academic and employment	outcomes.	While the positive BME and
improve their prospects. Long-term employability	outcomes	compare positively with the sector.
risk of not achieving positive	outcomes.	Through a newly established Business
demonstrate that we provide excellent	outcomes	for our students in terms

Table 1 is an example of a concordance analysis. This table is taken from Chapter 4 and the analysis of TEF submissions. Here, the identified word for analysis is 'outcomes' and a concordance programme shows all occurrences in context in that the researcher can see ALL concordance lines for a specific term at a set number of words either side of the node word or term. This can be ordered by words to the left or right or filtered to include certain words. A concordance analysis goes beyond the quantitative

and statistical analysis of frequency and collocation to show the word in context. This allows for a more interpretative analysis. Using all three techniques (frequency, collocation and concordance) allows for different entry points and mixed methods approaches used in the analyses of a corpus of texts. Combining the quantitative analysis of words with the qualitative methods adopted by (critical) discourse analysts is where I move to next.

2.6 Corpus-assisted discourse analysis (CADA)

Baker (2006) describes the advantages and disadvantages involved in using corpus methodologies for discourse analysis. For researchers who are used to non-computational discourse analysis methods, practical disadvantages include the fact that there is a broad disciplinary literature in corpus linguistics to get up to speed with as well computing skills to learn in order to be able to use corpus linguistic software. In principle disadvantages with using corpus methods for discourse analysis include the fact that corpus methods yield broad rather than close readings of the text, and that corpus researchers tend to use only the methods which are prescribed by or available in the corpus analysis software packages that are available to them. Moreover, corpus analysis may suffer from a lack of context in that researchers collect texts and construct corpora that are sometimes removed from the social context in which the text was meant to be read; put differently, corpus researchers are sometimes opportunistic in their data collection in that they collect together texts which are easily accessible and in the right electronic format in collections of text (corpora) that are artificial (because they have been brought together by the researcher and not because the texts were

written to be read side-by-side)¹². A broader criticism of corpus methods is that these methods are perceived as quantitative and positivistic and are therefore off-putting to researchers on the interpretivist side of the great ‘methodological divide’ between positivist and interpretivist social scientists.

Mautner (2016) cautions against wholesale replacement of reading of the text with computational methods. As we explained above (in section 2.4), CDA studies not only the text, but the social context in which that text functions; CDA tries to establish – with a critical orientation – how relations of power in the social context leads to the production of certain kinds of text and how texts, in turn serve the relations of power within the social context. Quite clearly, computational analysis (that only spots patterns of word use) is unable to do this by itself.

Baker (2010) describes how, in the whole field of sociolinguistics, the ambition is to ‘uncover discourses’ which can tell us about the values of the societies that they were produced in. Clearly pattern description in corpus linguistics alone cannot show us how the language that a text writer uses reflects the values of their society. Partington (2013) holds that research using corpus methods should therefore study discourse in context; a corpus should not be seen as a black box that exists without the social context and doing so is contradictory to proper discourse analysis.

Baker (2006) comments upon wider macro issues with quantitative research in the social sciences, questioning whether any research into the social can be wholly objective and neutral. Baker holds that utilising the techniques of corpus linguistics in discourse analysis implies two main advantages: (1) it offers the opportunity to conduct

¹² Both TEF and REF statements are standardised and relatively easy to batch download.

University prospectuses and strategy documents are not so straightforward as university websites have to be visited, searched and documents individually downloaded.

an analysis of large numbers of texts which would be impossible (or at least very costly and time consuming) to conduct by human reading and (2) automating the analysis removes some of the researcher's cognitive biases. Baker argues for a form of corpus-assisted discourse analysis (CADA) that can transcend quantitative and qualitative divides by accepting that there are researcher decisions to be made at every step of the quantitative analysis from research question design to data collection and analysis. However, Baker holds that the discourse analyst can employ corpus methods deliberately to analyse large numbers of texts and words to see emerging patterns across texts which would be impossible to discover by human reading. Baker *et al.* (2008) describe combining CDA with corpus linguistics as 'a useful methodological synergy' when they examined discourses of refugees and asylum seekers in the UK press. Based on 140-million-word corpus Baker et al used collocations and concordances to first, as they describe it, 'map' the corpora which can show interesting patterns and surprising results which can then prompt further follow up analysis. These patterns can be formed by frequencies of words and terms and the collocations of such keywords can add further context all of which can then form new insights for a closer reading in a more traditional CDA approach.

Ten years on from Baker et al's ground breaking methodological synergy, Nartey and Mwinlaaru (2019) conducted a meta-analysis of a decade of synergising corpus linguistics and CDA. This metanalysis includes 121 studies concluding that the majority of subjects for such approach were media, politics and social media with just 6 examples from Education. Across all fields, in which corpus methods were used for CDA, ideology and power dominated the issues researched. Nartey and Mwinlaaru conclude that CADA has grown in popularity in the last 20 years but is still not mainstream globally or in all sub-disciplines of the social sciences. One of the reasons

for this maybe the cross and interdisciplinary nature which may not be facilitated well in university disciplines and departmental structures, but it is clear that the advantages and weaknesses of both methods are smoothed out by one another:

In other words, CDA makes it possible for CL to answer socially inspired research questions such as power, inequality, identity and change so that CL is not limited to grammar or lexicography. (Nartey and Mwinlaaru, 2019, p. 225)

Nartey and Mwinlaaru (2019) show that the annual number of CDA and corpus publications from 1995 to 2016 increased from one per year between 1995 and 1997 to 20 per year in 2015. A journal search in the Education Resources Information Centre (ERIC) database found 20 articles associated with ‘corpus-assisted discourse analysis’ (one of which is part of this thesis).

Outside of Education, the breadth of CADA studies include: social media data, analysing discourse on a range subjects (e.g. debates on banning women drivers in Saudi Arabia (Altoaimy, 2018), the organisation Football Lads Alliance in the UK (McGlashan, 2019), Donald Trump’s Facebook conversations (Knoblock, 2017)), discourse in mainstream media (e.g. discourse on Muslims and Islam (Baker, Gabrielatos and McEnery, 2013; Fajri, 2019), migrant representation in the press (Taylor, 2014; Salahshour, 2016), social class and inequality (Toolan, 2016) television and film narrative (Bednarek, 2015) educational political governance (Mulderigg, 2011) and university vision and mission statements (Efe and Ozer, 2015).

In keeping with the cross-disciplinary perspective, Egbert and Baker (2020) outline triangulation methods across the social sciences and linguistics. Egbert and Baker describe triangulation as any study that applies two or more methods to answer the same research question. Taylor and Marchi (2018) explore different ways of using corpus-assisted methods which identify blind spots in the context of diverse research

questions from alternative perspectives and analysing multimodal text, using multiple data sets and interdisciplinary approaches. I am adopting such a cross-disciplinary and triangulatory methodological approach in this thesis using (critical) discourse analysis, corpus linguistics and incorporating a historical perspective in writing a history of the present with Foucault's genealogical methodology. I move next to this methodology.

I conclude that adopting a synergy between corpus linguistics and critical discourse analysis allows me to analyse with rigour within the text using corpus linguistics and to look outside of the text at the social (i.e. Enlightenment, neoliberal knowledge economy and network society) with critical discourse analysis and genealogy. Adding an interpretative historical perspective and looking further outside of the text adds a further explanatory perspective – a genealogy. I will now describe my genealogical approach to a history of the present, taking the corpus-assisted discourse analyses of the present to trace the lineage of a sociohistorical perspective of the idea of a university.

2.7 *Genealogy*

Tracing the genealogy of a contested concept such as the university adds an historical perspective to the analysis in this thesis. This historical dimension alongside the discourse of the present goes some way to understand and explain how we get to the current idea of a university. Garland holds that the genealogical method is a historical reading of texts to discover how discourses and ways of being have evolved.

Genealogical analysis traces how contemporary practices and institutions emerged out of specific struggles, conflicts, alliances, and exercises of power, many of which are nowadays forgotten. It thereby enables the genealogist to suggest – not by means of normative argument but instead by presenting a series of troublesome associations and lineages – that institutions and practices we value and take for

granted today are actually more problematic or more “dangerous” than they otherwise appear. (Garland, 2014, p. 372)

However, as Garland puts it, the genealogist is not only interested in how ideas have evolved and changed over time: they are interested in how these changes have been caused by relationships of power in society (and what texts reveal about power relationships). Shiner (1982) holds that a particularly fertile ground for genealogy is the analysis of ‘systems of truth’ centred on scientific discourse, institutions concerned with economic production, and political power. What the genealogist seeks to uncover is who has a voice in this system of truth and who are the winners of these power struggles. Shiner (1982) describes Foucault’s conceptualisation of power not as a top-down limitation, prohibition or repression by large political and economic institutions but productive and widely distributed knowledge and what comes to be seen as ‘natural’ and normalised.

Genealogists undertake historical investigations of the emergence of certain epistemological structures and their associated discourses, as well as how knowledge, power, and claims to truth interact both to form cascades of practice and to reinforce the discourses that they emanate from. (Anaïs, 2013, p. 125)

Hook (2005) prescribes three principles of genealogical analysis – the genealogist must uncover (a) the role of history, (b) the nature of discourse as knowledge (social, historical and political conditions under which statements come to count as true or false) and connect that with (c) a broader analysis of the material conditions that exist socially – I do this with the genealogy written in Chapter 3 and the discourses of the present in Chapters 4, 5 and 6. Hook states that without all three, an analysis is ‘reduced to a play of semantics, a decontextualized set of hermeneutic interpretations’ (p9). Roth (1981) describes Foucault’s approach to a history of the

present as not just looking at the events of the past by using the language of today, but to give critical accounts of systems of thought which made developments possible. Analysing past discourses to explore some of the taken for granted ideas of the present opens up new possible futures. In thinking about the future using only our present discourse, ideas for the future university I argue will be limited. By conducting a genealogy, we can open up ways of thinking, beyond our current 'truths':

Genealogy is attempting to go further by tracing possible ways of thinking differently, instead of accepting and legitimating what are already the 'truths' of our world. The aim is to provide a counter-memory that will help subjects recreate the historical and practical conditions of their present existence. (Tamboukou, 1999, p. 203)

Foucault in his genealogy, isolates a social practice or norm of the present and traces its development. This is not as a final history or to reveal an underlying essentialist truth but how power relations have created knowledge in contemporary society (Dreyfus, Rabinow and Foucault, 2016). Foucault's later works used a genealogical approach when analysing prisons in *Discipline and Punish* (Foucault, 1991) and sexuality in *History of Sexuality I* (Foucault, 1990). *Discipline and Punishment's* genealogy traces the different periods of the technology of the prison as originally a punishment of the body which evolved into a punishment of the soul and also the normalisation of public behaviour to those not in prison. Foucault himself, describes this as:

I would like to write a history of this prison, with all the political investments of the body that it gathers together in its closed architecture. Why? Simply because I am interested in the past? No, if one means by that writing a history of the past in terms of the present. Yes, if one means writing a history of the present. (Foucault, 1991, p. 30)

Foucault's genealogical analysis of the prison questions a 'common sense' public perception of the institution as a normative 'natural' way of dealing with those that break the law but for Foucault this is not natural or by chance. Both of Foucault's genealogical works (*Discipline and Punish* and *History of Sexuality I*) question the 'scientificity' of institutional practices, laws and social norms. In both of these works Foucault uses a genealogical methodology to uncover who gets to decide what is deemed scientific knowledge and how that knowledge becomes normalised and seen as natural (Visker, 1995). Foucault's *History of Sexuality I* traces the genealogy of sexuality and its success as a discourse which involves individuals internalising disciplinary discourses (science and social science) by taking part in their own identification of themselves into a narrative discourse that has been created. Foucault rejects the 'repressive hypothesis' that sex and sexuality was taboo and not spoken of, but on the contrary, discourses come about as social control and governmentality in identifying oneself and others with an arbitrary classification. Individuals for Foucault have become governed by a system of discourses of what have come to be seen as normative and objective classifications to be adhered to and to judge others by. This for Foucault was power and knowledge, not as repressive but productive. Discourse here is productive in that there is a change or continuity in behaviour due to accepted 'truths'. Both of these genealogical studies uncover and analyse the methods of creating compliant subjects to internalise and comply with controlling habits showing that individuals do not have to be physically controlled but can be internally malleable both within the institution of a prison in *Discipline and Punish* and in wider society in *History of Sexuality I* (Prado, 2000).

Foucault criticised the traditional approach of historians which saw the past as a linear progress and improvement rather than a history of contested alternatives

(Foucault, 1977). Influenced by Nietzsche, Foucault's essay, *Nietzsche, genealogy, history* (Foucault, 1977) took Nietzsche's work on the origins of ideas, cultures and accepted ways of doing and thinking to define the genealogical approach. Nietzsche had three ways (in German) of saying origin - Herkunft, Entstehung and Ursprung. Ursprung, Foucault describes as origin which sees history as essentialised objects having a true essence which he describes as:

This search is directed to "that which was already there," the image of a primordial truth fully adequate to its nature, and it necessitates the removal of every mask to ultimately disclose an original identity. (Foucault, 1977, p. 78)

For Foucault, an idea of an institution such as a university is not a natural (Herkunft) or linear progression towards improvement as a singular essentialised grand narrative (Ursprung) but Entstehung as an emergence of interrelated dynamics and an interplay of competing interests. This results in what becomes a set of 'rules' and what seems natural or objective. Scheurich and Bell-McKenzie (2005) reading of Foucault sets out for the genealogist four questions to use when conducting a genealogy. Firstly, do not consider just the action which is happening but the effects that it could possibly produce. Secondly, consider power relations involved:

Foucault does not usually mean the power exercised by an intentional actor, although his view encompasses that; instead he usually means that a procedure or a process multiplies across a social field because of a complex set or collection of reasons or causes that are not entirely intentional or rational. Thus, these governmental acts, procedures, or processes are not only or simply a function of legislation or social structures; instead to the genealogist, they are ways that power multiplies, without some agentic agent consciously accomplishing this, across a social field. (Scheurich and Bell-McKenzie, 2005, p. 855)

Thirdly, the genealogist should not see the institution (prison, hospital, school or university) as a stand-alone project but commonalities with other technologies of power¹³. Fourthly, Foucault encourages the genealogist to consider the political technology of the body in that by regulating and dominating discourse and knowledge power results in ‘bodies’ governing themselves and others by societal norms and what are seen as truths and natural. Regulating and controlling the soul for Foucault is a much more oppressive form of control over individuals than physical and ordered controlling behaviour. Regulating the soul and knowledge, changes conceptualisations of what social norms are, for example the idea and purpose of a university education¹⁴.

Meadmore, Hatcher and McWilliam (2000) warn against a prescribed method of conducting a genealogical study and that the researcher should have a strong grasp of the epistemological and theoretical tensions involved which are not advocacy of a particular stance or position but an opportunity to question and dismantle dominant discourses of the time.

genealogical method allows the researcher to travel along rhizomatic pathways, searching for new vantage points from which to see the self. New vistas come into view, as some are closed. What is important is that the journey, as Foucault intended that it should, rejuvenates and in doing so, offers new ways of seeing the present. Through our elaboration of what is appropriate (as well as hinting at what is not) we have aimed to make genealogy as a project, method, and politics more available as a research instrument for those interested in challenging “what is”. It

¹³ For example, I use wider societal developments such as the knowledge economy, neoliberalism and network society to embed the university in fabric of social life which is influenced and influences wider society.

¹⁴ The texts analysed here as well as many others contribute to what society sees as the institution of the university, its purpose and ‘nature’ as uncritical, objective and singular.

is hoped that our research narratives demonstrate what it means to produce a space in which to think differently. (Meadmore, Hatcher and McWilliam, 2000, p. 465)¹⁵

This quote encapsulates the approach of my thesis in questioning the idea of a university by tracing some of the key ideas and discourses of the past. Contested alternatives of the past, present and future provide us with new ways of thinking of the university and its development as an idea.

Examples of genealogical analyses can be found in many subjects and fields. Dean (1992) uses genealogy as an approach with which to analyse assemblages of the given and taken for granted in the governing of the poor in the field of social policy. Labaree (1992) uses a genealogy to analyse the teacher professionalization movement which focuses on the roots of the movement without prescribing a singular purpose with rational planning based on a single goal. Hunkin (2016) combined a genealogical approach with network ethnography of policy actors in education quality reform, concluding that ‘quality’ discourse in policy has coincided with a marketized neoliberal ideology as a way of regulation to shape consumer and worker behaviour. James and Steger (2014) trace the concept of globalization using a genealogical method of combining textual research and interviews to attempt to understand how the concept developed and how it has been used and embedded as a contested term in different fields. Flynn and Lynam (2020) use a genealogy to examine Ireland’s healthcare system to show how conditions of inequality have been achieved and sustained. Despite many publications on the idea of a university, at the time of writing I have not found a genealogy written on the university.

Tamboukou (1999) offers a criticism of Foucault and the genealogical methodology in social and political theory in that Foucault's work does not employ recognisable and reproduceable methodologies and for practical reasons we need to know 'how to' with Foucauldian genealogy. In short, Tamboukou holds that a genealogical approach is a methodology and not a method. Visker (1995) states that Foucault's genealogy is often characterised as listing the oppressions of power and knowledge in a variety of contexts but reminds us that Foucault's thesis with regards to discourse and genealogy was to say that these are all productive in that they do not exclusively repress or alienate but in fact constitute or change the human relations that make up society. Foucault's focus was not exclusively on saying that all power relations are 'bad' but come together to be productive in society. Further limitations to such a method is that analysis can be highly interpretative and subjectivity of the researcher must be acknowledged.

This thesis, structured around relations between humans, higher education and technology involves corpus-assisted discourse analyses of contemporary UK higher education institutional texts. A genealogical approach allows me to look both within and outside of these texts in that ideas and discourse on the university from the past are incorporated but also the social conditions of the time.

2.8 Discourse analyses of the university

Before ending this chapter on the methodology and approach adopted in the thesis, it is illustrative to review some previous discourse analyses of the university that influenced and shaped my research and thinking on the Discourse of the university. Reviewing these studies briefly allows me to show the range of discourse analytic work that has already been done regarding the university and also reveals the range of methods used by researchers in the past. As will become clear from this short review, I

can find no significant corpus-assisted discourse analyses of the university in the literature and also no studies that combine genealogical analysis of the university with readings of large quantities of text. This helps to justify the originality and contribution I am making with this methodology and approach.

Analysing discourse in the context of constructing reality and impact on the social has been used on a variety of fields, including news media (Fowler, 1991) , social policy (Codd, 1988), higher education policy (Saarinen, 2008), institutional discourse (Mayr, 2008) and political language (Fairclough, 2000).

More specifically, discourse analysis has been used in the broad area of higher education research. Branco Sousa and Magalhaes (2013) describe some of the challenges of applying discourse analysis to higher education research in that the field is multidisciplinary both methodologically and in different disciplinary structures of universities. For example, higher education may be researched from the perspective of one discipline or dedicated research centres. Moreover, studies can also be classified as research *of* higher education and research *for* higher education. The former is as an analysis of systems and practices and the latter aimed at evaluating and improving practice. Teichler (2005) identified the diverse characteristics of those researching higher education, including discipline based researchers who occasionally or regularly research higher education, theme-based higher education researchers who are usually based in a department focused on higher education (research *of* higher education), applied higher education researchers (research *for* higher education) who help decision makers or develop teachers and researchers, consultants who advise practitioners and institutions and reflective practitioners, often teachers who are researching and advising based on their own practice.

Branco Sousa and Magalhaes (2013) identify three questions raised by discourse analysis in higher education whereby social production of meaning occurs and which can be applied in higher education research: What are the dominant discourses? How do they become dominant? What is excluded in the process? In carrying out CADA and genealogical analysis on the idea of the university and its involvement with technology I answer these questions in the remainder of this thesis.

There has been a range of discourse studies carried out on higher education and just like the methodology of discourse analysis, these studies are diverse and varied. Discourse analysis of higher education include normalised ideas of neoliberalism and marketisation in society resulting in education as just another commodity as a cultural norm (Fairclough, 1993; Lynch, 2006); academic institutional mission statements (Connell and Galasiński, 1998; Mizrahi-Shtelman and Drori, 2020); university websites (Zhang and O'Halloran, 2013; Saichaie and Morphew, 2014; Zhang, 2017); job adverts for academic posts and prospectuses (Fairclough, 1993; Xiong, 2012); specific keyword analysis of university websites (Mautner, 2005a); the nominalisation of policy buzzwords (Hayes 2019); media discourse on higher education quality assurance (Cabalin, 2015); speeches from public, state and institutional leaders (Hensley, Galilee-Belfer and Lee, 2013); government policy strategies and funding (Boden and Nedeva, 2010; Clegg, 2010); access agreements which require UK universities to sustain or improve access by underrepresented and disadvantaged groups (McCaig, 2015); student's discursive constructions of the purpose and benefits of university (Archer and Hutchings, 2000) and the effect of new higher education discourses on academic staff (Trowler, 2001).

These studies use a variety of discourse analysis methods, including interpretative critical discourse analysis and content analysis on data such as speeches, websites (text and images using social semiotics), policy and regulatory documents and academic and student perspectives on particular discourses. Three of these studies use computational analysis as part of their overall methodology (Mautner, 2005; 2019; Mizrahi-Shtelman and Drori, 2020). However, none of the studies reviewed here use the exact combination of corpus assisted discourse analysis and genealogy that I have used in this thesis; for this reason it is not an exaggeration to hold that this thesis brings a new methodology to the study of the idea of the university.

2.9 Summary and my own contribution

This chapter has laid out both my methodological approach and methods when analysing the discourse and genealogy of the idea of the university, and the disrupting influence of technology. Foucauldian methods feature heavily in both the genealogical perspective of Chapter 3 in writing a history of the present and the discourse of the present presented in chapters 4, 5 and 6.

As others have emphasised (Tamboukou, 1999; Meadmore, Hatcher and McWilliam, 2000), Foucault stressed that his own specific approaches to individual projects were not narrow recipes to be followed but approaches for the researcher to use as a guiding principle. I am following this example by delving into Foucault's toolbox to combine critical discourse analysis, genealogy and also adding quantitative methods from corpus linguistics alongside qualitative CDA to answer the research question:

How do UK universities discursively construct the idea and purpose of undergraduate higher education today and what part is technology playing in 'disrupting' this idea and purpose?

The methodology and method outlined in this chapter pays particular attention to the discursive nature of what come to be seen as ‘just the ways things are’ in institutional texts and its wider societal impact on the idea of a university. Gallie (1956) termed this as an ‘essentially contested concept’ in that there are many potentials for a concept which are not agreed upon – a discursive battle about the meaning of a university (Krejsler, 2006). A genealogical discourse analysis traces these ruptures, contested alternatives and disruptions by tracing the past and present discourse of the university and the wider societal conditions – all of which are productive in creating the present idea of the university. This allows for perspectives to be opened to look at the future university both educationally, technologically and socially. In short, this is how my own methodology combines genealogy (discussed in section 2.7), discourse (2.3), critical discourse analysis (2.4) and corpus linguistic methods (2.5).

In chapters 4 and 5, I have applied this broad methodology to analyse texts written by UK universities and assembled corpora of over 12 million words. The corpora constructed for analysis are all naturally occurring and authentic in that they are written by UK university staff under the guise of ‘the university’ for specific ends and available freely for public download. For example, a written submission to the TEF has the intended purpose of achieving the highest possible criteria in the regulatory exercise, a university prospectus document is describing to prospective students why they should choose to commit to study at their institution and mission statements communicate to the broader outside world the purpose of the university and its future plans. These documents all give different perspectives on the idea of a university in an intertextual and triangulatory manner.

In the next chapter, I carry out my own genealogical analysis of the history of the present, tracing the idea of a university across Elite Mode 1 Ivory Tower, Mass

Mode 2 Factory and Universal Mode 3 Network. Chapter 3 is a history of the present and genealogy as outlined above (2.7) structured around Marginson's (2019) 'three great ideas of the university' beginning with Kant and Humboldt in Germany, Cardinal Henry Newman in the UK and the American research university which built upon the German and UK models and was articulated by Clark Kerr. I take these three texts as discourses on the dominant ideas of a university as well as the dominant social, economic and political developments of the 19th and 20th century – Enlightenment, neoliberal knowledge economy and network society.

CHAPTER 3 – A GENEALOGICAL HISTORY OF THE PRESENT

3.1 The idea of a university

The modern university in its most straightforward and simple terms is defined by Clark (1983):

“Increasingly during the last two centuries, as science and its research imperative entered the university in many countries, academics have been committed to discovering and fashioning new bodies of knowledge. In varying combinations of efforts to discover, conserve, refine, transmit, and apply it, the manipulation of knowledge is what we find in common in the many specific activities of professors and teachers. If it could be said that a carpenter goes around with a hammer looking for nails to hit, then a professor goes around with a bundle of knowledge, general or specific, looking for ways to augment it or teach it to others. However broadly or narrowly we define it, knowledge is the material. Research and teaching are the main technologies.” (Clark, 1983, p. 12)

This straightforward and simple way of looking at the university is still valid, but is also coming under pressure, both due to changes from within the university and as a response to wider societal developments. Drawing on an idea proposed by Gibbons (Gibbons, 1994) of knowledge as mode 1 (research within academic disciplines inside the university) and mode 2 (knowledge production as ‘useful’ to market demands) the genealogical analysis in this chapter traces the idea of the modern university as it developed from Mode 1 Ivory Tower to Mode 2 Factory and now, the emerging Mode 3 Networked University (Nørgård, Mor and Bengtsen, 2019). Emerging ideas on the mode 3 university are building on mode 2 in that the new university is entrepreneurial but in new networked ways, networked digitally but also with those who are producing knowledge (industry, governments and academia) and widening access in diverse ways

(beyond the three year undergraduate degree at 18) to publics, industry and government (Carayannis and Campbell, 2012; Carayannis *et al.*, 2018). In tracing all three modes we can see that the strands of history remain but have been developed and continue to develop by universities themselves as well as government policy and wider societal changes. The Mode 1 University Ivory Tower was a small elite institution cut off from the rest of society with autonomy to research and teach with little external guidance. The Mode 2 Factory University is a mass access institution teaching and producing knowledge to market need. The Mode 3 Network University is emerging as an institution embedded into the fabric of society – a university without walls which is networked digitally and socially with individuals and other organisations teaching, researching and influencing the university.

Barnett and Fulford (2020) ask just what is a university and state that there are usually two ways of approaching these questions. Firstly, one could *describe* the university quantitatively by noting, for instance, that there are around 200 million students worldwide and 17,000 universities. One could also outline the features of universities such as the subjects they teach and research, the degrees they award, the outcomes of students, economic impact, etc. Next to this descriptive approach, however, one can also ask the more value-laden question: what is a university for? While the first approach might be the one that is taken in economics or public policy when viewing the university as synonymous with the ‘global higher education market’, the second approach is the one taken by academics, students, politicians, the media and the wider public when they simply ask: ‘what is a university education for’ or, even, ‘should I go to university?’.

In this thesis, I take the latter approach to thinking about the nature of the university: the question ‘what is a university’ invites a conversation between

universities and students, the government and wider society about what kind of advanced education should be available to adults in society and my thesis is essentially a discourse analysis of this conversation. Indeed, Barnett and Fulford describe how this conversation has a 200-year history in which a number of prominent thinkers take up the task of describing the purpose and idea of a university. Of all of these thinkers and writers, Marginson (2019) argues that there have only ever been three ‘great’ ideas of the university, 1) Newman’s idea of the university as a liberal arts college in the UK, 2) Kant and Humboldt’s designs of the in German research university and 3) the idea of the American research university articulated by Clark Kerr. Marginson writes:

There is much written about the University as a social form. Yet it can be argued that there are only three great ‘ideas’ of the University. One is Newman’s idea. The second, which preceded Newman in time but is more modern and more important, is the German idea developed by Immanuel Kant and Wilhelm von Humboldt. The third is the American research university idea, which was the successor to the German idea. The American idea, carried by large-scale science based institutions of social status and power; and normalised by global connections, globally visible exemplars and global rankings; is the dominant model today. (Marginson, 2019, p. 59)

Combining Marginson’s (2019) account of the three ‘great’ ideas of the university with Gibbons’s language of different ‘modes’ of knowledge I will present a genealogy of how the conversation about the nature of the university has developed over time. I begin with the Mode 1 Ivory Tower University beginning with Kant’s Conflict of the Faculties (3.2) that in turn influences Humboldt’s innovative bundling of teaching and research in the modern university of the Enlightenment (3.3). I then move onto Newman’s British Idea of a University (3.4). The Mode 2 Factory University is described by Kerr in his 1963 US Multiversity (3.5) and the neoliberal university and knowledge economy (3.6). The emerging Mode 3 Network University is then described

using the wider societal influence of the Network Society (3.7), digital technologies (3.8) and the unbundled university (3.9). Posthumanism is used as a concept to talk about the emerging future university and the possibilities which it may present (3.10).

The Mode 1 Ivory Tower University

Here, knowledge is universal and kept within the university walls in a self-sustaining ecosystem. The inhabitants of the ivory tower are the keepers of knowledge, and their task is to transfer knowledge from one generation to the next and from university to society. (Nørgård, Mor and Bengtsen, 2019, p. 72)

3.2 Kant's *Conflict of the Faculties*

Immanuel Kant's 1798 *The Conflict of the Faculties* (1992) was one of the final pieces of work for one of the most famous and influential philosophers in history (Scruton, 2001). *The Conflict of the Faculties* is one of the first pieces of writing on the structure and governance of a university and Kant focused upon his own context of Prussia (later to become part of Germany). Kant describes how the university of his day was organised and how he thought that the different faculties that make up the university should work together. Kant's language – and the idea of a 'conflict' between the faculties is somewhat hard to understand. At the time the university was divided into what was called the 'higher' faculty (theology, law and medicine) and the 'lower' faculty (philosophy) (Kant, 1992). In contemporary terms we may call the higher faculty the 'vocational' employment-oriented disciplines, this in the late 18th century was the clergy, law and medicine. By contrast the lower faculty of philosophy included disciplines as diverse as empirical natural sciences, history, geography, pure mathematics, philosophy and the wider humanities and, indeed, extended to all parts of human knowledge. Kant's idea of a 'conflict' between the faculties amounted to an idea regarding freedom of research and scholarship from government control. Kant believed

that government intervention was justified in the higher faculty; after all, the work of the higher faculty had an influence on the people and the nation state itself. The lower faculty however should, Kant held, be free from government to pursue scholarship and question, if needed the teaching of the higher faculty.

Kant's ideas regarding the organisation of the university drew on his general thinking regarding the Enlightenment. Kant defined the Enlightenment movement in 1784, 14 years before *The Conflict of the Faculties*. In defining the period in 1784, he wrote an essay, titled *What is Enlightenment?* (Kant, 1996).

“ENLIGHTENMENT is man's emergence from his self-imposed immaturity. Immaturity is the inability to use one's understanding without guidance from another. This immaturity is self-imposed when its cause lies not in lack of understanding, but in lack of resolve and courage to use it without guidance from another. Sapere Aude! [dare to know] “Have courage to use your own understanding!”—that is the motto of enlightenment.” (Kant, 1996, p. 1)

The Enlightenment's growing secularism for Kant was an opportunity for religious authority to be replaced by reason and intelligence. He connected the use of reason with freedom and describes the Enlightenment as an unshackling of human thinking.

In *Conflict of the Faculties*, Kant situated the university as part of the Enlightenment project and as an institution at which the young could learn to unshackle their minds. However, he was acutely aware that, prior to the Enlightenment, the university was controlled by the church and he accurately foresaw that, even after the church's influence on the university was broken, the university might still be controlled

by the state. Thus in *Conflict of the Faculties* he sketches what the university is, in terms of its relationship with external forces (government and religion¹⁶) as well as in terms of the conflicts which exist internally.

Kant begins his account of how the university functions by paying attention to what graduates learn at university and the work that they perform upon leaving the university. Kant describes how graduates leave the university and thereupon find employment in the professions. In the work that they do after university, Kant holds that graduates draw upon their university education; but have to adapt and transform their learning to the needs of their new role. He writes: as follows:

As such, they must indeed have been educated at the university; but they may well have forgotten much of what they learned (about theory), so long as they retain enough to fill a civil office. While only the scholar can provide the principles underlying their functions, it is enough if they retain empirical knowledge of the statutes relevant to their office (hence what has to do with practice). Accordingly, they can be called the *businessmen* or technicians of learning. As tools of the government (clergymen, magistrates, and physicians), they have legal influence on the public and form a special class of the intelligentsia, who are not free to make public use of their learning as they see fit, but are subject to the censorship of the faculties. So the government must keep them under strict control, to prevent them from trying to exercise judicial power, which belongs to the faculties; for they deal directly with the people, who are incompetent (like the clergyman in relation to the layman), and share in

¹⁶ In mode 2 markets can also be added to these external forces in the neoliberal knowledge economy

the executive, through certainly not the legislative, power in the field (p25)
(Kant, 1992, p. 25)

In this passage Kant explains why the government has an interest in the training that graduates receive in the higher faculties. Upon becoming clergymen, magistrates or physicians, graduates become ‘tools of the government’ and have a ‘legal influence on the public’ and so, Kant says, it is justified for the government to take an interest in their formation. By contrast, the lower faculty of ‘science’ (philosophy as broadly described above as a range of academic disciplines which do not directly link to employment), however, for Kant, should be free to look after its own interests and judgement and what it teaches without government control. Kant hints that the higher faculties are not really there for the development of science, but to teach what the government wants and that it is the duty of the lower faculty to enquire and discover.

It is in Kant’s conception of the lower faculty that one starts to see the concept of academic freedom (a characteristic of the Mode 1 University) emerge.

For without a faculty of this kind, the truth would not come to light (and this would be to the government’s own detriment); but reason is by its nature free and admits of no command to hold something as true (no imperative “Believe!” but only a free “I believe”). The reason why this faculty, despite its great prerogative (freedom), is called the lower faculty lies in human nature; for a man who can give commands, even though he is someone else’s humble servant, is considered more distinguished than a free man who has no one under his command. (Kant, 1992, p. 29)

While appropriate to the lower faculties, academic freedom is not appropriate to the higher faculties, Kant holds. He reasons that the higher faculties have been created by design in that if a government's purpose and end is to influence the people, then the people's eternal (theology), civil (law) and physical (medicine) wellbeing should all be accounted for and prioritised. Kant then continues his reasoning that it should follow that the faculties in the late 18th century university should be, in order to align with these three objectives: theology, law and medicine – the three higher order faculties. For Kant, the theology faculty teaches moral guidance and conduct, the law faculty teaches external conduct and the faculty of medicine will ensure a large and healthy population to carry out the government's will. Moreover, the sources of these texts and guidance for Kant are God, the law maker and nature (natural sciences). These are all authorised and agreed sources – the Bible, the law of the land and medical regulations – and academics in the higher faculties need not stray from these agreed sources in teaching their subjects. As Kant puts it:

The higher faculties must, therefore, take great care not to enter into a misalliance with lower faculty, but must keep it at a respectful distance, so that the dignity of their statutes will not be damaged by the free play of reason.

(Kant, 1992, p. 35)

In contemporary language, we can say that, for Kant the higher faculties are concerned with knowledge and skill transmission and the lower faculty with freedom to investigate and research – what we may come to know as 'academic freedom'.

The lower faculty is the rank of the university that occupies itself with teachings which are not adopted as directives by order of a superior, or in so far as they are

not so adopted. Now we may well comply with a practical teaching out of obedience, but we can never accept it as true simply because we are ordered to.
(Kant, 1992, p. 43)

One can imagine Kant then, writing under duress a 15-page statement for the TEF or an impact statement for the REF (see Chapter 4) but this would probably be completed out of, as he says, ‘pure obedience’. The lower faculty for Kant is one of reason that cannot point to one ultimate truth from an authorised text or government – a prescribed dogma of what has gone before, an encyclopaedic knowledge. This is in contrast to reason and enquiry – to dare to know. Kant goes on to say that a department of this kind must be established at every university to control and guide the higher faculty of ‘utility’. The lower faculty of philosophy for Kant can pursue truth and knowledge and conflict with the higher faculty and this is no bad thing if debate and search for truth is the goal to inform and guide the higher utilitarian faculty. A healthy conflict here is a positive for Kant as an Hegelian thesis and antithesis process can work together in symbiosis in the interests of society, including government and the free enquiry of the university.

In a paper called ‘Kant versus the Managers’, Schapira (2019) puts forward the case for the contemporary university to look to the work of Kant; he holds that a degree of conflict is necessary to revitalise the purpose and mission of a university. Similarly Evans (2008) describes the contemporary university and its place in the knowledge industry (economy) (3.6) and holds that legitimate conflicts between faculties is healthy if it contributes to the understanding of science but questions heavy government involvement in this process.

3.3 The Humboldtian ideal

12 years after Kant's work on the university was published, Humboldt developed the 'German model' in the creation of the University of Berlin in 1810 which built upon Kant's Enlightenment ideals in institutional form. The 'Humboldtian tradition' of research and teaching co-existing remains the dominant model of what it means to be a university¹⁷. Before Humboldt's University of Berlin, the German university was in a state of decay:

In many depictions of the German eighteenth century, the university is in a state of decay. The eighteenth-century university was intellectually dormant, it was constrained by nepotism and class privileges, and it provided an education that was scholastic and pedantic, at best encyclopaedic. (Östling, 2018a, p. 23)

Humboldt's vision, enacted in Berlin in 1810 was for an institution that conducted research and teaching side-by-side, not to train the employees of the future but as a place of 'higher learning' (Collini, 2012). Linking teaching and research was an innovation in 1810 and something that is now taken as a given in many universities globally. At the time, the technological development of the printing press had led to increased public access to books, which challenged university professors' monopolies on being the only authorities on knowledge (Clark, 2008). Knowledge was beginning to be challenged by those outside of the academy who began to write and disseminate ideas and knowledge independently of the university. Humboldt's vision for what

¹⁷ Indeed, this can be seen from the discourse analysis carried out in Chapter 4 in which we illustrate exactly how teaching and research are embedded as core functions in the 'idea of a university'

became the model of the university is a relatively short document, just 10 pages, but has had immense influence (Humboldt, 1810). Humboldt's vision of the university was as a state institution, but the role of the state was to protect freedoms rather than impose regulation or authority (Palfreyman and Temple, 2017).

Humboldt's ten page document outlined the future plan for a university which included: freedom of thought, freedom to study under any teacher, being an institution that is radically different from a school, and the treatment of students as adults with freedom and responsibility to direct their own studies (Josephson, Karlsohn and Östling, 2014a). Moreover, for Humboldt, Professors should lecture on any subject in the search for truth regardless of politics and religion and teaching and research should be mutual prerequisites of the university, placing high importance on the academic role. Much of the writing on Humboldt's ideal links to national identity, mainly in part it seems due to his role in government.

Shumar and Robinson (2018) summarise the three essential functions of the modern university, as defined by Humboldt. Firstly, the unity of teaching and research, secondly, academic freedom and thirdly philosophy (liberal arts) would be at the core of the university. Elton (2005) interprets Humboldt's central idea as one of knowledge being treated as a not yet wholly solved problem. This is characterised as 'learning in a research mode'. Humboldt's ideal was a symbiotic link between teaching and research; research should inform teaching, but teaching should also improve research. For instance, Humboldt states that teachers have made key contributions to their field through research and that teaching should not be regarded as a distraction from research but that it helps the researcher to communicate ideas and advance their field (Josephson, 2014). Indeed, Josephson thinks this idea is slightly older than Humboldt and finds traces of the idea as far back as 1770; even when universities were purely teaching

institutions, the biggest writers in their field were recruited to teach to enhance the university reputation and increase student numbers. Today, academics are measured on both the number of academic publications as well as the ranking of the journal published in through various metrics and in the UK, including the Research Excellence Framework (Watermeyer, 2016). This tension, I analyse further in Chapter 4, covering issues and links in the research-teaching nexus (Tight, 2016).

Humboldt's perspective on the research-teaching nexus is clear. For Humboldt, the academic who locks themselves away to write and not teach, is not only a poor teacher but also a poor researcher. Humboldt stated that university teaching and learning is different to that of schools (*verschult*) in that a search for knowledge and truth is an ongoing process rather than the learning of what came before.

Bildung is another key term associated with Humboldt's educational philosophy, a key part of his reform of the university and a term synonymous with his legacy. Translation and cultural differences are problematic in defining *Bildung* but this is broadly translated into English is 'self-formation', 'cultivation', 'self-development' and 'freedom' (Siljander, Kivelä and Sutinen, 2012). Education of a *Bildung* nature is one of whole person development, the essence being harmony and balance of personality – a personal process and not one of usefulness and instrumentality but an ever-evolving experience and learning in the world (Konrad, 2012). On *Bildung*:

This is a term that attempts to encapsulate both the individual's personal incorporation of knowledge in their own unique existence, and the university's joint efforts in the development of knowledge. It also embodies the insight that knowledge can never be complete, and that learning is an open-ended process. In this way, Humboldt's conception was clearly different from earlier thinking,

which had regarded knowledge as a fixed, finite body of material that it was the university's task to convey. (Josephson, Karlsohn and Östling, 2014b, p. 2)

Here we can link back to the quote at the start of this section on the Humboldtian ideal and in which von Humboldt's approach was a reaction to an 'encyclopaedic' approach to education which was a transfer of knowledge from teacher to student. For many, the idea of *Bildung* has been lost as it has become part of an economy which resulted in instrumentalisation for economic gain, massification and nationalisation (Konrad, 2012). More recent uses of *Bildung* in the context of the university have similarly pitted the concept in direct opposition to a market driven, neoliberal university, for example, Koops *et al* (2016) characterise the choices as being McKinsey (accountants) or Humboldt-oriented (*Bildung*). These binaries of education as *Bildung*, self-cultivation and citizenship in opposition to the neoliberal, instrumental, commodification for the knowledge economy and employment are analysed in the following section on the Mode 2 University and Chapter 4 in the context of the contemporary university. Taylor (2017) describes *Bildung* as a mobile concept and one in which can be reconfigured and reinvented for the current social and political landscape which is very different to its 19th century beginnings. For Koller (2003), *Bildung* has a radical plurality which cannot be defined as one grand narrative with universality but as ways of life with normative orientations and exists as a theoretical framework for a desirable existence rather than out and out practice.

While influential, Humboldt's ideals are not without critics. Dhont (2014) describes the Humboldtian tradition as being unrealistic today:

By placing these figures in their historical context and considering the ways they were viewed in the past, the current generation of professional historians can

help nuance the common belief that ‘things will never be as good again’. As the rector of the University of Antwerp, Alain Verschoren, put it in October 2010, one cannot just transplant Humboldtian ideas into the current university landscape, yet ‘one of the biggest challenges for Europe (and Flanders) in coming years will be to find a good balance between the old [in his eyes] elitist values of Von Humboldt and the changing demands of a mass university with students from extremely diverse social backgrounds and with different levels of education (Dhont, 2014, p. 110)

Wright (2014) goes further with *‘Humboldt’ Humbug! Contemporary Mobilizations of ‘Humboldt’ as a Discourse to Support the Corporatization and Marketization of Universities and Disparage Alternatives*. For Wright, the name of Humboldt links to (academic) freedom (of inquiry to teach, to learn, to research) and is used to both decry and disparage the past as elitist and traditional and by others to condemn a marketized future.

Freedom from government interference to be part of the neoliberal market economy is contrasted with Humboldt’s government backed freedom to teach, research and to pursue knowledge for its own sake – the mode 1 university. This ideal remains in that the university researches and teaches but this is in a new mode – the mode 2 university whereby academics pursue research based on market need. Universities in the UK come under regulatory exercises to assess both teaching and research (see Chapter 4) but this is complex relationship which encourages market competitiveness in both research and teaching. This for Wright (2014) is a discursive move to build discourse which on one hand appeases academics who see a Humboldtian vision of freedom with regard to freedoms to teach and research and on the other hand, freedom is to take part

in a marketized vision of the corporate university which trades in the knowledge economy of ‘selling’ research and teaching. We may see then that the mode 1 university has freedom from market conditions but the mode 2 and emerging mode 3 university has freedom in a free market environment. Pechar (2012) concludes that the Humboldtian ‘myth’ will decline as higher education develops and standardises further and no longer will there be an idealistic academic oligarchy presiding over the idea of a university.

3.4 Cardinal Henry Newman’s Idea of a University

Much writing and thinking about the purpose and aims of higher education in the UK returns to the writing of Cardinal John Henry Newman and his *The Idea of a University* (Newman, 1852). The work is made up of nine discourses which were delivered to Catholics of Dublin and occasional lectures and essays.

The British government had consented to a new Catholic university and Irish Archbishop Paul Cullen asked for Newman’s advice about how this should be done and what a Catholic university could look like (Tierney, 2016). Tierney goes on to report how Newman subverted ideas of passing down deeply embedded unquestioned religious doctrinaire beliefs in a pre-Enlightenment university, dominated by religion. Newman wanted to introduce a new ideal, that of critical scholarship and challenging unquestioned dogma, critical of an encyclopaedic approach to education. This has much in common with both Kant and Humboldt’s view on a university education.

He consistently refused to emphasize papal dogma over conscience, which placed him at odds with the Church leadership but in line with Thomas Aquinas’s understanding of conscience. Authority, argued Newman, ought not to suggest timeless truths that were handed down from one generation to the next. Rather, priests and laity needed to intensely question those truths. (Tierney, 2016, p. 8)

The time that Newman was alive (1801 - 1890) immediately followed the Enlightenment period and his life was not without controversy, converting from the Anglican to Catholic church – a move which shocked society, his friends and family (Cornwell, 2010). This was a start to Newman's critical thinking which put him outside of England's elite and precluded him from teaching or taking many professional roles, including engaging in politics. Newman's controversial and subversive (at the time) work is positioned in a time of many of the new ideas that had come out of the Enlightenment period. For example, Charles Darwin was deciding how he would present his ideas of evolution to challenge long standing religious beliefs, Newman was doing the same with the idea of a university.

In the preface to *The Idea of the University*, Newman sets out his stance that a university should not be a place where the individual is trained in the skills and beliefs that have gone before them - the encyclopaedic education of the pre-Enlightenment era. Newman's idea of a university was not to reproduce what had gone before, his was a university for the cultivation of mind and a liberal education. This idea was not bound by disciplines, Newman believed that this divided students and knowledge rather than seeing a holistic view of the world (Newman, 1852). Newman was keen to point out that for him, a new Catholic university was not about learning science, art, professional skill, or literature as such; rather a university education was an exercise in growth in moral and intellectual habits. Newman saw intellectual pursuits as ends in themselves and not utilitarian instrumental tools for the future. Strikingly, Newman was keen to point out that his idea of a university is a place of teaching, and *not* research. This contrasts sharply with Kant's view of the Enlightenment and Humboldt's explicit view of the symbiotic relationship between research and teaching (knowledge production and

dissemination). Newman held that, teaching and research should be the work of two different institutions - academies who discover new knowledge and universities who teach. This is in stark contrast to the ideas described the German model, especially by Humboldt. This teaching, Newman states should be to produce capable and active members of society and to make students 'gentlemen' (sic). Newman says that science should not be forgotten but specialist institutions should undertake scientific research. If the university is for scientific and philosophical discovery, then why have students, Newman asked (p ix).

Today, many regard Newman's vision of the university as thoroughly elitist, perpetuating the view that privileged students have the luxury of a cultivated mind and liberal education without the need to gain employment. Here, Newman however, describes what he believes will be the results of the liberal cultivated mind:

In some it will have developed habits of business, power of influencing others, and sagacity. In others it will elicit the talent of philosophical speculation, and lead the mind forward to eminence in this or that intellectual department. In all it will be a faculty of entering with comparative ease into any subject of thought, and of taking up with aptitude any science or profession. All this it will be and will do in a measure, even when the mental formation be made after a model but partially true; for, as far as effectiveness goes, even false views of things have more influence and inspire more respect than no views at all. Men who fancy they see what is not are more energetic, and make their way better, than those who see nothing; and so the undoubting infidel, the fanatic, the heresiarch, are able to do much, while the mere hereditary Christian, who has never realized the truths which he holds, is unable to do any thing. But, if consistency of view can

add so much strength even to error, what may it not be expected to furnish to the dignity, the energy, and the influence of Truth! (P. xiii)

Newman believed that by providing individuals with a broad, liberal education developing liberal, critical minds – those minds would be able to find their way in the world, finding and creating new positions and new ways of living. This quote shows the passion in which Newman believed that science and the critical scholarship of challenging those engrained beliefs that had been dogma for so long would create those capable and active members of society, regardless of the job they chose to undertake. Despite the rejection of the idea that the university is a place where a student learns a science, an art, a professional skill, here Newman is saying that a broad liberal education will allow the student to progress in whichever field they so choose.

Newman believed that siloed academic disciplines divided up human knowledge. As an example, Newman asks his reader to consider how one would study one man; studying him from the perspective of physiologist, moral philosopher, economist, political scientist or theologian, we do not study the whole person but just a narrow perspective of him. He elaborates on this by saying that experts in just one field who attempt to apply their own specialist knowledge to all of the universe's questions and phenomena become 'bigots' and 'quacks'. This for Newman is re-iterating his view that knowledge forms one whole and by dividing up this knowledge into separate disciplines loses what knowledge is (p38).

Moreover, Newman regarded schooling as a passive receiving of knowledge and facts in a variety of disciplines. The knowledge acquired in schooling Newman says, belongs to someone else, it is almost regurgitated at any point from memory. Newman says that, the public see the university as a place of education and the same as school.

Knowledge, Newman re-iterates is the expansion of the mind and not the stating of others' ideas or purely one's own but the ability to read up on a subject and come to critical conclusions as an intellectual endeavour. Newman gives examples of the educated individual visiting unfamiliar places with an inquisitive and critical mind to explore and discover. A thirst for knowledge and experiences to do this is not mere acquisition for Newman but a philosophy. This culture of the mind is not he says mere recall and memory but the ability to reason, think in an analytical, distributive and harmonizing way.

Newman considers how a university goes about achieving a universal knowledge and truth by looking at an applied example of someone who can think clearly in times of trouble to devise new ideas and projects. Newman builds this picture of what he calls the hero, the genius. Newman takes the reader down the path of believing that this extraordinary individual is endowed with a 'natural gift'. Then abruptly Newman pulls back this story saying that this is far from the truth and that an individual with these intellectual abilities could only be the result of training and teaching, the result of education. This is Newman's 'beau ideal' – the perfect type of person.

...clear, calm, accurate vision and comprehension of all things, as far as the finite mind can embrace them... (p105)

Discourse number 7 tackles the instrumental, utilitarian and usefulness of a university education - this speaks directly to the contemporary discourse of the

university (Chapter 4). Newman talks of those who wish to talk about education having an end which can be ‘weighed and measured’. ¹⁸

They argue as if every thing, as well as every person, had its price; and that where there has been a great outlay, they have a right to expect a return in kind. This they call making Education and Instruction “useful,” and “Utility” becomes their watchword. With a fundamental principle of this nature, they very naturally go on to ask, what is the real worth in the market of the article called “a Liberal Education,” on the supposition that it does not teach us definitely how to advance our manufactures, or to improve our lands, or to better our civil economy; or again, if it does not at once make this man a lawyer, that an engineer, and that a surgeon; or at least if it does not lead to discoveries in chemistry, astronomy, geology, magnetism, and science of every kind. (p115)

Newman held that such a curriculum whereby a single vocation was trained was narrow and channelled a student’s thinking to look at the world from just one perspective. Despite rejection of such thinking in the modern university, paradoxically discourse has dominated in the 21st century that no longer would an individual have one occupation for their whole life. With rapid technological and social change occurring, public discourse is dominated by ideas of increased automations and ‘robots taking our jobs’ which will require constant up and re-skilling for the ‘fourth industrial age’ (Matthews, McLinden and Greenway, 2021). A response to these issues can quite conceivably be Newman’s idea of a universal knowledge and liberal education which comes before training for a job and allows for individual’s to constantly develop throughout life. Newman concludes the discourse on knowledge in relation to

¹⁸ For example excellence measures in the contemporary university. This is especially true of the measure of teaching excellence which is measured by satisfaction scores and employment outcomes.

professional skill by re-affirming that the university is a place to cultivate thinking, development of seeing the truth and being an active member of society.

Reflecting on Newman from the standpoint of our own period, Tierney (2016) holds that:

Leadership in the twenty-first century in higher education has been defined almost by the antithesis of what Newman attempted. Rather than take risks and debate ideas, educational leaders eschew dialogue and debate for technocratic solutions aimed at inculcating students with received knowledge. Academic freedom has been structurally weakened by either the transformation of the faculty into a primarily adjuncts work- force or by those who should take intellectual risks being quiescent. Newman would be discouraged, if not appalled, that our universities are no longer vigorous arenas for public debate. (Tierney, 2016, p. 15)

Clearly an issue with Newman's work is his focus on the 'gentleman' and the consistently male gendered language throughout his discourses. Further criticisms of Newman's idea of a university are grounded in impracticality. An example of such impracticality in the contemporary university concerns 'universal knowledge' which in the modern university is termed multi/inter/trans disciplinarity (Choi and Pak, 2006; Jandrić *et al.*, 2020). The realities of universal knowledge are starkly challenged by Fuller as "there's more stuff than can be reasonably read" (Fuller and Jandrić, 2019, p. 200). By its title, Newman's work is an 'idea'. Such sketching of a philosophical idea of a university has fallen out of favour for more practical considerations of the university but also a rejection that there is one singular idea of a university (Alexander, 2019). Vogt (1979) questions why the work of Newman has endured for so long and why it has still such a privileged place in higher education studies. After all Newman's key argument of a liberal education and universal knowledge coming before a narrow

training in one profession was at the time and now, not a new perspective¹⁹. The idea of the Mode 1 University has declined and even the label of ‘ivory tower’ has become a term of disparagement to describe an outdated idea of the past. Ideas that now dominate include neoliberal reform, mass access, commodification, technological disruption and the university playing a significant role as a socio-economic institution (Chantler, 2016). This presents a challenge for any reinvigoration of some of the ideals of the Mode 1 University today. This is a task that was taken up by Kerr in the 1960s American university, building on such ideals of Kant, Humboldt and Newman.

As Marginson (2019) argues, Kant, Humboldt and Newman all have an influence on the discourse of the present but as I will now detail, Kerr’s description of the developing US university begins to look much more like the university of the present (as analysed in Chapters 4 and 5). Writing as a leading figure and president of a university in the American higher education system, Kerr foresees the world which higher education will be part of a knowledge economy and national project partnering with industry and government. This is the development of the modern university from Mode 1 Ivory Tower to Mode 2 Factory.

The mode 1 university, in the sense that we know it from earlier historical periods, has been forced to transform central parts of itself into the mode 2 university. In the mode 2 university-configuration, the tables have turned and there has been a change in the balance of power between society and university. (Nørgård, Mor and Bengtsen, 2019, p. 73)

¹⁹ The German *Bildung*, the French culture of *generale* and Dewey’s distinction between education and training.

The Mode 2 Factory University

... the university is now positioned as the producer of the future workforce through transferrable skills and professional competences. In the factory, it is no longer the university that defines, owns, and transmits knowledge to society. Performance, output, benchmarking, and societal use-value is core to the university's mandate, and it is up to the university to substantiate that it is delivering what society demands as well as upholding a strong position in the global competition between universities. (Nørgård, Mor and Bengtsen, 2019, p. 73)

3.5 Clark Kerr's Multiversity

Kerr's *The Uses of the University* (2001) was written in 1963 in the aftermath of the Second World War, the continuing expansion of industry following the war period and a gradual move towards a relatively more equal society following the working classes taking advantage of economic development and engagement with popular culture such as music, film and fashion. The original 1963 work by Kerr was part of a lecture series at Harvard University called the Godkin Lectures.

Kerr's 1963 work includes three chapters: *The idea of a Multiversity*, *The Realities of the Federal Grant University* and *The Future of the City of Intellect*. The third of the 'great' ideas of a university as described by Marginson (2019), Kerr's Multiversity builds upon ideas offered by Kant, Humboldt and Newman but casts them in a model particular to the United States - a model which has come to dominate globally (Marginson, 2008). Kerr stated that the US universities of the 1960s were not copies of the European model but a new type of institution – not a 'University' but a Multiversity. The Multiversity for Kerr does not see the university or the idea of one as being one single vision of an institution but a *series of communities*. Kerr, famously describes the modern university as follows:

I have sometimes thought of it as a series of individual faculty entrepreneurs held together by a common grievance over parking (p15)

Kerr talks of the university as a modern institution, comparing it to a corporation such as IBM. For instance, the University of California were at the time spending over \$100 million on construction, employing over 40,000 people (more than IBM) and soon to have over 100,000 students. The modern university for Kerr was not envisioned and then created, like a Newman or Humboldt grand plan, but has grown and developed organically, not with one vision but many competing ideas and priorities.

The university is so many things to so many different people that it must, of necessity, be partially at war with itself (p7)

In this quote, we see similarities with Kant's description of a well-functioning university as one in which debate, disagreement and conflict of the faculties with contested alternatives is seen as part and parcel of the make-up of the institution.

Kerr goes on to talk about the leadership of the university and the huge task for such a leader in the context of these conflicts, tensions and in his own words - 'wars'. Students, faculty, public, local community and administration all compete for their own priorities within the multiversity – a discursive battle - the focus of this thesis. For Kerr then, having one influential vision (one idea *a la* Newman, Kant or Humboldt) of what a US university is, is unviable, but, new social contexts and influences build upon the 'strands of history' of the Mode 1 University. The two strands of history which influenced Kerr's 1960s US Multiversity were the ideas of the traditional university in the UK (Newman, see 3.4) and Germany (Kant and Humboldt, see 3.2 and 3.3). These ideals are described by Kerr as 'beautiful'.

The beautiful world was being shattered forever even as it was being so beautifully portrayed. By 1852, when Newman wrote, the German universities were becoming the new model. The democratic and industrial and scientific revolutions were all well underway in the western world. The gentleman “at home in any society” was soon to be at home in none. Science was beginning to take the place of moral philosophy, research the place of teaching. (p3)

Kerr is comparing the ideals of Newman here and questioning the practicality of a ‘universal knowledge’ with so much knowledge being produced. For Kerr, the university was becoming a place of specialisation within the communities and disciplines of the campus and beyond. Kerr quotes fellow educator of the time, Abraham Flexner stating that a university:

is not outside, but inside the general fabric of a given era... It is not something apart, something historic, something that yields as little as possible to forces and influences that are more or less new. It is on the contrary ... an expression of the age, as well as an influence operating upon both present and future (p3)

This is an important perspective for this thesis. While I am tracing the genealogy of the idea of a university, each historical idea is embedded within the ‘fabric of the given era’ and an expression of each age. Taking Kerr seriously, the following two consequences follow for thinking about the university: Firstly, enacting a plan for how the university should be organised from a different era and context is unsuitable – ideas cannot be transplanted from one age to another. Secondly, when analysing the genealogical tracing of different and competing ideas we must look at the social and political landscape beyond the university campus to understand *why* a shift also takes place in

how the universities is perceived, perceives itself and *constructs* itself through what it says and how it does its work. Kerr's work was at the beginning of social change in a post-industrial economy and at a period of growing dominance in the US and UK of the political, economic and social model of neoliberalism, and the developing knowledge economy and knowledge capitalism. The past for Kerr does play a part however, and he reviews developments in Berlin led by Humboldt and Oxford documented by Newman. However, these strands of history then combine with the present to form the idea of a university.

“The idea of a Multiversity” has no bard to sing its praises; no prophet to proclaim its vision; no guardian to protect its sanctity. It has its critics, its distractors, its transgressors. It also has its barkers selling its wares to all who will listen – and many do. But it also has its reality rooted in the logic of history. It is an imperative rather than a reasoned choice among elegant alternatives. (p5)

Kerr proposes a picture to help us understand the evolution of the idea of the university: The idea of a university of the past was a village with its own priests (Newman). The idea of a modern university was a town – a one industry (the university) town with an intellectual oligarchy (Kant and Humboldt in Mode 1). The idea of a Multiversity is a city of infinite variety. The city is diverse, and Kerr predicted that ‘the city’ would include a broader student population from different age groups and social classes. The city is then made of cultures and subcultures that co-exist and the university becomes many things to many people in its expansion. Here we can see a close alignment to the conceptual Mode 1 University as Ivory Tower, Mode 2 University as Factory and Mode 3 as Network applied in this thesis.

Kerr goes on to describe in further detail the American university of 1963 and industrial and scientific revolutions resulting in government funds for the federal grant university. After the second world war, land owned by the state was donated for the

construction of universities; this, coupled with increased research funding created new universities for the changing society. The social developments and political movements of the 1960s meant that doors of opportunity were being opened to all classes and not only to a small elite²⁰.

German intellectualism and American populism were merged in the new university. Pure intellect and raw pragmatism made an unlikely but successful alliance. (p36)

Kerr describes the problem facing the university of the 1960s as that of balance. Kerr admits that, in the expansion of the US university of the 1960's teaching and undergraduate education had become the poor relation to research and postgraduate teaching. Further tensions are described by Kerr as between the faculty and 'unfaculty', which in contemporary UK university language is academics and management (or more broadly, professional services or similar). He held that tensions between these groups arise from their different cultures and backgrounds and a lack of understanding of those cultures. This has continued to develop and I dedicate a section to the unbundled university (3.9) later in this chapter. One aspect of the unbundled university is specialist roles within the university such as pedagogy, careers, IT, media, marketing etc.

Referring to national 'product', Kerr is already talking of the 'knowledge industry' and the consumption of knowledge and production of that knowledge central to society. The university is centre of this process for Kerr, who again, quoting national growth, states that knowledge is to the 1960s and beyond what the railroad and the automobile had been in the previous 50 years. This vision is not one of elite knowledge

²⁰ Such social justice is relative to what had come before. The elite Mode 1 University was the privilege of very few and such privilege was based on aristocracy and religious institutions.

production serving the ‘elites of society’ (Mode 1 Ivory Tower), but the future city of intellect intended to serve all regardless of social and economic background. New campuses for Kerr have the traditional library and centres for humanities and social sciences but also professional schools (Kant’s higher faculty for example as described above), industry and apartments all of which rejuvenate cities. Kerr quotes then, in 1963, the San Francisco Bay area developing such institutions. The ‘bay area’ now has a huge technology base and is responsible for many new technologies used globally and universities such as Stanford and Berkley which created the environment and workforce for the technology companies of Silicon Valley (Apple, Google, Microsoft, Facebook, Amazon etc) (Katz, Maeda and Antonelli, 2015)²¹. When many IT companies today call their office parks not the ‘company headquarters’, but the company ‘campus’, we can really say that Kerr’s ‘vision’ for the university in 1963 did begin the networking of business and the university.

The university and segments of industry are becoming more alike. As the university becomes tied into the world of work, the professor – at least in the natural and some of the social sciences – takes on the characteristics of an entrepreneur. Industry, with its scientists and technicians, learns an uncomfortable bit about academic freedom and the handling of intellectual personnel. The two worlds are merging physically and psychologically (p68)

²¹ I return to the Bay area in California for the influence of Silicon Valley and ‘Big Tech’ in the Mode 3 University later in this chapter and in the final chapter. California appears to link several aspects of the modern university: Kerr’s University of California and alumni developing Silicon Valley and its culture, new technologies business influencing wider society and the university.

In describing and planning *The Future of the City of Intellect*, Kerr describes two dichotomous clichés of the university. On the one hand, we have the vision of a radical, dynamic university which is at the cutting-edge of discoveries and on the other, we have the vision of the most conservative of institutions, teaching what has gone before. Kerr states that radical change and gaining consensus which as he stated in earlier chapters is the role of university leadership is a difficult proposition “The group is more likely to accept or reject or comment, than to devise and propose” (p75). For the faculty innovator or inventor to lead or make change requires external approval for Kerr – research, industry partnerships or government funding. These external influences were growing in Mode 2 and expanding further in Mode 3. For Kerr, the problems of the day (in 1963) were:

- Accommodating the large and growing number of students
- The role of public service to culture and government
- The supply of trained personnel to the labour market
- The quality and availability of research
- The exploitation of new discoveries
- Moral concerns, including the impact of research in the lives of all and a culture of young radicals on campus
- How to change the university and at what pace and reconcile the stable conservative institution with the radicalism of individual researchers and teachers
- Change must happen at pace to keep up and get ahead in a new competitive environment between universities

Kerr concludes that much of these issues need to be balanced by administration (management) and the great universities of the future will be those which have adjusted

rapidly and effectively. These issues and developments have continued and I elaborate on many of these in the remainder of the thesis.

Kerr then sets to work to outline the area of change that universities will face in the 1960s and beyond – he names three – growth, shifting academic emphasis and involvement in the life of society. Firstly, on growth, Kerr foresaw the exponential growth of the number of universities and students. Using Kerr’s previous analogy of the universities of the past being villages, here the analogy of that growth of a village into a city will require management and infrastructure development. Secondly, Kerr recognised that the more universities, graduates and postgraduates that exist, then the more knowledge would be produced both inside and outside of the university. Alongside this, industry developments Kerr stated would increase the number of professions and some professions becoming more formally recognised. The role of professionalising and educating for these professions, Kerr believed would be a key role for the university. For Kerr, a balance here was key in the growing university. An institution for Kerr should never stay still but had to move into new and emerging areas in creative ways. An existential threat to the university for Kerr was becoming a dinosaur with a huge body but small brain in that the university becomes a conservative institution that doesn’t evolve and becomes extinct – Kerr adds that the university should always check that it has a brain as well as a body. Thirdly, involvement in the life of society for Kerr was concerned with knowledge and he predicted what is widely accepted as ‘the knowledge economy’.

Knowledge is now central to society. It is wanted, even demanded, by more people and more institutions than ever before. The university as producer,

wholesaler and retailer of knowledge cannot escape service. Knowledge, today, is for everybody's sake. (p86)

Kerr again foresaw the blurring of the line between work and home life which translates as in his words "The campus and society are undergoing a somewhat reluctant and cautious merger" (p86). This also foresees the Network Society and Mode 3 Network University. Extension education which offered learning opportunities and dissemination of new knowledge, at the time in agriculture, Kerr terms "lifelong-learning" – a term still used in the education sector today (Field, 2002).

Television makes it possible for extension to reach into literally every home; the boundaries of the university are stretched to embrace all of society. The student becomes alumnus and the alumnus continues as student; the graduate enters the outside world and the public enters the classroom and the laboratory.

Knowledge has the terrifying potential of becoming popular, opening a Pandora's box. (p86)

Kerr again predicts the adoption of technology as well as the knowledge economy – a key aspect of the focus of this thesis and the relations of humans, higher education and technology. I specifically analyse technology and higher education in Chapter 5.

Looking to the future, changes still to come and issues to be faced for Kerr included: the quality of undergraduate teaching which serves the needs of research and teaching with growing student numbers and research output; preparing students as specialists and generalists and to potentially go on to study at postgraduate level;

treating students as individuals as the university gets larger to include dialogue rather than transmission.

The coming together of business and education, Kerr termed as a new 'Ideopolis'. This expands the influences of the university as it grows as a social institution beyond the siloed ivory tower (mode 1). Government funding and expansion was bringing the university out of its walled off and closed campus. Kerr describes the conflict between the internal university and the external social world. Fuller (2016) states that Kerr was reacting to and commenting on the industrial revolution emerging from entrepreneurship in the UK which was adopted by US universities in the 1960s. Such an ethos building upon Mode 1 has been adopted globally. A key issue for Kerr in this development was that universities were conservative institutions entering and existing in a dynamic environment. Fuller claims that contemporary universities have not yet reacted to the Silicon Valley ideology of technology development in the same way as US universities built upon UK and European models of higher education. If Kerr is describing the Mode 2 neoliberal university as part of the new knowledge economy, then the Mode 3 University is influenced by the prevalence and determinism of technology in contemporary society. The genesis of this society is Silicon Valley in California which I pick up further in the Mode 3 Networked University below.

3.6 The neoliberal university and the knowledge economy

The constant in the strands of history of the modern university from 1798 to the present is that universities are sites for knowledge production and dissemination. The modern university as a concept and as an institution continued to grow from the genesis of Kant defining Enlightenment, the conflicting faculties, Humboldt's vision of academic freedom to research and teach, Newman's 'Gentleman Scholar' of Oxford through to the American university city incorporating industry as mapped by Trow

(1973) as elite, mass to potentially universal. The development of the knowledge economy whereby knowledge has become a commodity has thrust the university into a position to continue to grow and develop further, as *the* institution which produced knowledge in the 19th and 20th century, one might argue that it had little choice in taking its wares to market.

A key text which cites the divide in ideas of the university of the present with the university of the past is ominously titled *The University in Ruins* (Readings, 1999). Readings' work analyses the contemporary Western university and its use, stating that it is no longer clear what that use is, after the decline of the national cultural, economic and competitive national mission following the Cold War in favour of a globalized world²² with universities as global outward looking institutions. The focus on educating citizens of the nation state in a global marketplace has changed to become a commodity to be sold around the world. The university's primary function for Readings had been the legitimation of knowledge which he sees as problematic in the era of postmodernity²³ and the knowledge economy where knowledge becomes both unstable but also a commodity. Kerr's multiversity begins this move towards a growing

²² At the time of writing however, nationalism in the early 21st century is on the rise after a global economic crash in 2008 and populist right nationalistic politics taking hold in the US with election of president Donald Trump in 2016 and the UK's vote to leave the European Union in 2017. Add to this the global 2020 COVID-19 pandemic in which its outbreak and rapid transmission has been blamed on global trade, disruption to natural ecologies and inter-continental air travel.

²³ One could argue that this issue has grown due to political fragmentation in the US following populist influence on society and the emergence thanks to these developments of post-truth and fake news.

university with many functions and corporate nature as part of the fabric of society in and an active part of a knowledge economy. Readings dedicates a chapter to the contemporary discourse of 'excellence', this is particularly relevant to Chapter 4 where I conduct analyses of teaching and research in the contemporary UK university and the two regulatory frameworks - the Teaching *Excellence* Framework and the Research *Excellence* Framework. Excellence for Readings is adopted as a discourse as the university grows and becomes more and more like a business corporation with students as customers. The new market environment of the university is then measured by economic success but badged as 'excellence'. Excellence for Readings is ambiguous and unstable mirroring his view of postmodernism and knowledge, he describes 'excellence':

This statement is, of course, entirely meaningless, yet the assumption is that the invocation of excellence overcomes the problem of the question of value across disciplines, since excellence is the common denominator of good research in all fields. Even if this were so, it would mean that excellence could not be invoked as a "criterion," because excellence is not a fixed standard of judgement but a qualifier whose meaning is fixed in relation to something else. An excellent boat is not excellent by the same criteria as an excellent plane. So to say that excellence is a criterion is to say absolutely nothing other than that the committee will not reveal the criteria used to judge applications. (Readings, 1999, p. 24)

This idea and badging of excellence is something which cannot be contested, as who would deny that excellence is a bad thing? For Readings however this means that ideology can be at play behind such badges. Readings holds that postmodernism is part of this social milieu. These conditions and development which I have briefly sketched out can broadly be described as the social, economic and political project of neoliberalism. This ideology has dominated society, politically and economically in the late 20th century and the university as a social institution primarily concerned with

knowledge has been particularly influenced by the convergence of neoliberalism and an economy driven by knowledge.

Neoliberal approaches to education and other traditionally public institutions, known as ‘new public management’, have dominated Western ideas of not only higher education but society since the 1980s and 1990s. In education, Ball (2008) defines the neoliberal epoch as characterised by terms such as ‘creative’, ‘risk-taking’, ‘innovative’, ‘entrepreneurial’ and ‘personalised’ all with a focus on consumer need. This for Ball is a shift away from welfarist to post-welfarist society to the neoliberal which he terms as a society in which individual self-reliance and enterprise enables constant learning and optimisation. The external economic, social and cultural conditions of a post-fordist²⁴ society which is ‘post’ in that heavy industry is reduced, flatter and leaner. The knowledge economy requires citizens to acquire knowledge throughout their life and creatively identify and solve problems in a variety of contexts – this has been termed lifelong learning (Seltzer and Bentley, 2001; Houlden and Veletsianos, 2020), a concept which again was described by Kerr in the Multiversity. We can also see facets of this in the work of Kant, Humboldt and Newman in that graduates are challenged to ‘dare to know’, think and behave like active researchers and to engage with many disciplines beyond their time at university. However, in a neoliberal knowledge economy there is a greater impact on economic factors and outcomes. Modern organisations are globally transnational and networked with employees being multi-skilled and often part-time or short term (also often termed the ‘gig economy’) requiring constant learning and

²⁴ The analogy of the Mode 2 Factory is clear here in that Fordism was termed after the Ford motor company went from a more artisanal craft approach to making cars to an organised factory of mass production which each individual contributing a small part of the car production.

development for socioeconomic purposes. The social and cultural influence of these economic conditions has moved towards consumption rather than production, again in wider society as well as in education (Moore, 2004). Amaral (2018) describes the emergence of knowledge being part of the economy as equals with land, labour and capital holding that humanity has always been knowledge seeking. Universities as key knowledge producers were positioned as key government backed institutions in the post war industrial progress in the West as described by Kerr as the Multiversity Mode 2 University Factory building on the ideals of the Mode 1 Ivory Tower (Kant, Humboldt and Newman).

Neoliberalism is a widely used concept across the social sciences to describe the current epoch of social and economic structuring in both the public and private (often overlapping) spheres. For Hall (2011) the neoliberal is a conjunctural crisis in that it brings many economic and social factors together with the idea of the free individual with the state seen as tyrannical and oppressive. Neoliberal governments stay out of individual and corporate affairs wherever possible – profitability for all is measured and calculated over a common good. A neoliberal environment then can be characterised by the self-interested individual, de-regulated free markets, a commitment to laissez-faire economics with small government and a commitment to free trade. This is the opposite of Keynesian economics which looks to government to intervene and support society and economy (Olssen and Peters, 2005). The neoliberal project advocates that markets are a better way to organise and make decisions about society encouraged by policy, ideology and governmentality (Larner, 2000). Both Larner (2000) and Hall (2011) highlight that many of the uses of the term are complex and can mean many different things to many different people in different contexts. Venugopal (2015) agrees, stating that ‘Neoliberalism is everywhere, but at the same time nowhere’ (p165).

Specifically, in higher education, Olssen and Peters (2005) describe the changing role of the university and the academic in the neoliberal era which result in hierarchical chains of command which reduce professional autonomy or what thinkers of the university of the past have defined as academic freedom (Mode 1 University). Marketized neoliberal pressures are measured on input and output, in the contemporary UK university, we can see this as the primary activities of the university, research and teaching are measured for 'excellence' in REF and TEF in the UK (see Chapter 4). Olssen and Peters (2005) go on to describe how measurable outputs can reduce professional autonomy and trust:

Professionalism conveys the idea of a subject-directed power based upon the liberal conceptions of rights, freedom and autonomy. It conveys the idea of a power given to the subject, and of the subject's ability to make decisions in the workplace. No professional, whether doctor, lawyer or teacher, has traditionally wanted to have the terms of their practice and conduct dictated by anyone else but their peers, or determined by groups or structural levers that are outside of their control. As a particular patterning of power, then, professionalism is systematically at odds with neoliberalism, for neoliberals see the professions as self-interested groups who indulge in rent-seeking behaviour. In neoliberalism the patterning of power is established on contract, which in turn is premised upon a need for compliance, monitoring, and accountability organized in a management line and established through a purchase contract based upon measurable outputs. (p325)

Measurable outputs in this context for Barnett (2000) are performative in that:

Procedurally, it is implied that the university can now secure its future only by marketing its knowledge wares; in the process, its knowledge becomes performative in character and loses its power to enlighten. (Barnett, 2000, p. 411)

The way that Barnett describes the university here is one of existential crisis amid other knowledge producing individuals and institutions where knowledge is performative in that it is constructed through discourse (marketing) and through this process knowledge

becomes a performance. This is in line with Readings' description of postmodernism and 'excellence' above. Moreover, the claim that knowledge is performative thus removes its power to enlighten and positions the neoliberal mode 2 university in direct contrast to the ideas of Kant, Humboldt and Newman and the Mode 1 University.

Bacevic (2018) holds that despite a clearly dominant societal move towards neoliberal practices, a discourse has become embedded that neoliberalism has been done to the university and that 'management' intruders are applying neoliberal policy from inside institutions. Bacevic states that the actors at play and the relationships between them are complex and artificial lines of 'management' and 'academic' stand offs oversimplify a complex set of assemblages. Bacevic calls for the identification of who has agency and power within the discourse of structural neoliberalism rather than merely laying blame on the concept. This counter discourse describes an agency for the university which is complex. Agency is important to identify and enact other possible futures where neoliberalism isn't simply 'done to universities and academics'. This agency is key in the context of this thesis in who has power and influence to define the idea of a university in institutional and public discourse.

For Giroux (2018), higher education is the place for resistance to populist politics that has risen in the 21st century and to 'dream the impossible' not merely to prepare students for entry into the workforce but education as a cultural, political and moral force whereby students don't absorb knowledge but become agents for change with a keen sense of social responsibility and civic engagement. As well as changing the relationship between university (producer) and student (consumer) there are also concerns about the 'marketplace' for less vocationally oriented courses. As an example, the UK government are calling for the end to 'low value degrees' which they say are

degrees which do not result in highly paid employment (GOV.UK, 2019; Packham, 2019).

In 1798 Kant described the higher faculties of professional jobs alongside the lower faculty of philosophy in healthy conflict (3.2). Nussbaum (2016) put forward a manifesto to ensure that the humanities are a key part of education and contrasts the neoliberal with a call for *Not for Profit* setting out why a narrow measure of economic growth has a negative affect not only on education in general but also for society and democracy. Shumway (2017) describes a constant battle for the humanities²⁵ which cannot just be attributed to contemporary neoliberalism, stating that the issue as always been there and calls for universities to research outcomes beyond a graduate's salary but to promote wider societal goods²⁶. A focus on technical skills for Nussbaum results in docile citizens who cannot think and argue for themselves and defer to tradition and authority – here we can see many similarities with the university before the Enlightenment movement of Kant, Humboldt and Newman (see Mode 1 above). Moreover, a dichotomy appears to have developed in policy making and funding decisions to pit profit against citizenship which results in humanities subjects being the first to be removed from curriculums in all stages of education and become luxuries and extra-curricular. Focussing specifically on higher education, Nussbaum (2018) calls for

²⁵ UK Government are pursuing an agenda of removal of 'low value' courses and disciplines which are more often than not found in the humanities and social sciences.

²⁶ A criticism levelled at Newman's Idea of a University is that it was heavily biased towards the humanities as can be seen in the work of Giroux, Nussbaum and Collini. It seems as though the sciences are seen as an automatic good but now and through history some of the social sciences and much of the humanities are seen as a luxury or not productive enough for a neoliberal knowledge economy.

three approaches to be adopted to counter the neoliberal turn: the Socratic ability to critique one's own tradition; think as a citizen of the world and to imagine what life would be like for someone very different to oneself. For Nussbaum, these are ideals and approaches which will enable democracy to flourish but also result in economic success with a liberal arts style education that can allow for creativity and for workers to imagine new ways of living and working rather than relying on tradition or authority. In my conclusion I argue along similar lines that university education severed from a research ethos has the potential to return to an encyclopaedic pre-Enlightenment education based exclusively on job requirements.

Alongside and intertwined with neoliberalism is the emergence of a knowledge economy where knowledge is capital comparable to land and labour. Knowledge capitalism for Burton-Jones (1999) is vitally important for nation states and knowledge acquisition through education and knowledge production through research. Bell (1976) describes the emergence of a post-industrial society and the emergence of the knowledge worker:

A post-industrial society is based on services. Life becomes a game between persons. What counts is not raw muscle power, or energy; what counts is information.

The central person in this society is the professional, for he is equipped by education and training to provide the kinds of skills which the post-industrial society demands. Central to the post-industrial society is the fact that the sources of innovation are the codifications of theoretical knowledge. (Bell, 1976, p. 576)

Analysing these changes in the 1970s, what was clear for Bell was that education would be key to the post-industrial society of knowledge, information and technology. When a

society becomes reliant on knowledge as a commodity, the university becomes a vital part not only of society but the economy.

Under a neoliberal knowledge economy, more knowledge is produced and thus, more education is required and citizens are required to constantly update their knowledge and skills through lifelong learning (Rubenson, 2011; Houlden and Veletsianos, 2020). Learning technologies which enable constant access to knowledge and skills are described as an opportunity for this ongoing access to knowledge as well as a market opportunity in the neoliberal market economy. For many the need for constant access to new knowledge and skills and the ubiquity of digital technologies will change the shape and structure of higher education (see Mode 3 below and chapters 5 and 6 for analysis on technology-education relations and human-technology relations).

With knowledge as a commodity in the late 20th and early 21st century, Kotzee (2018) contrasts the epistemic goods of higher education as socio-economic and epistemic. The university from a socio-economic perspective is concerned with students securing a social position and entering the professions much like Kant's higher faculties of the university. The university's role then from the socio-economic perspective is to take action to provide equitable access to higher education thus having a social role economically. As is expected in a neoliberal, knowledge economy national governments are concerned with the socio-economic development of the country and in an economy dominated by knowledge, they are concerned with ensuring that the knowledge producers are disseminating knowledge for socio-economic advantage just as with Kant's higher faculty training for jobs in the clergy, law and medicine and Kerr's university partnerships with industry. Such national interest is clear in TEF and REF sector regulation analysed in Chapter 4. Contrasting with the socio-economic university, Kotzee (2018) describes the epistemic university as a selfish one in its search for truth

and knowledge for its own sake rather than instrumental ends - the Mode 1 University. A key debate emerges then in a neoliberal knowledge economy between the ideals of the mode 1 and mode 2 university which I have traced in this chapter.

The important point is that both education's instrumental and intrinsic value work through knowledge: by being educated, one comes to know something and, because of what one knows, one then becomes more likely to reap certain instrumental or intrinsic benefits. In section 2, we saw that the question "Who should go to university?" can only be answered once we have an answer to the question "What good does the university provide?" If the good that the university provides is not socio-economic, but epistemic, the unavoidable question of the distribution of university education becomes: "Who should have the knowledge that is taught at the university?" This is still a burning issue for the university to resolve. Indeed, scholars who see the university's role as mainly socio-economic may hold: of course the task of the university is to distribute knowledge, but who it distributes its knowledge to shapes socio-economic outcomes so that, in the end, its function in society is after all socio-economic. (Kotzee, 2018, p. 125)

Clearly knowledge is vital to society and its distribution is as important as other resources when it plays such a vital role in society as both socio-economic and epistemic goods.

Gibbons (1994) termed two modes of knowledge emerging in the late 20th century, mode 1 and mode 2 knowledge. This maps directly to the Mode 1 and Mode 2 universities described in this chapter. Mode 1 knowledge is more traditional in that it is set within the confines of a discipline in a primarily cognitive context (Mode 1 University). Mode 1 knowledge is cognitive and embedded in one discipline of study (i.e. biology, computer science, sociology etc). Mode 2 knowledge however is broader and transdisciplinary which looks to apply knowledge to real world issues, but where it differs from Newman and Humboldt, is that knowledge is in a social and economic context (Mode 2 University Factory). Gibbons does add a note of caution in that there is

some complexity around dividing knowledge into two modes as many would argue that knowledge in science and technology, social sciences and the humanities has always been social in that it is created within social environments for social good. However, Gibbons holds that model 1 and mode 2 are particularly distinctive in the neoliberal society and knowledge economy and thus the university in that society and economy. Mode 1 for Gibbons is what is often the traditional view of science – problems are set and solved in context of the academic discipline and the interests of that community, here the university is the chief producer of knowledge under the university and researchers’ own disciplinary terms (basic research). This is often characterised as having no particular applicable goal – knowledge as an end in itself - epistemic knowledge as identified by Kotzee above and dominant in the Mode 1 University. Mode 2 is characterised by application and transdisciplinary – a problem is identified, and the research and production of knowledge involves many actors such as researchers but also practitioners and collaborators. It may be easy here to attribute ‘useful’ mode 2 knowledge to neoliberalism, however as stated by Gibbons this is not always the case and mode 2 knowledge may go beyond the market and knowledge production in much more socially distributed and egalitarian ways (Mode 3 knowledge is explored in the next section). For example, combating climate change and vaccinating against global pandemics. Not only does mode 2 knowledge production transcend disciplinary boundaries inside the university but knowledge is produced and ‘sold’. Knowledge then becomes capital in the neoliberal environment and universities and students can take part in the marketplace both producing and consuming knowledge. This has resulted in an increased number of universities as well as an increased number of students graduating with a university degree moving from elite to mass participation (Trow, 1973; Trow and Burrage, 2010) in the Mode 2 University.

This development, outside influence and growth embeds the Mode 2 University much more into wider society than the Mode 1 University. This can be described as the university becoming networked (technologically and socially) in that it is breaking out of the boundaries of the single institution and campus and as with other private and public institutions being constructed under corporate management principles. While this offers many opportunities for disseminating knowledge²⁷ (i.e. teaching) there are also a network of new interests entering into the university through both technologies and financial interests. A key economic and business strategy being used in universities is ‘unbundling’ (McCowan, 2017). The concept of unbundling includes management strategy, and new technologies and specialist roles working in the university beyond the teacher-researcher of the Mode 1 University. Education itself may also be unbundled in breaking up traditional degrees. I explore these ideas and implications in the following section on the Mode 3 Networked University.

Kotzee’s argument then can be part of a broader question of justice in the distribution of knowledge both for socio-economic and epistemic good. Access to knowledge and a university education asks who should benefit from such access, especially when knowledge is a commodity to be sold. The question then arises, similarly to socio-economic justice, what equity measures should be in place for knowledge to be provided to those who know least. Trow (1973) described a move from

²⁷ New opportunities are being pursued beyond the three-year undergraduate degree looking at professional development and career focused learning opportunities. Universities are also being measured on research (REF), teaching (TEF) and knowledge exchange (KEF) which require measurement and compelling narratives on the purpose of a university across these regulatory frameworks but also in positioning the university as an important institution in society, now and in the future.

elite (Mode 1) to mass (Mode 2) to universal access (Mode 3). University growth along with new technologies have the potential for universal access to knowledge building upon modes 1 and 2 and the social fabric of Enlightenment and neoliberal knowledge economy developing into a network society.

Next, I explore the idea of the Mode 3 Networked University as part of a network society, not just from a technological perspective but building on the strands of history of Mode 1 and Mode 2 University, the wider societal move to a neoliberal knowledge economy to critically engage in some of the opportunities but also risks to the idea of a university.

The Mode 3 Network University

Unlike in the mode 1 and mode 2 university-configurations, neither university nor society holds the power of definition in relation to what constitutes valuable knowledge, education, and academic development. Rather, both society and the individual institution need to treat the university as being ontologically and geographically open. Implying that they need to enter into conversation and collaboration and be committed to each other to create knowledge for an unknown and open future. (Nørgård, Mor and Bengtsen, 2019, p. 75)

When knowledge becomes a commodity and a key aspect of society (as reviewed above) and the economy, access to knowledge is important – a route to market, one might say. Also, networks allow for greater collaboration not bound by physical space and time. Whether that network is social or technical, networks allow knowledge to be shared and distributed (and, potentially, to be *sold*). Moreover, the Mode 3 Network university in a network society is not the only producer and disseminator of knowledge. Mode 3 knowledge production takes a systems theory approach whereby there are many elements within a system that come together in self-rational ways as elements co-exist forming creative knowledge environments as the university becomes more open (Carayannis, Campbell and Rehman, 2016). The nodes or elements in this network are many: industry, governments, academia and the wider public (Carayannis and Campbell, 2012; Carayannis *et al.*, 2018).

Rather, the mode 3 university configures itself as an open network entangled in and connecting with other networks, enabling citizens, professionals, workers, researchers, teachers, students, and whoever is interested and engaged in the networks to think, talk, and tinker together. (Nørgård, Mor and Bengtsen, 2019, p. 75)

Liyanage and Netswera sum up the transition from mode 1 knowledge to modes 2 and 3.

In other words, Mode 1 is not adequate to solve social problems. As a result, Mode 2 and Mode 3 have evolved combining scientific knowledge and social contexts. It is a reflexive knowledge production system with reverse communication. Namely, science speaks to society, and society speaks back to science. (Liyana and Netswera, 2021, p. 3)

This makes the Mode 3 university more complex and porous to the outside world than the previous two modes. Mode 2 knowledge and the Mode 2 University has been characterised by university-industry-government relations as a ‘triple helix’ (Etzkowitz and Leydesdorff, 2000), adding a fourth element of wider public (culture, media, values, technology, creative industries) to make a quadruple helix (Peris-Ortiz, 2016; Miller, McAdam and McAdam, 2018) and mode 3 knowledge as a networked social assemblage not exclusively dictated by the university or market demands. The Mode 3 Networked University doesn’t have a Kant, Humboldt, Newman or Kerr to define its mission. The Mode 3 Networked University cannot comprise of one author outlining the vision of the Mode 3 University, but many influences coming together. Ellis and Goodyear (2019) describe the educational ecology of a university as a holistic look at the components and actors involved. Such Challenges for Ellis and Goodyear include difficulty in achieving a holistic view of the university strategy in departments such as educational, digital and facilities and in mode 3 influences expand in complex networks. An ecological university for Barnett (2018) is characterised by an interconnectedness with the world with a social responsibility as part of a wider social assemblage – the Mode 3 Network University. Barnett (2018) lays out the challenge of the ecological university as an ecosystem of ecosystems as: knowledge; social institutions; persons; the economy; learning; culture and the natural environment. Ecological perspectives are being adopted across educational theory. For example seeing higher education evaluation beyond neoliberal quantified perspectives of data

and replaced with more ecological assessment methods (Fawns, Aitken and Jones, 2021).

It is clear having already briefly sketched the idea of mode 3 knowledge and a more networked university, looking outside of now permeable university walls that the social fabric of the time is important. I have looked outward to society so far with the Enlightenment of mode 1 and the neoliberal knowledge economy of mode 2. I hold that now that the university is becoming more networked within society it is even more important to look outward when assessing the idea of the university within the fabric of its time and society. In keeping with the analysis of this chapter so far, I will look outward to society by first tracing the idea of a wider network society (3.7), followed by perspectives from within the university as digital technology impacts the university (3.8) and unbundling of the university (3.9). I conclude this section and the chapter with a look to the future and the possibilities of diverse futures for the network of diverse actors which are both human and non-human with the posthuman idea of a university (3.10).

3.7 Network Society

Technology and information play a key part of the knowledge economy in the post-industrial society. Castells (2000) saw the growth of the knowledge economy as *The Rise of The Network Society* and uses the network as a technical connection of computers sending data around the world as a metaphor for social change and sees society as a series of nodes in a network. Analysis of social networks is today one of sociology's central concerns. Classical sociologists like Durkheim and Simmel were already interested in networks and today, social network analysis study social structures and interaction within those networks including the internet and social media (Pescosolido, 2007). Networks before internet technologies involved individuals and

groups 'networking' in person to gain social capital; this was studied in the broader area of social network theory (Eisenberg and Houser, 2007). However, online and virtual networking has expanded networking and collaboration opportunities. It has made networking faster and easier to do across greater distances; and it has added a human-technology relationship to these networks, because, in order to interact with another person online, the user also has to interact with their own technology - the device that the user uses to connect to the network and the connectivity infrastructure of the internet. Social network theory and the emergence of digital technologies in the Information Age for Castells (2000) has redefined not only work and economics but all social structures:

Networks constitute the new social morphology of our societies, and the diffusion of networking logic substantially modifies the operation and outcomes in processes of production, experience, power, and culture. While the networking form of social organization has existed in other times and spaces, the new information technology paradigm provides the material basis for its pervasive expansion throughout the entire social structure. Furthermore, I would argue that this networking logic induces a social determination of a higher level than that of the specific social interests expressed through the networks: the power of flows takes precedence over the flows of power. Presence or absence in the network and the dynamics of each network *vis-à-vis* others are critical sources of domination and change in our society: a society that, therefore, we may properly call the network society, characterized by the pre-eminence of social morphology over social action. (Castells, 2000, p. 500)

Networks for Castells are open, with the capacity to expand and innovate without limits and by describing the network as a morphology, Castells is stating that the network is becoming the very structure of society. Networks are global and the nodes in the

network are diverse; Castells lists, amongst others: stock exchange markets, governments, television systems and the natural world as examples of nodes in the network society and in mode 3 we can add universities to this list. Castells proposes that the most powerful nodes and the network are the ‘switches’ in interconnecting networks: some important switches are capital, management, information and technological know-how. Castells asks: in this meta-network of capital, who are the owners, producers, managers, and servants? He concludes that the answer is increasingly blurred and that clear identities such as producer and consumer and worker and owner are lost.

Networks are not exclusive to new digital communications and Dijk (2020) lists the many networks which make up the social and technical environment: physical (river networks and ecosystems), organic networks (organisms such as nervous system and blood circulation), neuronal networks (mental systems), social networks (societal systems), technical networks (roads, computer networks) and media networks (senders and receivers of symbols and information). Dijk (2020) states that it has always been possible for society to be conceptualised as networks but argues that the 21st century is to be the age of networks and the nervous system of society with new technologies and humans mutually shaping economies, social structures, power and politics, culture, psychology and law. New research fields are emerging across not just the social sciences but the physical sciences using quantitative and mathematical network maps to analyse myriad networks which look at the social and the technical (Borgatti *et al.*, 2009; Barabási and Pósfai, 2016; Borgatti, Everett and Johnson, 2018; Beytía and Schobin, 2020).

A dominant ideological discourse of the digital network technology comes from California and Silicon Valley²⁸. The ‘Californian Ideology’, argue Barbrook and Cameron (1996), is the catalyst of bringing together the neoliberal knowledge economy and Network Society in the home of the technological revolution is the west coast of America – Silicon Valley as a harmonious collaboration between ‘hippies and yuppies’. The hippies were the 1960s Californian New Left; through their political and cultural struggles, they were a liberating force in the culture of the time and provided many of the new ideas (as well as cultures, behaviours, images and fashions) that were seized on and promoted in media and popular culture. To this attractive new cultural movement, the US New Right added a neoliberal free market ideology of entrepreneurship that began to organise the production and marketing of this movement which has become a culture in the ‘tech’ industry - when ‘hippy’ and ‘yuppie’ become fused together the result is the technology entrepreneurs of Silicon Valley. Technology is often seen as neutral but this example shows how the development and its success was social as well as technological (see Chapter 6 and 7 for work on conceptually combining the social and the technical). Rather than being all about the individual innovator and private investment, Barbrook and Cameron point out that much of this ignores the technological base: the technology and infrastructure²⁹ that was needed not only to create the new ideology but also to distribute it.

²⁸ Clark Kerr’s multiversity and the oncoming unbundled neoliberal university in a knowledge economy was also based in California although no direct links can be made this is an interesting future line of investigation for the genealogy and genesis of the digital university.

²⁹ In the 2019 UK general election a Labour party policy to create a national broadband infrastructure was derided as impractical and delusional but such infrastructure in a networked economy is as important as utilities and transport infrastructure.

The Californian Ideology... simultaneously reflects the disciplines of market economics and the freedoms of hippie artisanship. This bizarre hybrid is only made possible through a nearly universal belief in technological determinism. Ever since the 1960s, liberals - in the social sense of the word - have hoped that the new information technologies would realise their ideals. Responding to the challenge of the New Left, the New Right has resurrected an older form of liberalism: economic liberalism. (Barbrook and Cameron, 1996, p. 5)

The Californian Ideology realises the utopian ideals of the left and right of politics without overt conflict between them – this for Barbrook and Cameron (1996) is the secret of its success. The success of Silicon Valley, and the emergence of a business model built on technology innovators and business models is analogous with the mode 1 pursuer and disseminator of knowledge and the mode 2 neoliberal business model. I make the case in this thesis that the idea of a university and technologies are relational with underlying social and political ideologies. These influences are productive both inside and outside of the Mode 3 Networked University.

Public platforms such as professional social media platform LinkedIn provide students with services and learning materials in exchange for data regarding employment (Komljenovic, 2019) and social media such as Facebook, YouTube etc are part of the knowledge network which students access in social and academic life. This social aspect of human and technology relations acts as a public pedagogy (Sandlin, Burdick and Rich, 2017; Goodyear, Armour and Wood, 2019; Wiratmoko and Djatiprambudi, 2019) in broader society and everyday life from streaming music, to taking a taxi and booking a hotel room.

A public pedagogy, then, is the manifestation of particular ways of thinking that may be carried out into the wider culture by media, by corporate business, by government policies, by the design of spaces and so forth. (Williamson, 2017, p. 196)

This is an example of the outside world of the university entering and becoming part of the network. This can be directly with students and teachers using external digital platforms as well as the university procuring digital products and services.

3.8 Digital network technologies and the idea of a university

Siemens (2004) elaborates on the changes affecting the university in a digital network society:

Learners as little as forty years ago would complete the required schooling and enter a career that would often last a lifetime. Information development was slow. The life of knowledge was measured in decades. Today, these foundational principles have been altered. Knowledge is growing exponentially. In many fields the life of knowledge is now measured in months and years. (Siemens, 2004, p. 1)

For Siemens (2004) and his learning theory of connectivism, learners are not involved in neat and structured knowledge structures but chaotic ones in a knowledge economy and network society where such knowledge resides in networks with many nodes, such as teachers, colleagues, friends, websites, traditional and social media, electronic resources – the mode 3 network university. This calls into question traditional, siloed disciplinary structures in the university and a move towards inter/trans disciplinarity inside and outside of the university, fuelled by such networks. Siemens concludes that:

Our ability to learn what we need for tomorrow is more important than what we know today. A real challenge for any learning theory is to actuate known knowledge at the point of application. When knowledge, however, is needed, but not known, the ability to plug into sources to meet the requirements becomes a

vital skill. As knowledge continues to grow and evolve, access to what is needed is more important than what the learner currently possesses (p6).

Here we can see some similarities with Humboldt's learning in research mode, Kant's 'daring to know' and Newman's universal knowledge with disciplinary boundaries but incorporating the vast networks and databases which we now have access to. In this discussion of the Mode 3 Network University I trace ideas of new emerging networks of technologies and new roles within and outside the university and the assemblages produced. There has been much optimism about the opportunities digital technologies afford higher education to widen access to a university education but also to allow citizens to access education later in life as interests and career focuses change. I conduct discourse analyses on the impact of digital technologies in higher education in Chapter 5.

In contrast to the idea of digital network technologies providing access to knowledge and education, others see the societal prevalence of digital technologies resulting in a more mechanistic and informationistic (Romele, 2020) nature influenced by data and algorithms (Caplan and boyd, 2018) and questions are being raised as to what being human will mean in the future (Tegmark, 2018) which in turn must ask the question of the purpose of education.

Such datafied, mechanistic and informationistic approaches in education which create data doubles as described in Chapter 6, produce dashboards and views of education which are portrayed as objective and instrumental (Selwyn, 2019b) with potential results of a mechanistic and behaviourist approach to education (Knox, Williamson and Bayne, 2019). One of the key criticisms of artificial intelligence more broadly is bias and a conservatism which analyses and learns from data which has gone before (Zajko, 2020). The artificial intelligence currently being used and envisioned in

education is in some ways conservative in that the field of Artificial Intelligence since the 1950s has predicted a super intelligence which can emulate and surpass human intelligence and capabilities (Bostrom, 2016) rather than the contemporary discourse of reproducing past activities and bias. Such technologies ‘act’ when using sophisticated data analysis and algorithms, for example search engines have been described as including biased ‘algorithms of oppression’ (Noble, 2018) which are developed by a small group of technologists in the mould of the philosophy of innovation and disruption found in Silicon Valley. As discussed above, such technological innovation and disruption is often seen as neutral and apolitical. As I stated above with regard to the success of Silicon Valley is technological but also social and political. Rather, those developing such technologies and data collection are in a privileged position to define what counts in education. Future technologies for many should include, in democratic fashion a wider group of the public and educational and sociological research (Costanza-Chock, 2020).

The current discourse around technology in education goes beyond digitisation but what it means to be human when using big data analytics of human behaviour and deep learning algorithms to analyse and replicate human intelligence alongside artificial intelligence (Luckin, 2020). In Chapter 6 I explore in detail the theoretical positions which can help to explain whether these new technologies determine human behaviour or whether society develops technology for social needs with the middle ground being more embedded and mediating views of technology in human-technology relations.

Technologies and approaches such as learning analytics, and data residing within machines is resulting in such machines active in decision making when artificial intelligence involves data-processing systems able to learn (machine learning) and make decisions from the huge quantities of big data that can be collected from a host of data

points using data analytics, machine learning, neural networks, deep learning and reinforcement learning (Williamson and Eynon, 2020). Termed ‘AIED’ research has most recently been quantitative and focused upon profiling and prediction, assessment and evaluation, adaptive systems and personalisation and intelligent tutoring systems (Zawacki-Richter *et al.*, 2019). Artificial intelligence is ‘active’ in in that it can act autonomously, adapting and learning from behavioural data to self-improve, make rules, construct new algorithms, predict and carry out automated tasks. Whilst the technology itself ‘acts’ so do the programmers and supporters of such technologies which are often highly commercial (Eynon and Young, 2020) – all nodes of the mode 3 network in the social and technical network. We can trace such networks to the developers and companies themselves alongside the active technologies in the network. Stilgoe (2020) argues that the positive aspects of technology are celebrated as intended and design innovations and negative effects are unintended consequences and down to bad actors. Parvin and Pollock (2020) prefer to position such consequences as *unanticipated* rather than *unintended*.

For Facebook, infringements of privacy are a feature, not a bug. For YouTube, recommending extreme, divisive content is a feature, not a bug. For the manufacturers of social media apps and fixed-odds betting terminals, addiction is a feature not a bug. For proponents of workplace automation and, in the future, artificial intelligence (AI), the deskilling and displacement of human labour is a feature, not a bug. It is naïve to suggest these effects are the result of mere negligence. They may be features not of a broken system, but of a world working as it has been designed (Stilgoe, 2020, p. 12)

Knox (2018) describes such a consequence with the active algorithm in online learning environments as forecasting attainment based on a series of data points including demographics and influences on pedagogy which is moving education to a ‘computational turn’ in how we see teaching and learning as passive transmission.

Ramiel (2019) uses Biesta's (2005) learnification to look at the positioning of a student as a 'user' of a technology in an educational setting rather than as a student engaged in a larger sociotechnical assemblage of an educational institution. The knowledge transmission of education underpinned by the broadcast approaches to digital learning technologies have the potential to change the perception of education to an experience not of collaboration, development and enquiry but one of knowledge to be transferred in a data like manner from teacher or computer to student. This approach is analogous with the field of critical pedagogy and the work of Freire (1996) and the pedagogy of oppression which uses the concept of a banking and knowledge transmission model of education.

Donna Haraway's *Cyborg Manifesto* (1991) encapsulates the coming together and breaking down of barriers of human and animal, organism and machine, and that cyborgs are an amalgamation of organism and machine as a breakdown of the physical and non-physical binaries. Haraway described two potential futures, one in which the machine is controlling, resulting from past discourses of military and state control and conversely animals, humans and machines working together in co-existence. The former, I hold is synonymous with the transmission model described above while the latter is more closely aligned to the Mode 1 University but at scale. Haraway in the *Cyborg Manifesto* states that one should look at both perspectives, as to ignore one would be to blindside yourself by ignoring counter discourses and visions of others. Here we can see the possibilities of the network such as instant access to knowledge and widening access to higher education throughout the lifecourse. Conversely, digital technologies for universal access can encourage a transmission of static knowledge in a similar way to the pre-Enlightenment education described at the beginning of this chapter. The machine controlling can be seen in some forms of learning analytics which

use surveillance techniques to track students activity which have been described as both as discriminatory and oppressive (Selwyn, 2020) and for others as potential for intervention and support (Wong and Li, 2019) for increasing students' study performance, offering personalised feedback and improving student retention.

In the Mode 2 Factory University above I draw upon Readings (1999) postmodern reading of 'excellence' in higher education as an uncritical good for which hides ideologies on what education is for. I draw upon here the same idea that technology is not neutral and automatically enhancing education in some uncritical, essentialist manner. This I pick up further in Chapter 5 with a critical analysis of UK university discourse on the relations between higher education and technology.

Digital technologies however are just one part of the story when looking at the Mode 3 Network. Yes, technologies afford such networks but the growing influence on the idea of the university is in mode 3 but there are also wider network influences as the university and a university education becomes unbundled.

3.9 The unbundled university

In sections 3.7 and 3.8, I reviewed how the idea of the university is changing, alongside an increasingly networked society, into being a network itself. This pattern of change is not only evolution, it is also leading to fundamental change to what was long thought to be the core activities of the university – research and teaching. In the Mode 1 University this was broadly carried out by one person, the researcher-teacher as championed by Humboldt. The process of change that I am referring to is called 'unbundling'. In such a network environment, nodes of those networks can be carried out by specialist roles and include private companies as part of this network and the university degree itself can be broken apart.

Wang (1975) described the educational product offered by the university as a package or ‘bundle’ of goods. The product that a university ‘sells’ to its students – a university education - is not one thing. It is, according to Wang, at least the following four things: impartation of information (teaching), accreditation (assessment), coercion (deadlines and structure, i.e. 3 year degree) and club membership (exclusive selection for social capital connections and badge of being an alumni). Wang suggested that these four activities could be unbundled, carried out by different organisations and optional for students in a market-style proposition.

Bundling and unbundling is a common business move whereby the constituent parts of a product are grouped together for service and convenience or unbundled for choice and specialisation. For example, take the package holiday whereby a family books a trip away with a travel agent who bundles together flights, transfers, accommodation, insurance, excursions etc. An unbundled holiday may see the same family book flights with a low-cost airline where extras are charged for luggage, meals, car hire etc and transfers, accommodation and insurance are all booked independently. The former is often more expensive but more convenient but less ‘bespoke’ and the latter, often more cost effective and the customer creates their own holiday with more responsibility on them to find the best and right deal for them – in essence they bundle the holiday themselves rather than the travel agent. The Unbundled University Project provides a definition of unbundling in higher education:

Unbundling is the process of disaggregating educational provision into its component parts likely for delivery by multiple stakeholders, often using digital approaches and which can result in rebundling.

An example of unbundled educational provision could be a degree programme offered as individual standalone modules available for credit via an online platform, to be studied at the learners’ pace, in any order, on a pay-per-module

model, with academic content, tutoring and support being offered by the awarding university, other universities and a private company. (Walji, 2018)

Just as in the wider economy, in the mode 3 university, we are seeing radical processes of unbundling at work; these processes are leading to a fundamental re-thinking of the idea of the Humboldtian university, going further, even, than Kerr's multiversity.

The Massive Open Online Course (MOOC) is an example of unbundling in action. The year 2012, according the *New York Times* was the year of the Massive Open Online Course (MOOC) stating:

The shimmery hope is that free courses can bring the best education in the world to the most remote corners of the planet, help people in their careers, and expand intellectual and personal networks. (Pappano, 2012)

Despite online platforms offering MOOCs which claim to offer open access to education, the hope of the MOOC has not materialised. van de Oudeweetering and Agirdag (2018) question whether the MOOC is an accelerator of social mobility when they privilege those who already hold a degree in terms of sign ups and completions. Data shows that graduates are more likely to sign up for MOOCs and more broadly completion rates are low. Houlden and Veletsianos (2020) argue that flexible learning layered upon neoliberalism (see mode 2 above) provides emancipatory freedom but only under the constraints of the social and political environment and only extend to a privileged few.

Perrotta (2018) conducted an analysis of websites including universities, Online Programme Managers (OPMs), MOOC platforms and sector commentators to look at phase 1 MOOC which were free and non-accredited through to phase 2 which were

accredited and paid for which are resulting in complex commercial relationships between universities and (MOOC³⁰) platform providers (FutureLearn, EdX, etc) and OPMs (Pearson, Wiley etc). Perrotta concluded that the market making of such complexity is unbundling the university degree but rather than offering flexible, online opportunities for all is stratifying those looking to engage in education along socio-economic lines – those who can afford the career focussed high value postgraduate courses will prosper and those who have access to the non-accredited, free courses will entrench enduring forms of inequality with no access to ‘premium offerings’. Here we see that both economic and technological influences come into play. I carry out a similar approach in 5.2 in looking at part-time undergraduate degrees and access.

The specific unbundling of a degree programme into smaller independent credentials has also become known as ‘microcredentialing’. Ralston (2020) asks whether this particular aspect of unbundling is a ‘craze’ and ‘learning innovation theater’ or the successor to the traditional 4-5 year degree programme. Ralston describes the microcredential as a product of the neoliberal university in that education resembles a commodity, a product or service which are sold. Ralston (2020) sums up a tension that has pervaded this review of the idea of higher education which is still present:

Thus, for microcredentialing’s critics, the craze represents a betrayal of higher education’s higher purpose and a loss for students and faculty who continue to see university learning as more than vocational training (p10).

³⁰ These platforms are becoming less about being open and free to paid for training and academic accreditation. Where the MOOC remains it can often be used as a marketing tool for other paid services.

Ralston traces the history of a debate between higher education for vocational training and in direct opposition to student growth through transformative teaching and research between John Dewey and David Snedden in 1914. Snedden advocated that traditional (Mode 1) liberal education was out of date and higher learning must now be one of usefulness both commercially and vocationally (Mode 2). Dewey, responded by saying that vocational training is in the interests of business who will then guide public interest and that no meaningful change will happen in education – a status quo will form. Dewey differentiated between ‘learning to earn’ and ‘learning by doing’, DeFalco (2016) describes how these two perspectives are not the same, and that Snedden’s conception of education according to Dewey was to produce docile workers. Dewey advocated vocational education but as part of a wider project which promoted learning by doing, but the doing also included the social sciences to include other things such as political astuteness as workers as well as citizens.

Dewey’s vocational education would prize freedom more than docility; initiative more than automatic skill; insight and understanding more than capacity to recite lessons or to execute tasks under the direction of others. (DeFalco, 2016, p. 59)

Ralston (2020) concludes that the ‘microcredential craze’ is aligned to ‘learning to earn’ rather than ‘learning by doing’ in the wider sense of agency and shaping one’s world rather than being shaped by an occupation. This signifies how unbundling is having a direct impact upon the idea of a university and not merely using technology to make education more equitable or accessible.

When accessing literature on the unbundled university, many studies focus on one particular aspect: such as the degree, the academic role, campus management, technology providers. Authors such as Gehrke and Kezar (2015) see unbundling as a

much larger and structural development of the university. They trace unbundling from the 1800s and the Mode 1 University and much of the growth described in this chapter can be linked to unbundling in some form or other. Examples include the technology and technology experts described above but also new universities in a different mould to the traditional Oxbridge (in the UK) model³¹. Such new and private providers have formed their own universities but also teach students of established universities. Moreover, universities create their own spin off companies, rent out and provide conferencing and hospitality services and invite the wider public to use facilities such as sports centres and gyms. Perhaps the biggest structural unbundling that has developed has been the unbundling of teaching and research in direct opposition to the Humboldtian ideal described above (See Chapter 4 for an analysis on the bundling and unbundling of research and teaching in the contemporary UK university). For Bacevic (2019) rather than sections of the university being separated piecemeal, it is a question of boundaries and an evolving and changing university and diversity between universities in society.

Paulson (2002) describes the unbundling of faculty teaching with the increased potential of online education which has held promise of economies of scale and increased student recruitment at distance. Moving from the faculty ‘all-rounder’ who carried out research teaching and service (administration) in the Mode 1 University to learning specialist roles with regard to technology and pedagogy (academic practice, learning technologists, instructional designers etc) and those that focus on either teaching or research in the Mode 2 University is further being unbundled with a blurring of the boundary between university and society. Moreover, these roles may be

³¹ In UK higher education policy, new private providers are encouraged to enter the market, design to create competition and innovation for greater choice for students.

employed directly by the university or by private enterprise or freelancing individuals. Williamson (2020) describes how technology and service companies make markets in this scenario through platform and surveillance capitalism to change higher education through data and surveillance – here we can see the example of external influences impacting the very idea of a university. This has in many cases resulted in a hostility to new technologies and unbundling of the academic teaching and research role resulting in an erosion of professional control and a move from a craft to a Fordist production line of control and efficiency (Johnson, 2013). Gehrke and Kezar (2015) trace the history of unbundling in HEIs with a common narrative of competing interests, external forces and corporate values affecting how unbundling occurs. On the positive side unbundling of faculty roles allows for specialist skills to be utilised (such as instructional design, media production, careers services etc) in a more efficient manner as universities widen access to the wider public. The negative side of unbundling sees the academic role as deprofessionalised and in direct contrast to many of the ideals of the mode 1 university.

McCowan (2017) describes the drivers of the unbundled university as both financial and pedagogical. Financial perspectives are driven both by institutions as they become more consumer focused with efficiency savings but also financially viable for student consumers (see Mode 2 Factory University). From a pedagogical perspective, involving specialists and ensuring that education provided by universities is relevant to contemporary society is a positive.

Morris *et al.* (2020) describe the pressure on universities to grow ‘market share’ globally which has resulted in commercial EdTech partners (who undertake many tasks including content development, teaching, marketing and recruitment) which often result in tensions such as growing income, an identifiable market linked to current

employment statistics, pedagogical approaches and efficiencies. These tensions which potentially have an impact on the identity and idea of a university are described as:

Whilst unbundling is expected to continue, and may offer flexible learning opportunities for a broader continuum of learners, there are perceived risks to separating educational content from the education experience, and the benefits it brings in terms of context, scaffolding, communities of practice etc. Universities will need to guard against this disaggregation of education, and its unintended consequences, whilst remaining relevant and active in this space, which will continue to attract interest from a wide range of private providers, including employers and new training providers. (Morris *et al.*, 2020, p. 15)

For McCowan (2017) an extreme of unbundling may see the interaction between university and society became so porous that the university as an institution does not exist anymore and each unbundled element is carried out by diverse actors and technologies³².

So far, this chapter has traced the genealogy of the idea of a university from a singular idea as small, elite access institutions whereby researchers and students pursue knowledge for its own end to exponential growth of the university as social institution and a key driver of economic success. The singular vision of the idea of the humanist Enlightenment university has developed and grown in line with Trow's elite, mass and

³² Such an existential threat to the university of enquiry, research and education can be seen in news stories with headlines such as *Elon Musk said a college degree isn't required for a job at Tesla — and Apple, Google, and Netflix don't require employees to have 4-year degrees either* (Akhtar, 2020). Moreover, the UK government are calling for the end to 'low value degrees' which they say are degrees which do not result in highly paid employment (GOV.UK, 2019; Packham, 2019).

universal university in line with Mode 1 Ivory Tower, Mode 2 Factory and Mode 3 Network. The many ideas of the university can no longer be attributed to the singular view of the education attributed to humanism but a networked assemblage of diverse human and non-human (technologies, cultures, artefacts). Posthumanism provides us with a pluralistic view of the possibilities of the future university.

3.10 The future posthuman university possibilities

The Mode 1 University as the ivory tower is a vision of teachers, researchers and students in control of their studies and research as free enquiry but as a small elite group with little wider social responsibilities. The Mode 2 University is built on these foundations with growth and mass participation, fuelled by the knowledge economy resulting in agendas set by the external market economy. Moreover, in mode 2, the university becomes more accessible with participation growing and becoming massified linked to national aims and economic growth. In the Mode 3 Network University the university has many more influences, these are human and non-human, public and private, inside and outside of the university. These widening ecologies and assemblages and how the future university develops can be framed around the philosophy of posthumanism.

The earlier ideas of the university, (mode 1 and 2) are grounded in the idea of humanism. The history of humanism dates back to the ancient world across many academic disciplines, especially philosophy and education, asking what it means to be human and how humanistic ideals should be enacted (Law, 2011). Zovko and Dillon (2018) describe a humanistic approach to education:

The cultivation of our physical, emotional and intellectual powers and the transmission of skills for the production of things useful and pleasing, of cultural norms and heritage, which are the task of education, have as their ultimate aim an

ideal which is also that of the philosophical life: the cultivation of the excellence proper to our humanity, the civilization and advancement of the human species.
(P554)

Zovko and Dillon go on to sketch out contrasting conceptions of education as has been traced in in this chapter from the German (Kant and Humboldt) idea of Bildung as self-cultivation and human development through to the ability to thrive economically in employment, promoting self-directed, lifelong learning to develop competencies in the neoliberal knowledge economy. Indeed, education is often described as producing ‘human capital’ and there has been a constant tension throughout this genealogy of the modern university as education for public good contrasted with a socio-economic employment focus. Davies (1997) traces the history of humanism emphasising the plurality, complexity and fluidity of the concept stating that all human endeavour as one linear narrative is problematic. However, for many, humanism’s issues are centred on one particular view of the human, one perspective and often male, white, western and privileged.

Humanists such as Hassan (2018) describe the modern university as analogous to a hi tech, efficient car factory as the neoliberal, globalized university, dominated by new information technologies in stark contrast to the ‘dreaming spires’ vision of the 18th and 19th century (mode 1). The university for Hassan has become highly ‘calculable’ and competitive which he describes as *Analogue People in a Digital University*.

By this it is meant that by embracing digital technology so rapidly and allowing it to permeate the university so comprehensively, we have unleashed a technological force – digitalization – that is radically at odds with what it is to be human.
(Hassan, 2018, p. 372)

Hassan’s perspective is grounded in a humanism of the Mode 1 University. I hold that such perspectives cause tensions in public debate and within universities when

attempting to hold on to the Mode 1 University and reject developments of the mode 2 and 3 university. As I have stated so far in this thesis and will continue with this line of enquiry, holding that such developments are not purely digital or technological but social and political.

For Braidotti (2013), the end of humanism is not a crisis but an opportunity for a new theory of the subject (not just the human) which acknowledges nature and culture (materialist and relational). Braidotti emphasises subjectivity along with critique and creativity in her vision of the posthuman which is not centred on an individual, capitalist, nationalist, human centred normativity but:

This affirmative unprogrammed mutation can help actualize new concepts, affects and planetary subject formations. Just as we do not know what posthuman bodies can do, we cannot even begin to guess what postanthropocentric embodied brains will actually be able to think up (Braidotti, 2013, p. 104)

The posthuman condition has emerged then as a reflective project which asks what it means to be human living in an ecology with many other species, materiality and technology. Placing humans as the focus and way of seeing the world, placing them above other animals, nature and matter is described as the anthropocentric way that we see and understand the world (Wolfe, 2010). Two key aspects of the 21st century is the ecological disruption (colonisation, globalisation, capitalism) and technological development. Such technological development is now so widespread that it enters into many (if not all) fields of professional and academic practice as well as the idea of the university. Posthumanism is a wide ranging field and covers amongst other movements transhumanism, new materialism, object-oriented ontology, speculative realism, actor-network theory and assemblage theory (Mustola, 2019). These theories and movements are beginning to provide new ways to research and view the human not as a controlling homogeneous species but diverse with not one humanity to be followed and to look to

the influence of the non-human. Gourlay (2015) looks at the education practices of postgraduate students using posthumanism and actor-network theory to map out the complex network assemblages of digital and non-digital and broadening this network to include physical spaces such as homes, university campuses as well as digital artefacts and technological devices to enact dynamic material and non-material networks.

Technologies then mediate in these networks and are not prescribed with one substantive essentialist meaning and use – objects become agentic mediators rather than passive objects (see Chapter 6).

The posthuman turn for Braidotti (2019b) sits in between the 4th industrial revolution and the sixth extinction – between the ‘algorithmic devil’ and the ‘acidified deep blue sea’. This metaphor describes human dominance over the world with the threat of autonomous technologies and threat to the natural world. Posthumanism can be described as an ecological system which looks at the human as part of a system including the environment and the material including the spatial, temporal, political, legal, economic, epistemological, technological and education systems, all as interlaced assemblages (Braidotti and Bignall, 2019) but not dominated for control by humans. Gravett and Kinchin (2020) use a posthuman lens to open different potentials and perspectives on teaching excellence and individuals interacting with their environment, rather than a one directional meta narrative of the human at the centre of the universe. Pepperell’s (1995) post-human manifesto sums up such a perspective in that – humans are no longer centre of the universe, the future never arrives, machines will be gods which are so complex we cannot understand them, human knowledge, creativity and intelligence are limited and as computers become more like humans our relationships with them will change.

Posthumanism and other movements which decentre the human and look to non-human entities are beginning to be adopted in education. In seeing the university embedded in society as a network itself and part of a wider network, I argue that posthumanism and similar movements are useful ways to theorise and research the mode 3 network university.

More specifically, Gourlay (2012) describes the contemporary lecture as a posthuman event and part of a wider 'media system' with regard to the blurring of the dominant discourse of 'face to face' and 'digital' and the university as a media system:

The binary is blurred in this context between face-to-face and online engagement, as the context increasingly allows simultaneous engagement with networks of communities and sources of information beyond the physical walls of the university. The porous nature of these textual/multimodal practices across these boundaries complicate any attempt to draw a clear binary in terms of digital and analogue practices and identities, also blurring notions of presence and co-presence, which are neither wholly analogue nor digital. (Gourlay, 2012, p. 208)

This quote from Gourlay encapsulates the Mode 3 Network University in seeing binaries blurred and students as nodes in a wider network. Consider a student googling a term which is being presented, a plethora of definitions and media offer new ways of understanding beyond the confines of the lecture theatre. Gough (2004) terms a humanistic discourse of school and higher education as one that divides humans from others and a 'posthuman pedagogy' as:

material-semiotic assemblages of sociotechnical relations embedded in and performed by shifting connections and interactions among a variety of organic, technical, 'natural', and textual materials (p254)

A posthuman perspective of the university is comfortable with many different outcomes and perspectives and not one idealised human higher education relation. This

for Bayne (Jandrić and Bayne, 2017) is a critical posthumanism which looks to alternative futures and perspectives in what it means to be an educator and a student in a post-anthropocentric environment.

The posthuman university for Braidotti (2019a) must identify what is to be salvaged from the humanist past for a new future. In the context of this thesis then, the Mode 3 University must decide what is to be salvaged or disgarded from modes 1 and 2. Herbrechter (2013) also terms this a critical posthuman approach by looking at the different potentialities to move beyond humanism as a specific view of the world in the context of the proliferation of technological (bio-, nano- cogno- and infotechnologies (p20), human and nonhuman life forms whilst rejecting a purely technological determinism adopted by some transhumanists. This for Herbrechter is a continuity and interconnectedness of humans, culture and technology which in the context of university research and teaching is an issue if disciplines become siloed with little connection, as described by Kerr in the Multiversity above. Herbrechter (2013) describes a balance between the responsibilities of techno-utopians and critical posthumanism to re-evaluate new ethics and politics after humanism and beyond modern technological determinism.

Seen from an interdisciplinary point of view, the culturalist observation of science starts from the assumption that technics, technology and science are interdisciplinary objects whose knowledge production is governed by competition of explanation. In the age of accelerated technologization, technoculture and technoscientific capitalism (i.e. the nexus of science, technology, politics and economy), the interdisciplinary object called 'technology' generates exactly the kind of critical discourse we have called 'critical posthumanism', namely a critical return to the role of technics in the process of becoming human (or hominization). It is thus a question of finding out how the technology changes and subverts the epistemological foundations of disciplinary practice and cultural analysis. The

complexity of the relations between technology, science and culture thus from the starting point for critical science studies. (Herbrechter, 2013, p. 149)

In line with the broader philosophical project of posthumanism, a posthuman education is one in which doesn't reject humanist values out of hand but pursues, adopts and brings together humans, technology and culture in responsible and equitable ways, rejecting one grand narrative of what it means to be human and thus rejecting a grand narrative of what it means to be a university (Herbrechter, 2018).

Gourlay (2020) describes the essence of posthumanism in higher education as looking at a complex mesh of actors in an emergent assemblage with humans (in particular assumptions of white, male, heterosexual, able-bodied with socioeconomic privilege) de-centred and decoupled from individual human agency. Gourlay provides examples of laptop use being a tangle of the digital, material and the body with software such as virtual learning environments and digital MOOC platforms not as tools to be used but active and agentive agents (this holds many similarities with chapters 5 and 6 of this thesis). Moreover, digital forms of education are oversimplified as 'putting online' and some actors in the EdTech field taking a negative view of teaching and education expertise which require 'solutions' and 'fixes' which for them are exclusively technological.

Mustola (2019) reports on two issues with the practical implementation of posthuman pedagogies in that there is an implicit anthropocentric perspective of the human teacher and student which sees the non-human as something to be conquered or used as a tool with no agency. Mustola uses examples of animal-human relations. In the context of education and technology, a challenge as explored in chapters 5 and 6 is the way that technologies act but humans have a prevailing desire to control and use the non-human for their own ends. What Mustola shows from personal experience is that

these ways of thinking are deeply embedded, and many can take offence and fervently defend a humanist stance in a very personal and attached way.

3.11 The discourse of the present

The posthuman perspective as a broader philosophy allows for looking at human-higher education, technology-higher education and human-technology relations as a broader whole and looks to possible futures and not one binary trajectory, much like the genealogical approach used here. In the next three chapters I conduct analysis of the human-higher education (Chapter 4) and technology-higher education (Chapter 5) discourse of the present and a more theoretical analysis of human-technology relations in wider society and within the design of higher education teaching and learning activity (Chapter 6).

In the following I focus these analyses on UK universities. Most recently Government in England have restructured Higher Education with the Higher Education Research Act 2017 (*Higher Education and Research Act 2017*, 2017). For Vinokur and Eyraud (2018) this was a threshold and pivotal moment in the long process of deconstructing higher education from a public service to a market with students as consumers. The 2017 act was designed to create a new regulatory framework to increase competition and introduce greater student choice in making consumer decisions in a market environment. This restructuring included:

- 1) Establishing the Office for Students as a market regulator and voice of student interests
- 2) Outlining financial support and student complaint procedures
- 3) Setting up the United Kingdom Research and Innovation (UKRI) across all research to strengthen interdisciplinary approaches to research

The introduction of the Teaching Excellence Framework (TEF) was part of this new regulatory regime. The university responses to the TEF and REF provide texts for analysis in Chapter 4 on human-higher education relations³³.

The second part of my research question is interested in how the ‘idea of a university’ is impacted by technology. A 2019 policy paper was published by the UK Government titled: *Realising the potential of technology in education: A strategy for education providers and the technology industry* (Department for Education, 2019a). The policy document reads as part education and part EdTech business growth, setting out 10 key challenges (Department for Education, 2019b) under the headers of: reducing the burden of ‘non-teaching’ tasks; making assessment more effective and efficient; supporting access, inclusion and improved educational outcomes for all; supporting teachers so that they can develop and learn more flexibly and supporting decisions about work or further study and helping those who are not in the formal education system gain new skills. The then Education Secretary Damian Hinds in the foreword stated:

I believe technology can be an effective tool to help reduce workload, increase efficiencies, engage students and communities, and provide tools to support excellent teaching and raise student attainment. (p 2)

In Chapter 5 I look to higher education-technology discourse to analyse how technologies are shaping higher education and conversely if higher education is shaping

³³ At the time of analysis the TEF was in pilot mode and there have been questions about its future, however in 2021 the Government have laid out plans (Department for Education, 2021) to continue with the exercise at institutional level (rather than at subject level which was considered) and much less frequently at every 4-5 years in line with the REF following an independent review (Pearce, 2019)

technology. It is clear, that both higher education and technology (EdTech) is high on policy agendas and we may ask if the Ed is influencing the Tech or is the Tech influencing the Ed. In Chapter 6 I provide theoretical perspectives which bridge a divide of purely the social determining technology and in polar opposition, technology determining the social. This lays the groundwork for a more mediating conceptualisation of the sociotechnical university presented in chapter 7.

CHAPTER 4 – HUMANS AND HIGHER EDUCATION

This chapter focuses on the relations between humans and higher education. In Chapter 3 I have mapped out genealogically the development of the modern university. Enlightenment thinking in Mode 1 ushered in a more humanistic perspective to reject religious dogma and knowledge as static, passed down from generation to generation. The Mode 2 University built upon this to teach and research for the needs of the market in the social context of a neoliberal knowledge economy.

The two published papers making up this chapter focus on the dissemination of knowledge. The form of knowledge dissemination I will focus upon is teaching. Having carried out the genealogical analysis in the previous chapter, here I analyse the contemporary UK university in two corpus-assisted discourse analyses. In the first analysis (4.1) I take the 232 TEF statements from 2017, all submitted by UK universities in response to the new framework requiring universities to describe their teaching excellence. CADA is used to identify dominant themes of the regulatory exercise identifying differences between successful and unsuccessful submissions. Secondly (4.2), I use the same TEF statements but compare these with research excellence environment statements to analyse how research and teaching are described as a ‘nexus’ as advocated by Humboldt in the Mode 1 University.

This chapter provides a picture of contemporary university discourse on the purpose of teaching and its relationship with research in the context of the genealogy mapped out in Chapter 3. In chapters 5 and 6 I build on these findings to analyse how technology is disrupting this idea of a university.

4.1 The rhetoric of the UK higher education Teaching Excellence Framework: a corpus-assisted discourse analysis of TEF2 provider statements

4.1.0 Abstract

The Teaching Excellence Framework (TEF) is an evaluation of teaching quality at UK universities. The aim of the TEF is to raise esteem for teaching in line with research and recognise teaching excellence. In 2017 all universities who took part in the TEF exercise were awarded ratings of gold, silver or bronze for teaching quality. These awards were based on a set of quantitative measures and a 15-page provider submission from each university to describe teaching at their institution. In this paper, we analyse the provider submissions that played a crucial role in universities' TEF rating. We conducted a corpus-assisted discourse analysis of all of the provider statements (232 statements; 1,742,438 words) submitted by participating institutions in order to unearth the discourse of the TEF. We found that the themes driving success in the TEF are (1) employment, (2) employability (3) student outcomes and (4) research. Recognising what discourse is rewarded in the TEF has important implications for the accepted discourse of teaching excellence in UK higher education. It is anticipated that, in future, university discourse around teaching quality will continue to be dominated by employability discourse (rather than discourse around, for instance, social goods, personal development or equity).

4.1.1 Introduction

The Teaching Excellence Framework (TEF) is an evaluation of the quality of teaching at English universities. Introduced following the Higher Education and Research Act 2017 the officially stated purpose of the TEF was:

- Better informing students' choices about what and where to study
- Raising esteem for teaching
- Recognising and rewarding excellent teaching

- Better meeting the needs of employers, business, industry and the professions (HEFCE, 2016, p. 7)

Next to these (laudable) aims, however, in policy-terms the TEF forms part of a series of reforms of UK Higher Education introduced by the 2010 coalition government and continued by the 2015 and 2017 Conservative governments aimed at marketising UK Higher Education. It is well known that the Browne Report (Browne, 2009) marked an important moment in shifting the cost of Higher Education from the public purse to the individual student. In the coalition years following the Browne Review and the raising of the tuition fee cap to £9,000 in 2010, it was expected that market forces would allow better quality providers to charge a higher price, leading to diversified tuition fee setting across the sector. However, a number of factors, including the setting of a fee cap, buoyant demand for higher education, and the introduction of a student loan system, meant that a true market never developed and that most UK universities today charge broadly the same (the maximum £9,250 today allowed by the “fee cap”). The 2017 TEF was designed partly to break this deadlock. In order to establish market forces in higher education, it was deemed necessary to give consumers more extensive information on the quality of service that they could expect from providers. With such information available, including a government sanctioned “ranking” of the quality of higher education, it was expected that prospective students would finally begin to make “value-for-money” calculations about higher education; the possibility of raising the tuition cap for institutions offering the best quality teaching was also mooted. As an instrument to encourage the marketisation of higher education, the TEF was therefore always controversial.

Next to its being part of a general marketisation of higher education, the TEF proved controversial also for its results. Following the publication of the TEF2 results,

many (Barkas *et al.*, 2017; Gunn, 2018; Royal Statistical Society, 2019) expressed doubts about the accuracy of the TEF as a measure of teaching quality and noted different outcomes for universities over further education colleges (Gillard, 2018). Other authors (Canning, 2017; Bainbridge, Gaitanidis and Hoult, 2018; O’Leary and Wood, 2018) directed criticism at the ideology behind the TEF: they see the TEF as a neoliberal project which reflects only managerial notions of teaching quality and is divorced from real teaching.

In this paper, we continue the critical discussion of the TEF by analysing and discussing one of its particularly controversial aspects: the provider submissions that formed the qualitative data used to determine the TEF ratings. The introduction of the TEF was one of the most important policy moments in UK Higher Education in the decade 2010 to 2019 and, as Gillard (2018, p. 56) makes clear, the provider submissions are crucial in understanding the TEF. In our first-of-a kind research, we used the methods of corpus linguistics to conduct a discourse analysis of the TEF provider submissions. Using the method of corpus linguistics represents an innovation in Higher Education Policy research, and enabled us to study not only a sample of provider submissions (compare (Beech, 2017)) but all of the provider submissions and to analyse important distinguishing features of the submissions that led to success in the TEF statistically, before following this up with a reading in context. In this paper, we show how the TEF provider submissions are shaping and changing universities’ discourse around teaching quality. In particular, we hold that the TEF, in its current form, plays a key role in the marketisation of higher education by framing the discourse around university teaching quality mainly in terms of employment, outcomes and employability.

The paper unfolds as follows. In section 2, we sketch the background, by discussing the methodology of the TEF. In section 3 we describe the methods of our own study, a corpus-assisted discourse analysis of the TEF2 provider submissions. In sections 4 and 5 we present our findings and section 6 offers our conclusions.

4.1.2 The TEF2 provider submissions

The first TEF results were published in summer 2017 (called TEF year 2, or TEF2). In TEF2, universities in the UK were rated bronze, silver or gold for the quality of their teaching. In 2018 (TEF3 or 2018 TEF) institutions were provided the opportunity to make a new submission or to retain the gold, silver or bronze classification awarded in 2017 for three years. In 2021, results of a new “subject level TEF” are planned; in the subject-level TEF, not only universities, but different subjects within universities will be rated bronze, silver or gold (Office for Students, 2018).

- The TEF2 ratings were largely derived from three data sources:
- The National Student Survey (NSS), yielding data on student satisfaction.
- The Destinations of Leavers from Higher Education Survey (DLHE), yielding data on student employment after university.
- Individualised student record data from the Higher Education Statistics Agency, yielding data on drop-out rates. (HEFCE, 2016, p. 22)

A three-step procedure was used to arrive at each university’s TEF rating based on these data sources. In the first phase, evaluators analysed data from the NSS (National Student Survey) as well as (non) continuation data and graduate destinations data (further study and employment). These quantitative data (called “flags”) were used to construct an “initial hypothesis” regarding a university’s teaching quality. In the

second phase, assessors read the 15-page “provider statement” from each institution in order to see whether anything about how an institution describes their own teaching offering contradicted the initial hypothesis. In Step 3, a panel of assessors evaluated both the provider submissions and the quantitative flags in tandem to determine the TEF rating of bronze, silver, or gold (HEFCE, 2016, p. 22).

In understanding the outcomes of the 2017 TEF, the written, 15-page qualitative submissions are of particular significance. Firstly, the written submissions made a crucial difference to the outcome of almost 15% of institutions. Based on their provider statements, 34 institutions’ awards were changed from the “initial hypothesis”, 33 universities’ results were upgraded and one downgraded (Baker, 2017). In fact, in his statistical analysis of the TEF results, Gillard (2018, p. 56) highlighted the important role that the provider submissions played in the final outcome of many awards. However, exactly how the written submissions influenced the final awards is not open to purely statistical scrutiny. This is because, as qualitative submissions, the written submissions are open to interpretation and the evaluating panel had to use judgement in how to evaluate the written submissions. Close study of the provider submissions, therefore, would give us not only an insight into the deeper workings of the TEF, but, because of its status as the officially sanctioned rating of UK universities’ teaching quality, the provider submissions give us a unique opportunity to evaluate the discourse of teaching in UK universities in relation to recent policy.

The only in-depth research on the provider statements to date is a study by Beech (2017). Beech analysed the provider statements of 12 institutions, all of which were upgraded to a higher award based on their written submission. Beech stated that this analysis looked at: types of themes, evidence and presentation styles that persuaded

the TEF panel to award an institution a higher ranking on account of the narratives submitted (Beech, 2017, p. 21).

Beech identified a number of common buzzwords in these submissions, including: “outstanding”, “creative”, “fusion”, and “connected curriculum”. She found that the institutions whose provider submissions scored highly described teaching as something not just confined to the lecture hall, and they used quantitative and qualitative measures to provide evidence of the impact of teaching initiatives; moreover, Beech concluded that those universities awarded gold included more student-centered initiatives in their submissions. According to Beech, the central themes of the successful submissions were research-led teaching, co-creation, academic employment contracts, rewards and recognition, student input, extra-curricular concerns, digital connectivity, accessibility, mentoring schemes, geographical factors, employability programmes and careers support. While Beech held that the twelve submissions she analysed were “all different” she expressed the fear that, in future TEF provider submissions will all become more formulaic and similar (Beech, 2017, p. 53)

4.1.3 Methods

Following on from Beech’s work, we studied the TEF provider statements in an attempt to uncover the discourse behind “teaching excellence” as it is demonstrated in the TEF. In particular we asked: what are the discourse themes (if any) that differentiate those submissions that performed well in the TEF in contrast to those that performed poorly?

In order to answer this question, we collected all 232 TEF2 provider statements submitted by the participating institutions in 2017 (1,742,438 words) and constructed a “corpus” of TEF2 provider statements. (The TEF provider statements are all public documents, freely available from the OFS website (Office for Students, 2018). We then

analysed these statements using the methods of corpus-assisted discourse analysis (more below). Our study is original in being one of the first in-depth studies of the function of the TEF and being the first to study “a full census” of provider submissions; it is also one of the first studies to bring best practice methods in corpus linguistics to the study of Higher Education Policy. Corpus linguistics is little used in Educational research at present. While a search in the Education Resources Information Centre (ERIC) database returns 3,097 papers that mention corpus methods, only 178 deal with Higher Education and a clear majority of these 178 papers concern second language instruction in HE. We find only five papers that apply corpus methods to UK HE and only one (Stockwell and Naidoo, 2017) that deals with UK HE policy. As such, our paper is not only the first to analyse all TEF2 provider submissions, but serves as a testing ground for the utility of corpus methods in educational policy research.

Having collected the 232 provider statements in PDF format, we used LancsBox 4.0 software (Brezina, Timperley and McEnery, 2018) to conduct our analysis. Given the large size of our data (1.7 million words), methods were needed both to make sense of these data at a high level, but also to read texts in enough depth in order to understand the nuances at play in individual texts. For our analysis, we therefore chose the method of corpus-assisted discourse analysis, a form of discourse analysis in the social sciences that draws upon the methods of corpus linguistics (Mautner, 1995). Corpus-linguistic approaches to the study of text involve taking a large body of real-life texts (a corpus) and using computer analysis tools to analyse the texts for patterns and key words (McEnery and Wilson, 1996). In corpus linguistics, texts can be analysed in order to understand real linguistic usage (this is the interest that the linguist as a scholar of language use takes in a corpus). However, the techniques of corpus linguistics may also be used in an attempt to uncover something that is happening in society and is

reflected in changing use of language (this is the use that a social scientist may make of a corpus). An early example of the use of corpus linguistic techniques in social science can be found in the work of Stubbs (1996). As a socio-linguist, Stubbs adapted the tools and techniques of corpus linguistics to study what insight we may gain into social forces by understanding the linguistic features of bodies of texts. Stubbs proposed the following techniques for the social scientific use of corpus linguistic methods: the determination of keywords and the investigation of patterns of word frequency, concordance and collocation (Stubbs, 2001).

In our study, we were interested in what the language of the TEF provider submissions can tell us about how institutions went about convincing the TEF panel of their worthiness of gold status and which of these efforts were successful or not. We were interested in what the discourse found in TEF2 provider submissions showed about how universities describe their own teaching quality and when that is successful; we surmised that this would give us an insight into what is currently the “authorised”, “sanctioned”, “accepted” or “approved” discourse around teaching quality in the UK. We used Stubbs’s methods of studying word frequency, concordance and collocation in order to give us a high level, quantitative insight into the use of words describing teaching quality in our corpus of TEF provider submissions. However, following a method proposed by Mautner, we then followed up our corpus linguistic analysis with an in-depth reading of a small number of provider submissions of particular interest. Mautner, amongst others (Hardt-Mautner, 1995; Baker *et al.*, 2008; Mulderrig, 2011; Baker, Gabrielatos and McEnery, 2013; Partington, 2013; Toolan, 2016) have combined the traditionally quantitative corpus methods with qualitative critical discourse analysis. Combining these two methods enabled us to find high-level patterns of word use and then to study how these patterns play out in individual texts.

4.1.4 Corpus analysis

Keyword analysis

First, we divided our submissions into those that resulted in an institution being upgraded from the initial hypothesis and those that were not upgraded by creating two sub-corpora to compare: “upgraders” and “non-upgraders” (Table 1). We surmised that the 33 submissions that resulted in an institution being upgraded would be particularly representative of the kind of discourse that the TEF evaluators admired and then chose to commend, through the award of an upgrade to a higher award (be it silver or gold).

Table 1: Sub-corpora constructed	
195 institutions not upgraded based on qualitative submission	33 institutions upgraded based on qualitative submission
Corpus size: 1,444, 145 words	Corpus size: 298, 293 words

In our analysis, we compared how frequently those institutions that were upgraded used a particular word compared to those institutions that were not upgraded. This resulted in a “keyness” analysis to ascertain which words capture the most important differences between the two sub-corpora of upgraders and non-upgraders. In corpus linguistics, “keyness” is usually evaluated in terms of the overlap between statistical significance and effect size. To test the statistical significance of differences in word frequencies between the two sub-corpora, we calculated the log-likelihood (G2) of the frequency of use of the identified keywords. Rayson, Berridge and Francis (2004) hold that log-likelihood provides a more accurate test of significance than chi-square for corpus linguistics; p-values and G2 values can be compared as in Table 2.

Table 2: P value and loglikelihood comparison

p value	G ²
< 0.05	3.82
< 0.01	6.63
<0.001	10.83
<0.0001	15.13

However, in contrast with much research in the social sciences that regards a p-value of <0.05 as indicating significance, researchers in corpus linguistics usually adopt a more rigorous threshold, with Wilson (2013, p. 8) advocating a threshold of $p < 0.01$ ($G^2 = 6.63$) and Rayson et al. (2004) advocating a threshold of $p < 0.0001$. In line with Rayson, we have adopted a significance threshold of loglikelihood $G^2 = 15.13$ for our study.

Effect size is the difference between normalised (use per 1k words in this case) use in both corpora. Gabrielatos (2018) stresses the importance of statistical significance and effect size and not to confuse the two: statistical significance shows us that the sizes of the actual differences observed are bigger than those that might be expected by chance, but the effect size shows us the magnitude of the difference between two sets of results. We report effect size as the difference between normalised (used per 1k words) frequencies as %diff³⁴ and absolute increase in frequency per 1k words.

³⁴ 1.<http://ucrel.lancs.ac.uk/people/paul/SigEff.xlsx>(latest version, 4 July 2016). Paul Rayson also maintains a webpage offering a statistical significance calculator, as well as information on a large number of metrics: <http://ucrel.lancs.ac.uk/llwizard.html>

Thirdly, we studied the frequency of the use of keywords throughout the corpus. Egbert and Biber (2019) warn that heavy use of a particular keyword in only a small number of texts in the corpus can influence results. Mindful of this problem, we set a frequency threshold of one occurrence per 1,000 words; this ensures that unique words to individual texts are excluded in line with our aim of looking for dominant discourse differences between the sub-corpora. We also report Range % to ensure the even distribution of our keywords across all texts within a corpus (Brezina, 2018).

To summarise our approach: The combination of (1) effect size with, (2) a statistical significance threshold, and (3) frequency and dispersion thresholds enabled us to establish our “Candidate Key Items” (CKI’s) as follows.

Table 3 shows us that use of the following words seemed to make the largest and most certain difference to whether a university was upgraded or not: “we”, “our”, “employability”, “research”, “2016”, “outcomes”, “employment”, “university”, “by” and “have”.

Table 3: Keyness analysis by %diff – keywords used significantly more in upgraders corpus compared with non-upgraders

Word	Use per 1k words (upgraders)	Use per 1k words (non upgraders)	Increase freq per 1k words	Dispersion Range %	Dispersion Range %	Log Likelihood	%diff
				(upgraders)	(non-upgraders)		
we	6	3.54	2.46	96.97%	87.44%	335.35	69.26
our	10.91	6.93	3.98	100%	91.46%	465.31	57.36
employability	1.86	1.31	0.55	96.97%	99.97%	48.17	41.39
research	3.08	2.31	0.77	100%	95.48%	56.85	33.47
2016	2.16	1.62	0.54	100%	96.98%	39.8	33.45
outcomes	1.91	1.46	0.45	100%	98.49%	30.46	30.66
employment	2.28	1.79	0.49	100%	97.99%	28.98	26.82
university	6.26	5.2	1.06	100%	97.49%	49.37	20.34
by	6.14	5.28	0.86	100%	98.99%	32.31	16.21
have	5.36	4.62	0.74	100%	98.99%	27.24	15.9

In our analysis, we were interested in how universities describe their teaching and learning practices and environments in substantive terms; following Beech (2017), we were interested in unearthing the “buzzwords” associated with TEF provider submissions. For this reason, we discarded pronouns (“our”, “we”), prepositions (“in”, “by”) and the verb to be (“have”). While we do not rule out that stylistic features like writing in the first person (“our”, “we”) or grammatical features may have influenced the reception of TEF provider statements, our focus was on words that clearly communicate some description of a university’s approach to teaching and learning. For this reason, we selected the following keywords out of the following list: “employability”, “research”, “2016”, “outcomes”, “employment”, and “university” for analysis.

Collocation analysis

Following our keyword frequency analysis that identified a number of substantive words relating to universities’ teaching that made a difference to whether an institution was upgraded or not, we conducted collocation analyses of the use of these words.

Collocation analysis shows which words are statistically most likely to occur next to or near a keyword (Baker, 2006). By understanding which words tend to appear next to or close to a keyword, we can understand how that keyword is used; as Firth (1957, p. 11) stated: “you shall know a lot about a word from the company it keeps”. In the tables below, these collocates are identified including the frequency with which they appear as well as the Mutual Information (MI) statistic. Association or collocation measures tell us how strong the associations between the collocate and the keyword are (Brezina, 2018, p. 70), the higher the number, the stronger the association. Lancsbox

uses the following equation to calculate $\log_2 O_{11} E_{11}$. We only report here MI above 7.0 to show the strongest associations.

Table 4: Collocation for the word 'research'			
Keyword: Research			
Corpus: 33 upgraders			
Collocate	MI Stat	Freq (coll.)	Freq (corpus)
scholarship	7.90170439	91	123
informed	7.09066791	35	83
le2	7.53995803	19	33
forefront	7.12492021	19	44
ref	7.11403231	12	28
scholarly	7.48842817	10	18
findings	7.07339007	10	24
conduct	7.44334064	7	13
institutes	8.11402925	6	7
Capstone	7.65835436	5	8
power	7.33642412	5	10

Table 5: Collocation for the word 'employment'			
Keyword: Employment			
Corpus: 33 upgraders			
Collocate	MI Stat	Freq (coll.)	Freq (corpus)
further	7.487901011	206	503
study	7.063571917	206	675
highly	7.839755876	173	331
skilled	8.428501595	169	215
sustained	7.413244844	21	54
so1	7.666190994	19	41

highly-skilled	8.676278136	14	15
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Table 6: Collocation for the word 'employability'			
Keyword: Employability			
Corpus: 33 upgraders			
Collocate	MI Stat	Freq (coll.)	Freq (corpus)
transferable	8.221949625	30	54
embedding	7.91466803	22	49
so2	8.002832698	21	44

Table 7: Collocation for the word 'outcomes'			
Keyword: Outcomes			
Corpus: 33 upgraders			
Collocate	MI Stat	Freq (coll.)	Freq (corpus)
positive	7.219707221	119	417
achieving	7.770995096	23	55
so3	8.827159501	20	23
longitudinal	8.269800953	13	22
risk	7.090193907	12	46
achieves	8.581334137	11	15
differences	7.443830613	10	30

Table 8: Collocation for the word '2016'			
Keyword: 2016			
Corpus: 33 upgraders			
Collocate	MI Stat	Freq (coll.)	Freq (corpus)
qaa	7.13789455	47	154
her	7.07430736	33	113
september	7.89073383	18	35
november	8.26513023	12	18

june	7.91149255	12	23
december	7.92409269	10	19
ofsted	7.77970374	10	21
opened	7.71258899	10	22
january	7.52816473	10	25

We first turned our attention to the word “university”. We found that the word “university” mostly occurs closely to the names of universities. This is to be expected as our sub-corpora of identified upgraders are all universities. This indicates that the word “university” does not tend to describe anything notable about teaching practice in our two sub-corpora, but only shows that universities often refer to themselves (using phrases like “University of X”) in their submissions. “University” was therefore discarded from our analysis.

However, the following remaining keywords yielded notable results. Across the sub corpora we can see that keywords “employment”, “employability”, “outcomes”, “2016” and “research” all have some interesting collocates. Firstly, “employment” collocates with the word “so1”, “employability” collocates with the word “so2” and “outcomes” collocates with the word “so3”. “SO1”, “SO2” and “SO3” are abbreviations for the TEF2 evaluation requirements as outlined by HEFCE to universities in advance of writing their submissions. “SO” stands for “Student Outcomes” and is one of the key areas that universities were briefed they would be evaluated on (as part of the Student Outcomes and Learning Gain aspect):

SO1 – Employment and Further Study,

SO2 – Employability and Transferable Skills,

SO3 – Positive Outcomes for All.

(HEFCE, 2016)

It is no surprise that the word “employment” collocates with SO1, that “employability” collocates with SO2 and that “outcomes” collocates with SO3. Universities were briefed that they would be evaluated against these three criteria and, quite naturally, used the language of these criteria in those sections devoted to demonstrating how they had met the criteria.

It is still notable, however, that the words “employment”, “employability” and “out comes” are more often used in the context of the “Student Outcomes and Learning Gain” sections of TEF submissions and not in the context of the Teaching Quality and Learning Environment sections. This would suggest that the words “employment”, “employability” and “outcomes” are, in the minds of the writers and readers of submissions, a matter of student outcomes – of what results from university education.

Looking at the other collocates of the word “employment”, one can see words like “further”, “study”, “highly”, “skilled”, “highly-skilled” and “employability”. These again link back to the TEF2 guidelines. The following “possible examples of evidence” can be found in the guidance under the aspect of Student Outcomes and Learning Gain (SO):

- Evidence of longer-term employment outcomes and progression of graduates including into highly-skilled employment
- Evidence and impact of initiatives aimed at preparing students for further study and research
- Evidence and impact of initiatives aimed at graduate employability

(HEFCE, 2016, p. 45)

By analysing the collocates of the word “employment”, we can see that universities tended to use, in their submissions, the same words as are found in the

guidelines. It seems that, in the successful written submissions, the universities “mirror” or “repeat back” the approved language found in the TEF2 guidelines.

Secondly, looking at the word “employability” and its collocates we can clearly see that, other than “SO2”, two words in particular collocate with employability: “transferable” and “embedding”. The concept of “embedding employability into a curriculum” is the practice of designing all university curricula with the aim of promoting employability. “Transferable” skills are those skills that students can “transfer” from academia into employment. It is clear from the collocation analysis that “transferable” and “embedding” are two particular words that occur very frequently close to or next to “employability” in the submissions of those universities that were upgraded. This provides an indication that discourses around “embedding employability” and promoting “transferable skills” are particularly important in the TEF.

While the use of the words “employment” and “employability” were easy to understand based on the collocation data alone, it took more analysis to make sense of the use of the keywords “outcomes”, “2016” and “research”. To see this, consider that the words “employment” and “employability” each have a clear meaning in this context: universities were instructed by the evaluators to report how degrees enabled employment and it seems that submissions that were upgraded indeed gave much attention to these matters. However, “outcomes”, “2016” and “research” can have many meanings depending on the context, so it is particularly important to give attention to this context. For this reason, we followed up our collocation analysis with a concordance analysis of “outcomes”, “2016” and “research”.

Concordance analysis

In order to understand written submissions' use of the word “outcomes” we conducted a concordance analysis. We produced concordance lines of “outcomes” as used in context with the ten words either side. We then read each of these lines, to gauge exactly how written submissions use the word “outcomes” in context (Table 9).

Table 9: A selection of concordance lines for 'outcomes'		
Left	Node	Right
evidenced to lead to excellent	outcomes	for our students. This is
term intervention and support. Student	Outcomes	and Learning Gain Employment and
be significant as the educational	outcomes	result in a 'graduate premium'
are required to set learning	outcomes	both for overall course and
implemented across the institution. Positive	Outcomes	for All (SO3) The contextual
is designed to secure positive	outcomes	for all. These high DLHE
enhance their academic and employment	outcomes.	While the positive BME and
improve their prospects. Long-term employability	outcomes	compare positively with the sector.
risk of not achieving positive	outcomes.	Through a newly established Business
demonstrate that we provide excellent	outcomes	for our students in terms

Looking firstly at the word “risk” in context through analysing concordance lines, we observed that the exact phrase “at greater risk of not achieving positive outcomes” is very frequently found in the upgrader submissions. In context, this phrase is used when universities describe how they take students who come from “disadvantaged backgrounds” such as part-time or BME students and then describe how their approaches to teaching and other interventions allow for these groups to have positive outcomes equal to “non-disadvantaged” students. This again links strongly to one of the key metrics of TEF2, that of learning gain, which falls under the aspect of Student Outcomes and Learning Gain. Institutions here are showing how much further these students have progressed from joining the university to their outcomes. The same is the case for words like “positive” (outcomes), “achieving” (outcomes), “longitudinal” (outcomes) and “achieves” (outcomes). Exploring use of the word “differences” further

in context shows that the uses are to describe the causes of different student outcomes amongst groups of students. For instance, two institutions reference a 2015 HEFCE document titled *Causes of differences in student outcomes* (Mountford-Zimdars *et al.*, 2015). In context, it appears that the word “causes” is used to explain why different groups of students have different outcomes.

Next, when looking at the use of the word “2016”, we can see that the words “QAA” and “HER” collocate most often with “2016”. “QAA” stands for Quality Assurance Agency and HER stands for “Higher Education Review” which was an exercise conducted by the QAA in 2016. Amongst the upgraded institutions, many use the words “2016”, “QAA” and “HER” to evidence teaching quality. Table 10 shows a selection of concordances to illustrate the examples of “HER” in use.

Table 10: A selection of concordance lines for ‘HER’ in the 33 upgrader corpus		
Left	Node	Right
and related practices, the QAA	HER	report identified as good practice
(2016) QAA Higher Education Review	(HER)	where we achieved the most
degrees. Given the 2016 QAA	HER	endorsement of the quality-assurance processes
external validation. Our 2016 QAA	HER	report noted nine areas of
In addition, our 2016 QAA	HER	report praises specific strategies that
acknowledged in our 2016 QAA	HER	report. Our online digital support
recognised in our 2016 QAA	HER	report which identified as good
and activities. The QAA (2016)	HER	report emphasised the valuable contribution

It appears that mention of the 2016 Higher Education Review was particularly frequent in the statements of those providers who were upgraded. Looking finally at “research” (Table 11) gives us the only other insight into one of three aspects of the TEF other than Student Outcomes and Learning Gain.

Table 11: A selection of concordance lines for 'outcomes'		
Left	Node	Right
building the excellence of education, growing our	research	strength and deepening the contribution of professional
of knowledge "our graduates undertake genuinely novel	research	projects as part of their degree programmes
research contracts, and 92% of teaching and	research	staff were returned to the 2014 REF.
REF. Whilst this appears lower than other	research	intensive universities it reflects the fact that
million journal article downloads. Our academic staff	research	publication repository is linked through Discover, which
would be able to publish their URSS	research	findings as part of a peer-reviewed journal
to student retention. One of our 4*	research	impact case studies in the REF 2014
and novel, i.e. they are not "dummy"	research	projects where the lead investigator already knows

The key collocates of "research" in Table 4 are "scholarship", "informed", "le2", "forefront", "ref", "scholarly" and "findings". The aspect of the TEF in which all of these relate is "Learning Environment", abbreviated "LE". In particular, LE2 is that aspect of the "Learning Environment" relating to Scholarship, Research and Professional Practice (HEFCE, 2016). Just as we saw with SO1, SO2 and SO3 above, it seems that universities tended to present their research in the context of addressing one of the evaluation criteria – in this case "LE2". Arguably, the fact that the evaluation process required mention of LE2 explains the fact that the word research frequently occurs close to words like "LE2", "scholarship" and "scholarly". Furthermore, we can see that universities frequently write about research in the context of the Research Excellence Framework (REF) which many research-intensive universities use to describe their institution and subsequently their teaching as research informed. Reading what universities write about their research in context, makes clear that universities view "research" as a matter of the kind of environment or atmosphere that research creates as a backdrop for teaching and learning. Furthermore, universities use the chance, when talking about their research, to advertise their research successes. As indicated by collocates like "REF" and "forefront" use of the word "research" in TEF

provider statements seems to function like a marker of success or status. This finding also relates to our finding reported earlier, that only universities were upgraded and no FE colleges were upgraded. Research as a status marker and as an “environment” factor might further explain why only universities were upgraded: as the LE2 criterion was designed, only universities could say much about their research environment and the most successful universities had the most to report here. The research/teaching nexus (Tight, 2016) is complex and due to space cannot be explored further here, but we can see that talking about research and links to teaching was beneficial in TEF2.

4.1.5 Discourse analysis

Our corpus analysis, reported on in section 4, already showed up some clear patterns in university discourse on teaching excellence, encapsulated in the TEF provider statements. Those universities that were upgraded used words like “employment”, “employability”, “outcomes” and “research” more frequently than other institutions. They used these words more or less in line with expectations that were communicated to them regarding how their TEF submission would be evaluated and a number of stock words or phrases stand out: next to “employment”, “employability” and “outcomes”, institutions frequently wrote of “embedding”, “transferable” and the QAA Higher Education Review in 2016. This broad information about the pattern of word usage in the TEF shaped the next stage of our analysis, a more in-depth and qualitative discourse analysis of TEF provider submissions.

In our discourse analysis of TEF provider submissions, we conducted a targeted reading of a small number of apparently successful and apparently unsuccessful TEF2 written submissions in order to investigate discourse around the TEF in more detail and to confirm our initial finding that (1) discourse around student outcomes, graduate employment and employability and research status played a crucial role in the TEF and

(2) that successful submissions largely attempted to mirror the “approved” discourse around teaching and learning that was communicated to universities by the TEF panel.

We selected the following submissions for a close reading:

‘Successful submissions’: we selected for close reading a small number of what we judged must have been quite successful submissions. These were the submissions of five institutions that were upgraded to gold in TEF2, despite the fact that they occur in the lower reaches of the main university league tables like the Guardian and Times league tables.

‘Unsuccessful submissions’: we selected for close reading a small number of submissions that apparently did not meet with the approval of the TEF evaluators. These were the submissions of the three universities in the Russell Group who achieved bronze in TEF2 and whose written submission did not result in an upgrade. In the group of unsuccessful submissions, we also included the sole university whose TEF ranking was downgraded from their initial hypothesis in TEF2.

This gave us nine submissions to read in depth: five that we label as “successful” and four as “unsuccessful”. Importantly, we stress that these judgements of “success” are not our own. We do not make any judgements ourselves about which universities wrote “good” or “bad” TEF submissions or, indeed, about the teaching quality on offer at any of these universities. As a matter of objective fact, the TEF panel awarded universities “gold”, “silver” or “bronze” medals in the TEF and chose to upgrade some submissions but not others. This, and the rankings of individual universities, was widely reported in the UK press in 2017.² In itself, our analysis does not add anything good or bad to the reputational judgement that the TEF panel already

made and published in 2017; rather, we only attempt to understand why the TEF panel may have made the judgements that they did and to map out the “discourse of teaching excellence” that is now crystallising out of these submissions in the years following TEF2.

Be that as it may, our reading of the five “successful” and four “unsuccessful” submissions yielded the following contrasts.

Use of words like “employability” and “employment”

In order to gauge the prominence that universities gave to employability related themes beyond just the level of quantitative analysis, we read all nine of these submissions in depth and conducted thematic coding of references to employment and employability in order to study where and how universities mentioned employability related themes in their submission.

It was clear that successful submissions mentioned employability related themes throughout their submission. By contrast unsuccessful submissions confined mention of employability to only part of their submission and did not highlight it throughout. For instance, one unsuccessful submission mentions the word “employability” only twice. Furthermore, the same submission confines most mentions of the word “employment” to only two sections: the sections devoted to “student outcomes and learning gain” and “employability and transferable skills”. These two sections correspond to two of the explicit evaluation criteria set by the TEF panel, making it appear that the university making this submission only mentioned employability when they absolutely had to. In fact, at one point in their submission, the university in question downplays the importance of employment to it as an institution.

Moreover, it made clear that [our] students expect our education to act as more than a conduit for gainful employment, but also as a means through which to develop intellectually.

While mention of employability related matters was both more frequent and better distributed in the other two unsuccessful submissions, these two institutions still tended to draw a distinction between their university's teaching and learning missions and their development of employability. For instance, it was noticeable that the two submissions in question positioned employability mainly in the context of their employment outcomes (that is graduate destinations) as well as in connection with extra-curricular provision for students. For instance:

The University has made a significant investment in work dedicated to enhancing the employability of its students; we are committed to ensuring that our graduates are sought after and valued by employers. The number of staff employed in our Careers and Employability service has increased from 23.8 to 32.3 FTE in the period 2013 to 2016.

This seems to indicate this institution conceives of developing employability mainly as a task for the careers service. In context, it appears that this example sketches employability as an "additional" matter, tackled by "initiatives" that are separate from the university's main teaching and learning offering.

We see a similar attitude to employability in another unsuccessful submission:

All students are offered opportunities to enhance their employability and transferable skills through year in industry programmes, Study Abroad opportunities including language years abroad and the Year in China programme.

Furthermore, under the heading "extra-curricular activities and skills development" a non-upgraded institution says:

. . . is an online hub highlighting the range of co- and extra-curricular activities available to students, aimed at encouraging them to engage with skill-building experiences beyond their studies and to recognise the range of employability skills they can develop through such activities.

It appears that this submission, too, situates employability as an “add-on” activity that is a different matter from study. The examples show that, where unsuccessful submissions do make mention of employability, it is as an “add-on”, not “embedded” in all teaching and learning.

By contrast, successful submissions gave employability not more frequent mention as such, but let it have pride of place. Amongst successful submissions, one finds the following examples of discourse around employment and employability:

As part of the University’s new ‘Learning & Teaching Strategy 2016–2020’, a cross institutional Employability Working Group chaired by the Pro Vice-Chancellor (Student Experience) has been established, tasked with implementing at pace a range of strategic initiatives designed to improve graduate employability across all subject areas.

The work of the University’s Careers and Employability Service (CES) is fully integrated into the life of the Schools, so that there is a seamless link between teaching and employability.

. . . set out a new ‘Strategy for Enhancing Student Employability’. All students now receive targeted, timetabled employability sessions embedded within the curriculum in each of years 1, 2 and 3 of their studies. The development of a positive employment-focussed attitude is main-streamed in every student’s course...

The L&T Plan directly aligns to the Employability Action Plan (SO1 and SO2) resulting in the embedding of graduate employability skills alongside opportunities for placements and work shadowing.

Universities that were upgraded clearly positioned employability as central to their teaching and learning mission. Indeed, in the collocation analysis, above, we found that, in successful submissions, the word “employability” often collocates with the word “embedded” and this is confirmed in our close reading of the five submissions we

identified as particularly successful. The word “embedded” or, in one successful submission “integrated”, is indeed very frequently used in this context. Successful submissions sketch employability as a central and structuring consideration in all university teaching and learning and not just as an “add-on” or “initiative”.

Discourse around “outcomes”: using quantifiable metrics

Next to discourse around “employment” and “employability”, in our close reading of TEF submissions we were also interested in use of the word “outcomes” and in how universities framed discourse around outcomes. From our close reading it appears that those that were more successful in TEF2 quantified outcomes in a certain predictable way: successful institutions made mention of some kind of intervention and then provided data and evidence for its success. For instance, one successful university quantifies some of their student outcomes as follows:

With regard to the highly skilled employment (HSE) outcomes, the metrics show a strong positive trend over the 3 year period. Of students in employment, 73.2% of our graduates are in HSE compared to a national average of 70%. This is as a result of a sustained, deliberate employability strategy to further improve the positive job outcomes for our students. Paying regard to the trend demonstrated in the data is particularly relevant to institutions such as ours which show continued improvement in outcomes over a sustained period rather than being in ‘steady state’.

Particularly interesting is how some universities sketched even apparently negative outcomes as a positive through the presentation of data. For instance, another university wrote:

The University has successfully widened access and improved outcomes for students from disadvantaged backgrounds or who come into higher education with lower entry qualifications. In the five years to 2015–16, full-time student numbers fell by 511 (5.1%) while part-time student numbers fell by 1,115 (24.7%). The overall reduction in students was 1,626 (11.1%), although full-time first degree

numbers rose by 667 (8.8%). The reduction in full-time ‘other’ undergraduates follows a strategic decision to develop our first degree portfolio while reductions in part-time undergraduate students follow a national trend since the fee increases of 2012. (bold text in the original)

By contrast, institutions that did not perform well seemed to take their student demo graphics as a given and explained outcomes in terms of underlying demographic factors rather than in terms of “initiatives” that the university had launched. For instance:

Employment is the natural outcome for ***** graduates. In 2014/15 fewer of our graduates (7.6%) chose further study, than in GuildHE HEIs (9.8%) or the sector as a whole (17.4%). Further study, whilst an appropriate next step for graduates, is an outcome measure over which institutions can have greater control (through pricing, bursaries and targeted marketing), than the employment measure, where graduates’ abilities are judged in the labour market.

***** has a particularly high proportion of students holding BTEC entry qualifications, especially at higher tariff points. The effect of this is to reduce the likelihood of these graduates gaining highly skilled employment or further study, other things being equal.

In short: successful submissions took even seemingly unfavourable data and wrote about how some institutional initiative turned the bad outcomes around; while unsuccessful submissions treated outcomes either as a fait accompli or only in vague terms.

While the final example provides perhaps the starkest example, some other unsuccessful submissions were simply vague about what the university was doing to improve outcomes, without providing quantitative evidence that interventions were succeeding. For instance:

***** is committed to a system of continuous improvement to enhance opportunity, student satisfaction and graduate outcomes. In this we work in close partnership with the Guild of Students and our student body, as evidenced by the multiple initiatives in our student-led Enhancement Projects and department-led Enhancement Plans. The year-on year improvements we are seeing in student satisfaction and graduate employment demonstrate that this enhancement-led approach is effective.

Our confidence that we engage our students in research-informed learning, which consistently engages them with developments at the forefront of research, fosters personal development, and allows them to consistently achieve outstanding outcomes, is reinforced by feedback from a broad range of external stakeholders.

Research

Thirdly, in our in-depth reading of “successful” and “unsuccessful” submissions, we were interested in how universities described research. Reading our sample of submissions in depth, it became clear that all nine submissions, whether they mentioned research frequently or not and whether they were upgraded or not, treated research in more or less the same way. Firstly it was notable that most mentions of research could be found in those sections to do with the “Learning Environment”. Furthermore, all the submissions read sketched the value of research mostly in terms of how research formed a fruitful “backdrop” for undergraduate teaching. Indeed, what was most striking was use of the stock phrase “research-informed teaching”. This phrase, or variants of it, were used in all nine submissions; variants included: “research-rich”, “research-inspired”, “research-connected”, “research-based”, and “research-led” teaching, in addition to “research-informed teaching”. As to how research informs teaching, however, submissions were notably vague. A number of submissions mentioned opportunities created for undergraduates to acquire research skills, for instance through research methods teaching, through undergraduate research projects and through

undergraduate journals. However, most institutions seemed to conceive of research as being a factor that creates a certain atmosphere or climate in which undergraduate teaching can take place without articulating in depth what it is about the content of their particular research that makes the difference. To put it starkly, while universities tried to be as specific and quantifiable as possible about the “outcomes” of their teaching (and while this was rewarded in the TEF) they were vague about the exact value of research as an “input” factor. It appears that the presence of a high quality research environment did potentially play some part in convincing the judges of teaching excellence at an institution but there appears to be no clear discourse as to how this contributes directly to teaching excellence.

Attitude displayed in the written submission to the TEF

A fourth (and last) matter became apparent through our reading of the written submissions but was not as clear through our corpus-based analysis. This was the attitude betrayed by written submissions to the TEF as a worthwhile assessment of teaching and learning in itself. From our reading, it became clear that successful submissions quite consciously “bought into” the TEF as an exercise. By that, we mean that the submissions portrayed themselves as engaged with the TEF as an exercise and taking it very seriously. For instance, one successful submission reflected as follows on the TEF itself:

The Teaching Excellence Framework (TEF) has been debated at University committee and sub-committee level, with students fully represented in all these groups. The President of [the] Student Union has been fully engaged with the TEF submission as a full member of the cross-institutional TEF Steering Group.

Moreover, successful submissions engaged with the TEF process in an accepting manner. For instance, the most successful submissions seemed to engage with the TEF process by consciously discussing the “quantitative flags” they had received during the

data driven stage of the TEF and trying to paint their “initial hypothesis” in the best possible light. For instance an upgraded institution reflects on their “flags” as follows:

The institution has positive flags in each of the three aspects of quality for full-time learners: Two in ‘Teaching Quality’, one in ‘Learning Environment’ and one in ‘Student Outcomes and Learning Gain’. This balanced distribution of positive flags demonstrates *****’s excellence across the full range of the assessment framework.

By contrast, unsuccessful submissions portrayed themselves as being sceptical towards the TEF as an exercise or betrayed doubt about its accuracy or value. For instance, amongst the unsuccessful submissions, we find the following written about the TEF and its methodology:

. . . the SO1 metric represents an unusually small group . . . We feel strongly that our full DLHE data, as reported to HESA, provide a more complete and accurate picture of ***** student outcomes and learning gain in terms of Employment and Further Study (SO1).

NSS results need to be read in the context of the intentionally challenging learning experience the School’s teaching and assessment methods create for students . . .
. . . the University’s performance as indicated by the DLHE-based metrics available to TEF shows an incomplete picture.

In the clearest sign of opposition to the TEF, one submission includes a commentary from the university’s Students Union that reads:

*** Students’ Union is democratically mandated to oppose the TEF, its links to tuition fees, the marketization of higher education and the potential to link this to tier 4 visas . . . Although the SU believes that the student voice should be central within this submission, our contribution to it should not be mistaken for support for the Government’s misguided education policies.

No such opposition to the TEF is expressed in the “successful” submissions.

4.1.6 Conclusion

Putting quality teaching high on the agenda of policy makers and university management is a welcome move. The UK university sector now has an assessment of Teaching Excellence (the TEF) alongside an assessment of Research Excellence (the REF) in an attempt to achieve parity between the two. While the REF is by no means perfect (Watermeyer, 2016; Tymms and Higgins, 2018) there is one crucial difference between the REF and the TEF: the REF evaluates actual research, but the TEF does not evaluate actual teaching, it only evaluates what people (that is students and institutions themselves) say about teaching (through the NSS and the provider submissions). An important contrast between the REF and the TEF then, is that in the TEF, a university’s presentation of or interpretation of their teaching plays more of a role than their actual teaching. This aspect of the TEF has been called “hyperreal” (Canning, 2017).

Against this context, in which discourse is (literally) evaluated more than reality, it is crucial to evaluate the discourse around the TEF. In a study of 12 TEF provider submissions, Beech (2017, p. 53) identified a number of different themes that universities return to in their submissions: research-led teaching, co-creation, academic employment contracts, rewards and recognition, student input, extra-curricular concerns, digital connectivity, accessibility, mentoring schemes, geographical factors, employability programmes and careers support. By contrast, our analysis of all the TEF provider submissions demonstrates that the themes given most attention by the most successful submissions (that is, those submissions that resulted in the institution’s award being upgraded) were: employment, employability, outcomes and research. Furthermore, we were struck by how similar successful submissions were. Successful

submissions followed, in some ways quite literally, a “script” and self consciously mirrored the language of the TEF as a bureaucratic exercise.

In particular, we found that those institutions that were upgraded based on their written statement consistently and significantly wrote about “employment”, “outcomes” “employability” and “research” more than those that were not upgraded. Three of the four keywords identified were associated with one particular TEF2 aspect of quality, this was Student Outcomes and Learning Gain (“research” is linked to the aspect of Learning Environment) and not the corresponding aspect of quality: Teaching Quality. We can conclude that the writers of provider submissions, or the evaluation panel – or both – attached great importance to student outcomes and learning gain with some focus on research. The keywords that seemed to make the greatest difference to whether an institution was upgraded or not was found in these sections and collocated with words that have to do with the outcome of student employment.

Moving towards a more qualitative reading of successful provider submissions, we found a common route to success was again to “play up” the themes of employment and employability. Furthermore, successful submissions used quantitative evidence to demonstrate the success of initiatives which aimed to improve teaching (even if, sometimes, the quantitative evidence demonstrated both good and bad news). Moreover, successful submissions quite consciously “bought into” the philosophy behind the TEF and showed their support for this initiative; criticism of the TEF as an exercise or questions regarding its accuracy was confined to the unsuccessful submissions we studied.

The TEF has a clear impact on how institutions can now market themselves as providing a certain quality of teaching (be it gold, silver or bronze). From one perspective we can say that a greater focus on the quality of teaching in higher

education is welcome; on the other hand, the discourse of what a quality teaching experience is and what the outcomes of achieving a degree in the UK are, can be heavily influenced by policy and regulatory exercises such as the TEF. We therefore expect that, in future, the discourse around “quality” learning and teaching in UK Higher Education will become ever more similar as institutions realise that the only way to achieve a gold TEF rating is to adopt the “approved” discourse that sees quality in teaching and learning in higher education as metric driven progress towards greater employment outcomes for students. Should this discourse become the dominant message for educators, institutions, students and public discourse, discourse around employability and degree outcomes will further drown out discourse around higher education for social good, personal development or equity.

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

4.2.0 Abstract

Creating and disseminating knowledge is the foundation of the modern university. According to Humboldt's vision of the university, research and teaching stand in a symbiotic relationship – a 'nexus' – and, since Humboldt, the idea that research and teaching belong together has become definitional of being a university. Notwithstanding this ideal, empirical research on the relationship between research and teaching is bleak: numerous studies find no relationship between the quality of research and teaching, either at the level of the university or the level of the individual academic. According to Hattie and Marsh (1996) the most interesting question to ask about the research/teaching nexus is not how it works, but why the myth of the research/teaching nexus persists. In this article, we explore the discursive construction of the relationship between teaching and research in UK higher education through the examination of two sets of pivotal institutional texts: Research Excellence Framework (REF) environment statements and Teaching Excellence Framework (TEF) provider submissions (2,143 documents and 12,492,071 words). We found that, while universities emphasise the value of research to their teaching, they do not emphasise (or sometimes decry) the influence of teaching on their research. We demonstrate that teaching and research – as represented in institutional texts – is not a mutually beneficial nexus, but a one-way relationship in which research expertise and institutional prestige is used to bolster claims of teaching excellence.

4.2.1 Introduction

An influential conceptualisation of a 'university' is that it is an institution conducting both research and teaching. The most enduring and still dominant model of the university is the one set out by Wilhelm von Humboldt at the University of Berlin in 1810. Humboldt was an innovator in 'bundling' research and teaching. Prior to his blueprint for the modern university in Germany the university was in decay and

“intellectually dormant, it was constrained by nepotism and class privileges, and it provided an education that was scholastic and pedantic, at best encyclopaedic.”

(Östling, 2018b: p23). By bundling research and teaching, universities after Humboldt could claim to offer an enquiring, research approach to education that was at the cutting edge of discovery and advance research by educating the next generation of researchers simultaneously.

Many of the identity crises of – and practical problems faced by – universities today essentially arise from reconciling the research and teaching missions of the university. As Trow (1973) famously held, the university in the last quarter of the 20th century was on a path of continued development from elite - to mass - and potentially *universal* participation. Strikingly, massification is only a problem for the university *because of* its dual research and teaching role. For instance, the massification of higher education is only a difficulty if there is something about the university – like its research mission – that puts pressure on university teaching to take place in smaller scale settings such as the laboratory or seminar room rather than the large lecture theatre or online with the Massive Open Online Course (MOOC). Moreover, the question of how to manage academic staff is only made difficult by the fact that, traditionally, academics are not only teachers who can be deployed in endless hours of teaching but must (according to the Humboldtian ideal) be free to devote a significant amount of their attention to research. Many teaching-only contracts still require a publication record and promotions both explicitly and implicitly require a research profile regardless of contract type.

Despite remaining the dominant ideal of the modern research university, the Humboldtian model has proven hard to preserve in the 21st century. A large body of research literature already exists on the relationship and links between research and

teaching. A number of authors have studied what is called the ‘research/teaching nexus’ (Griffiths, 2004; Robertson, 2007; Tight, 2016). Tight (2016: 297) reviews previous attempts to quantify the relationship between research and teaching empirically. As he notes, the results of studies like these have tended to be disappointing, showing little correlation between the quality of research produced by an academic or institution and the quality of its/their teaching. As Hattie and Marsh dryly observe, the most interesting research question may not be how research and teaching complement one another but ‘why the belief of complementarity exists’ (Hattie and Marsh 1996, 533, quoted in Tight, 2016, 297).

In this paper we aim to examine *this* question. In the spirit of Hattie and Marsh, who hold that the *idea* of complementarity is stronger than its empirical reality, we conducted a discourse analysis of the construction of the research/teaching relationship by UK universities today. UK universities are obliged (like few other universities worldwide) to produce large volumes of institutional text spelling out their approach to research and teaching in the gargantuan research and teaching evaluation exercises called the ‘Research Excellence Framework’ (REF) and the ‘Teaching Excellence Framework’ (TEF). We constructed a corpus of (1) REF Environment Statements and (2) TEF Provider Submissions (2,143 documents and 12,491,071 words) and examined this corpus using the techniques of corpus-assisted discourse analysis in order to analyse

- (1) what UK universities say about the relationship between research and teaching; and
- (2) what this reveals about the universities’ own motivations for and interest in conducting research and teaching side-by-side in the context of the policy instruments of the REF and TEF.

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

4.2.2 The relationship between research and teaching

In historical terms, research and teaching was bundled in the vision of Humboldt and his blueprint for the University of Berlin in the early 19th century Enlightenment period in response to a model of teaching which passed down dogmatic knowledge from one generation to the next (Josephson, Karlsohn and Östling, 2014a). In the 1960s the US university system began to grow and took the European research university as its blueprint, but set about teaching and research for development of industry and agriculture with universities partnering with commercial partners and other and varied diversifications. Kerr (2001) famously described the US university of the 1960s as a multiversity of different academic communities with little in common but a shared grievance over parking. If Humboldt bundled research and teaching, Kerr was describing the beginning of the unbundling of different activities within the university, or as he termed it ‘the multiversity’.

The perennial question for the Humboldtian model of the university is whether the relationship between research and teaching in the university is a relationship of

symbiosis or conflict (Elton, 1986; Malcolm, 2014). Tight (2016) carried out a systematic review of the ‘research and teaching nexus’ concluding:

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

Many attempts have been made by higher education researchers to establish a positive correlation between high quality research and high quality teaching. However, meta-analysis of these quantitative studies has found little evidence of such a correlation, leading to the conclusion that teaching and research are independent skills and tasks: there are good teachers, good researchers and some who are good at both (Hattie and Marsh, 1996; Marsh and Hattie, 2002). Hattie and Marsh hold that, while there is little evidence that research improves teaching (or vice versa), the myth of complementarity of research and teaching is powerful. They postulate three reasons why the myth endures:

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

Next to quantitative studies attempting to prove a correlation between quality research and quality teaching (and meta-analyses of such studies), another important genre of research on the research/teaching nexus is qualitative studies of academics’ own perceptions of the research/teaching nexus. One prominent example is the study of Coate, Barnett and Williams (2001) who set out to investigate ‘to what extent in the everyday, working lives of academics there are connections between teaching and research’ (p160). Coate et al found that academics frequently voiced the opinion that

there is a tight relationship between research and teaching; this was particularly obvious at Masters and PhD level (2001: 165). However, all told, they found evidence of a number of different interrelationships between research and teaching at work in the university departments they visited: sometimes a department's research benefits their teaching, but often research negatively impacts teaching or the two simply do not affect one another. While the idea that research and teaching somehow benefit one another is often voiced, it is equally common that research and teaching do not impact one another or interferes with one another. In another seminal text from the 19th century, Henry Newman in his *Idea of a University* claimed that a university should only carry out teaching as how would one institution have time to carry out both research and teaching (Newman, 1852).

Schapper and Mayson (2010) hold that, even if we can as yet find no clear correlation between quality teaching and quality research, this does not mean that a productive relationship between research and teaching is not *possible* or that we should not try to *foster and develop* such a relationship. For this reason, another important set of literatures is pedagogic advice to academics and academic leaders on how to manage and improve the research teaching nexus. The approach has come to be known as 'research-led' or 'research-based' university teaching. Book-length conceptualisations of 'research-based' teaching are offered by, for instance, Brew (2006) and Fung (2017). Brew and Prosser (2003) offer a general methodology for making teaching more 'research-based' by situating teaching in the context of "imaginative enquiry that arises from leading-edge scholarship" (p3) and by encouraging "reflective learning and critical, creative thinking". Others, like Jenkins (2004) and Healey (2005) associate research-based teaching with learner-centred teaching in general and with process (not product) models of teaching. Specific advice on research-based teaching often takes the

form of case studies, where researchers offer institution-based (Brew and Weir, 2004; Bastiaens, van Merriënboer and van Tilburg, 2017) or subject-based (Jenkins, 2000; Durning and Jenkins, 2005; Lubbe, 2015) examples of research-based teaching. The difficulties with generalising from case studies are, of course, widely-discussed in the social sciences (Gomm, Hammersley and Foster, 2000).

A last important set of literatures speculates on the future of the research/teaching nexus at the university. McCowan (2017) foresees a future for the university in which research and teaching may become ‘unbundled’ – a process from Business which breaks up aspects of a product or service to be carried out by specialists often across different organisations and private companies providing greater efficiency for the expanding mass access university. He analyses the unbundled university from three perspectives: the perspectives of value (what the university stands for), function (what functions the university performs) and interaction (what interactions take place on university campuses.) For instance, McCowan holds that change in what is *valued* at the university may cause gradual unbundling: individualisation of learning, for example, may lead to a splintering of the traditional curriculum; or the rise of (smaller, vocationally focused) private providers next to large publicly-funded research universities may put pressure on the idea that a research-based university education is a public good (2017: 741). McCowan holds that the confluence of many smaller forms of unbundling (of value, function or interaction) may see the university becoming indistinguishable losing its very identity as changes are made which are seen as economically and politically inevitable.

In the discourse on the future of the university, technology is often cited as the one force that is most likely to lead to university unbundling – and again cited as inevitable. Morris *et al* (2020) describe the pressures on universities to undertake such

unbundling by partnering with specialists such as EdTech companies for specialist skills and efficiency savings in the constant pressure to grow ‘market share’.

Whilst unbundling is expected to continue, and may offer flexible learning opportunities for a broader continuum of learners, there are perceived risks to separating educational content from the education experience, and the benefits it brings in terms of context, scaffolding, communities of practice etc. Universities will need to guard against this disaggregation of education, and its unintended consequences, whilst remaining relevant and active in this space, which will continue to attract interest from a wide range of private providers, including employers and new training providers. (Morris *et al.*, 2020, p. 15)

Hamilton and Feenberg (2012) describe a common discourse of technological inevitability in which technology changes both the pedagogy and the economics of the university to such an extent that the university necessarily moves online. Means (2018) describes a future in which the university follows the lead of digital platforms (like Uber, AirBnB, Facebook etc) where learning becomes datafied and every book read or class taken is recorded for all, including employers, to see and search. Means’ (2018) discourse analysis of strategic forecasts of learning and employment show predictions of work, learning and life becoming overlapping with learning resources available on-demand, powered by machine learning, mobile apps, data and personalisation underpinned by the unbundling (or removal) of traditional universities.

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

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

about terms in contemporary higher education policy and research. (Tight, 2016, p. 305)

4.2.3 The discourse of the research/teaching nexus

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

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

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

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

Curricula and broader co-curricular experiences are designed to enable students not only to learn about research, but to learn how to undertake their own research and inquiry within and across disciplines. (p2)

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

A focus on the teaching-research nexus at Go8 universities leads to the development of advanced curricula and research-based learning that produce distinctive graduates' and 'Go8 alumni take up senior positions in professional life, business and government in Australia and other countries' (p4).

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

It is clear that universities the world over emphasise the relationship between their teaching and research, but one thing stands out about UK universities in particular. In the UK, universities are under an obligation to *articulate* their visions of the teaching and research that they do every five to seven years in high-stakes government assessment exercises. The UK has had national evaluation processes for research since the 1980s (the Research Assessment Exercise (RAE) and its successor the REF) and has had national evaluations of teaching since the 1990's (first the Quality Assurance Agency 'Subject Review' and now the TEF).³⁵

³⁵ While many European countries today use performance-based research funding systems (PRFS) (Sivertsen, 2017), the UK's PRFS – the REF – is both the oldest and best known.

Over their lives, the REF and TEF have both come in for significant academic criticism (Martin, 2011; Matthews and Kotzee, 2019). Be that as it may, for the higher education researcher, the REF and TEF present research opportunities. The reason is that, together, the REF and TEF compel universities to describe how their research and teaching benefits students and society; for instance, the REF demands that universities describe how their research benefits society (through the REF ‘impact and environments statements’) and the TEF demands that universities describe the linkage between their research and teaching (in its demand for describing the learning environment). In effect, once every five to seven years, the REF and TEF forces UK universities to confront Humboldt’s idea in text. To give an idea of how universities themselves talk about the teaching and research nexus, the researcher interested in the language and wider discourse of teaching and research are presented with a comprehensive corpus of texts to be mined for insights.

4.2.4 Data and methods

In this paper, we are interested in studying the discourse around the research/teaching nexus in order to understand (1) what UK universities say about the relationship between research and teaching and (2) what this reveals about the universities’ own motivations for and interest in conducting research and teaching side-by-side in the context of REF and TEF as policy instruments.

The TEF has been in operation since 2016 and makes use of both quantitative and qualitative measures of teaching excellence (Gillard, 2018). For the purpose of this study, we collected together the 232 UK ‘provider submissions’ that formed the written, qualitative part of the 2017 TEF. The reason for focusing on the 2017 exercise is that it was the first full round of the TEF in which all universities participated and therefore represents the largest single year of submissions.

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

Table 1: Overview of the Corpus		
Sub-Corpus	Documents	Words
TEF2 2017 provider statements	232	1,742,438
REF2014 environment statements	1911	10,749,633
Total	2,143	12,492,071

For our analysis, we chose the method of corpus-assisted discourse analysis, a form of discourse analysis in the social sciences that draws upon the methods of corpus linguistics (Hardt-Mautner, 1995; Mautner, 2005a; Baker *et al.*, 2008). Corpus-linguistic approaches to the study of text involve taking a large body of real-life texts (a corpus) and using computer analysis tools to analyse the texts for keywords and patterns of word usage (McEnery and Wilson, 1996). We used LancsBox4.0 (Brezina, Timperley and McEnery, 2018) to conduct our analysis. Linguists often use corpus linguistics to map real usage of language in a linguistic community (for instance to

understand what are the most typical patterns of linguistic usage, or the most common variations in how language is used, in different linguistic communities). However, social scientists have begun to use corpus linguistic techniques to study what changing patterns of linguistic use can reveal about societal trends (Baker, 2010)

By taking two genres of texts (TEF submissions and REF environment statements) we used triangulation methods to analyse the discursive construction of the relationship and links between research and teaching in UK. In particular, we employed two types of triangulation (1) data triangulation (two corpora of text genres) and (2) methodological triangulation (using corpus linguistic methods followed by discourse analysis (Egbert and Baker, 2020)). ‘Corpus-assisted discourse analysis’ is the term used for initial quantitative analysis followed up by a more qualitative, ‘human eye’ reading. In corpus-assisted discourse analysis, the methods of frequency, collocation (the words found next to a key word) and concordance (lines of text extracted from a key node word) are used for an initial analysis and ‘mapping’ of the corpora (Baker, 2006). We followed this up with conducting qualitative thematic analysis on a down-sampled selection from each corpus (Johnson, 2013).

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

4.2.5 Corpus analysis

In our analysis, we first used the assembled corpora to 1) study the relative frequency of a number of keywords that construct the relationship between research and teaching and 2) identified the most common ‘collocates’ of those keywords, that is the words that most frequently appear close to those keywords in the institutional texts. We begin by presenting an analysis of frequency and collocation of the word ‘research-*’, that is, the word ‘research’ used in a hyphenated conjunction with some other word. We conducted this analysis to discover, out of the myriad ways in which the research/teaching nexus is spoken about (e.g. ‘research-led’, ‘research-informed’, ‘research-based’, see section 3 above), which is the most common. We focused on these hyphenated words both due to their use in the literature reviewed above and because they are such a distinguishing feature of *university* discourse about research. For example the term ‘research-*’ is not found in the British National Corpus (BNC) (Brezina and Meyerhoff, 2014).

Table 2 – TEF2 2017 provider statements – ‘research-*’. Relative frequency of 0.05 per 10k and above. Collocations are listed with the highest frequency, frequencies are reported with a minimum frequency of 5 and minimum MI stat of 6.0. Span of 5 x5.

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

Table 2 presents use of the keyword ‘research-*’ in the TEF corpus. We can see that in TEF provider submissions, the term ‘research-led’ is the most common one and the collocations show us that this term tends to be used when talking about teaching itself, or about the teaching culture and approaches that universities adopt. ‘Research-

informed’ and ‘research-based’ in context is associated with the curriculum itself.

‘Research-intensive’ is associated with the institution and the fact that the institution carries out high volume, high quality research. By contrast, ‘research-rich’ seems to be used in connection with learning rather than teaching, and ‘research-active’ in connection with the staff at an institution.

Table 3 – REF2014 environment statements - research-*. Relative frequency of 0.05 per 10k and above. Collocations are listed with the highest frequency, frequencies are reported with a minimum frequency of 10 and minimum MI stat of 6.0. Span of 5x5.

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

			midlands, vibrant, 30, Birmingham, committed, most, can
research-informed	138	0.13	Teaching, learning, institution, plan, strategic, research-led, practice, Greenwich, curriculum, strongly, undergraduate, 2013/14, creating, increase
research-focused	101	0.09	Appointments, strategic, agenda, activities, supportive, events, propose, believe, strongly, mentor
research-only	52	0.05	Staff, contracts, career

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

Reading across the two corpora, one can see that words that describe the research/teaching nexus are used in different ways, depending on whether the focus is on academics as researchers or academics as teachers or the institution itself. The words ‘research-active’ and ‘research-only’ are used in connection with academics as researchers; words like ‘research-led’, ‘research-based’ and ‘research-informed’ are associated with teaching, and the word ‘research-intensive’ describes the institution itself. This is in line with what (Marginson, 2019) describes as the three elements of the

contemporary university: the corporate university (research-intensive), the self-forming student (research-led, research-based and research-informed) and a knowledge bearing, knowledge creating faculty (research-active).

Having identified key hyphenated terms as used in the teaching research nexus literature, next were interested in how the keyword ‘teaching’ was represented in the REF and how ‘research’ was described in the TEF. By studying discourse on *research* in the *TEF*, we hoped to clarify universities’ views on how research benefits teaching; conversely, by studying discourse on *teaching* in the *REF* we were interested how universities represent the benefits of teaching to research. Firstly, on a purely frequency basis ‘teaching’ in the REF corpus appears 9.45 times per 10k words (n=10,162). However, ‘research’ appeared in the TEF corpus 24.43 times per 10k words (n=4,527). On a frequency level, references to ‘research’ in the TEF were far more numerous than references to ‘teaching’ in the REF: universities say more about research’s influence on teaching than they do about teaching’s influence on research. Table 4 reports these frequencies and statistical significance of those differences using log-likelihood which Rayson, Berridge and Francis (2004) hold is the most accurate linguistic test of significant difference where log-likelihood above 15.13 is significant and equivalent to a P value of <0.0001.

Table 4 : Frequencies, loglikelihood significance statistics and difference of keywords ‘teaching’ and ‘research’.

	REF	TEF	Log-	%diff
	frequency	frequency	likelihood	
	(relative	(relative		

	freq per 10k)	freq per 10k)		
Teaching	10, 162 (9.45)	10829 (62.15)	16636.74	-84.79
Research	239, 204 (222.52)	4527 (24.43)	44643.61	+756.49

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

Table 5 – REF2014 environment statements – collocates of ‘teaching’. Collocations are listed with the highest frequency (25 most frequent), frequencies are reported with a minimum frequency of 10 and minimum MI stat of 5.0. Span of 5 x5.

Collocate	Freq (coll.)
Learning	955
Administrative	628
Loads	579
Reduced	488
load	413
administration	405
duties	377
teaching	362
experience	339
undergraduate	286
relief	285
graduate	284
postgraduate	268
given	250
first	233
fellows	232

they	224
skills	220
time	206
research-led	191
leave	181
assistants	171
lighter	165

Table 6 – TEF2 statements – collocates of ‘research’. Collocations are listed with the highest frequency (25 most frequent), frequencies are reported with a minimum frequency of 10 and minimum MI stat of 5.0. Span of 5 x5.

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

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

Table 6 lists the top 25 collocates for ‘research’ in the TEF corpus. As is clear from the table, when universities describe research in the context of teaching, they seem to focus on the activity of doing research (‘practice’, ‘activity’), on opportunities for doing research or instances of research (‘project’, ‘projects’) and on the characteristics of their research (‘professional’, ‘scholarly’, ‘independent’, ‘pedagogic’). Research gets a much more clearly positive mention in the TEF provider submissions when universities write about research ‘innovation’ or being at the ‘forefront’ of research. It seems that, while research is on the whole represented as benefitting research in the TEF, teaching is presented as a burden (that universities try to minimise by ‘reducing’ researchers’ teaching loads) in the REF.

In order to understand the influence of university status on how they write about the research/teaching nexus we carried out one last quantitative analysis. We split the the REF environment statements and the TEF provider submissions into two: the

statements of the 21 Russell Group (RG) universities and the statements of all the non-Russell Group universities (yielding four sub-corpora: RG REF, RG TEF, NRG REF and NRG TEF).

We searched these four sub-sub-corpora for the keywords ‘research-*’ and ‘teaching-*’ (tables 7 and 8).

Table 7: Russell Group and Non-Russell Group – frequencies of ‘teaching-*’ across 4 sub-corpora			
	Occurrences	Relative frequency per 10k	Dispersion across texts
RG TEF (189,359 Words/21 texts)	14	0.74	6/21
NRG TEF (1,553,527 Words/211 texts)	29	0.19	24/211
RG REF (4, 387, 019 words/ 667 texts)	54	0.12	43/667
NRG REF (6, 366, 069 Words/1244 texts)	75	0.12	65/1244

As one can see from table 7, Russell Group universities seemed to use hyphenated forms of ‘teaching-*’ more often than Non-Russell Group universities in their TEF provider submissions. Examples of such words were: ‘teaching-focused’, ‘teaching-only’ and ‘teaching-related’ and these words were clearly used to describe the types of appointment of academic staff (‘teaching-only staff’). However, the raw number of occurrences of these words (14 words) was very small and the words only featured in a minority of the RG submissions (6/21 submissions). Uses of the keyword ‘teaching-*’ in the REF sub-corpus was broadly the same across RG and NRG institutions.

Table 8: Russell Group and Non-Russell Group – frequencies of ‘research-*’ across 4 sub-corpora ’ and keywords by frequency. Keywords with more than five occurrences are reported in this table.

	Occurrences	Relative frequency per 10k	Dispersion across texts
RG TEF (189,359 Words/21 texts)	156	8.24	21/21
NRG TEF (1,553,527 Words/211 texts)	266	1.71	90/211
RG REF (4, 387, 019 words/ 667 texts)	1066	2.43	448/667

NRG REF (6, 366, 069 Words/1244 texts)	2,201	3.46	853/1244
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As we can see from table 8, RG and NRG universities used the keyword ‘research-*’ in broadly comparable ways in the REF. However, RG universities used the keyword ‘research-*’ markedly more often than NRG universities in the TEF (82.4 times per 10k in comparison to 17.1 per 10k and across all 21 texts).

Table 9 – Russell Group and Non-Russell Group in REF and TEF. – frequencies of ‘research-*’ Keywords of research-* with more than five occurrences are reported in this table.	
TEF sub-corpus	
RG	NRG
research-led (44), research-based (24) research-intensive (24), research-rich (18) research-informed (17), research-active (8)	research-informed (77), research-led (68) research-based (32), research-active (24), research-intensive (20), research-rich (19),
REF sub-corpus	
RG	NRG
research-active (247), research-led (224), research-related (144), research-based (78), research-intensive (53), research-only (37), research-focused (29), research-oriented (21), research-dedicated (14), research-informed (13), research-driven (12), research-funding (8), research-level (7), research-council (7), research-grant (7), research-group (7), research-specific (6), Research-funded (6),	research-active (700), research-related (299), Research-Led (287), research-based (156), research-informed (125), research-intensive (90), research-focused (72), research-oriented (26), research-focussed (24), research-student (24), research-driven (18), research-training (16), research-only (15), research-users (15), research-specific (14), research-funding (13), research-in-progress (12), research-teaching (12), research-dedicated (11), research-grant (11), research-degree (10), research-excellent (10), research-rich (10), research-income (9), research-leave (9), research-support (9), research-group (8), research-orientated (7), research-practice (7), research-centred (6), research-engaged (6)

Versions of the keyword ‘research-*’ used by the RG and the NRG also differ (Table 9). While RG universities use words like ‘research-led’, ‘research-based’, ‘research-intensive’, and ‘research-rich’ in the TEF, NRG universities use ‘research-informed’, ‘research-led’, ‘research-based’ and ‘research-active’ more frequently. As we saw above, words like ‘research-led’, ‘research-based’ and ‘research-informed’ tend to be used when describing teaching, and the word ‘research-intensive’ when describing the institution itself. We concluded that RG institutions more often used the keyword ‘research-*’ to advocate their status as a research institution which as explored above may, if unbundled mean little for education.

4.2.6 Discourse analysis

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

Concordance lines were extracted with 12 words either side of the keyword *research* making up a concordance line (text extract) of 25 words. These lines were further filtered to only include ‘*teaching*’ in the line. The result of this data extraction was 9898 concordance lines of 25 words which included both the keyword ‘*research*’ and ‘*teaching*’. Table 8 provides an overview.

Table 10: First Downsampling

Table 10: First Downsampling			
Corpus	Number of 25 word concordance lines with	Words total	Dispersion – the amount of

	research as node word AND Including *teaching*		at least one RT concordance line present
TEF2	1, 268	31, 700 words	180/232
REF2014	8, 630	215, 750 words	1725/1911
Total	9, 898	247, 450 words	

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

Table 11: Second Downsampling

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

Table 11 shows the results of applying 1 in K sampling to each of our corpora to provide a manageable number for qualitative reading and analysis. This results in 663 concordance lines for inductive thematic analysis across TEF2 (317), REF2014 (346).

Using qualitative analysis software Nvivo, these 663 concordance lines were coded inductively to generate codes within each genre of text. Constant comparison was used within and between the text genres to generate categories across genres for comparison to construct a substantive theory (Bryman, 2008) of discursive construction of teaching and research in UK universities. Themes are reported in tables 12 and 13.

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

Table 13: Research and Teaching – REF themes	
Theme	References
Support and development for research and teaching activity	86
Teaching relief to focus on research	71

Positive links in institutional approach to teaching and research	67
Parity between research and teaching (shared load and recognition)	35
Investment in resources and facilities	27
Academic appointments and use of funding	24
External links	10
Learning and teaching (pedagogical) research	10

Those themes that best shed light on the corpus analysis above were the following.

4.2.6.1 Positive links in institutional approach to teaching and research

The most common theme in the TEF corpus was ‘Positive links in institutional approach to teaching and research’. Under this theme, we categorised assertions by the university in question that there are indeed positive links between research and teaching at the institution (without specifying what those links are). While this was the most common theme in the TEF corpus, this theme was only the third most frequent theme in the REF corpus. Below are illustrative examples from each corpus.

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

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

4.2.6.2 Parity between research and teaching (shared load and recognition)

A second major theme in writing about research and teaching together was an active avowal (made by many universities) that research and teaching are regarding as being

on a par in their institutions. These kinds of avowals are made in both the TEF and REF corpora, but is more frequent in both absolute and relative terms³⁶ in the TEF corpus. Examples of how universities give expression to the idea of teaching/research parity include:

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

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

4.2.6.3 Teaching relief to focus on research

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

‘there are competitive research leave schemes which allow for intensive blocks of research time, or a reduced teaching load over a longer period’

‘...funding teaching relief for selected research-active Law staff who were expected to enter research outputs for REF2014...’

³⁶ We found 57 references to this theme in the TEF corpus and 32 references in the REF corpus after downsampling. The REF corpus (10.7million words) is, however, considerably bigger than the TEF corpus (1.7million words).

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

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

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

‘...research active staff are compensated for administrative responsibilities by reduced teaching loads...’

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

4.2.7 Discussion

In sections 5 and 6, we discussed the different words that UK universities use in connection with the research/teaching nexus, the different ways that they represent the relationship in the REF and the TEF and the particular way that the nexus is presented by elite universities. In our review of the literature in section 2, we saw that there is little empirical evidence of a correlation between high-quality research and high-quality teaching; indeed, Tight (2016) calls the idea of a research/teaching nexus a ‘myth’ and Hattie and Marsh (1996) hold that the persistence of the myth is due to the fact that universities use research as an advertising lure. A discourse analysis of this kind cannot in itself demonstrate that there are no productive links between teaching and research, but it can demonstrate what the approved or accepted way of speaking about the link is

in the UK in this timeframe (2014 – 2017). Clearly, the communicative purpose (Askehave and Swales, 2001) of each text genre and its context must be confronted. Both the REF and TEF submissions that we studied were official responses to regulatory frameworks on teaching and research excellence and, because performance in the REF and TEF have reputational and financial consequences for universities, one can expect that these documents were framed to create the best impression of the university concerned, and not necessarily to reflect the frank views of the academics and university leaders who wrote these documents. However, we hold that this is what universities do say about research and teaching and thus does have a material impact on wider discourses within the university influenced by the policy instruments (REF and TEF) as well as actors within the institution.

However, as Horrod (2020) and Mathieson (2020) point out, policy mechanisms may be embraced, resisted or creatively negotiated and some of the most interesting discourse is found in the ‘creative negotiation’. Bear in mind that the evaluation panels of TEF and REF submissions are mostly populated by academic leaders from other universities and one will realise that the TEF and REF written submissions are largely written by academics for an audience of other academics in a mode that the first group of academics thinks will impress the second. However, the second group are *themselves* academics, equally tied up in the language and mode of thought of the first. They do not have complete free reign over what discourse they can take as evidence of excellence: they are (a) constrained by the language introduced by non-academics who have set a wider context of competition and regulation of higher education through the Higher Education Research Act 2017 (Legislation.gov.uk, 2017), (b) cannot drift too far from the discourse that has already become prevalent over 20 years of such accountability exercises and (c) also have to *report* on how they made their judgements of excellence.

For this reason, they too are likely to reward the ‘common’ or ‘accepted’ discourse of excellence and use that form of talk in their own reporting, creating an even stronger demand to adopt the same discourse in the next evaluation exercise. The language of the REF and TEF written submissions that we studied in this paper may not indicate what academics truly think, but it indicates what is the ‘expected’ or ‘approved’ discourse about research and teaching ‘excellence’ today, a discourse that, because of the incentives associated with the REF and TEF, becomes ever harder to break away from.

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

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

It has become a common-place to ask whether higher education is ‘unbundling’ (Craig, 2015; Gehrke and Kezar, 2015; McCowan, 2017), but most likely the answer is that teaching and research are different and really were never quite unified. Wright (2014) claims that the name of Humboldt is used to describe an elitist and a traditional past and used to decry and resist a marketized, neoliberal future. As we have seen however, research and teaching reside together in the university as odd bedfellows in both harmony and conflict. As we have demonstrated, the REF and TEF construct what it is to be an excellent university differently; while designed to mirror one another and to bring parity between research and teaching, they may ironically be pushing research and teaching further apart. This is a key challenge for universities and university leaders in communicating their purpose and the benefits they provide to society.

4.2.8 Conclusion

The relationship between research and teaching in the contemporary university is contested: divided or entangled, bundled or unbundled. Humboldt first outlined the two primary activities of the university as research and teaching and argued for their symbiotic relationship. His legacy has remained, embedded in the social and institutional culture of the university. This empirical analysis of institutional texts has for the first time looked at a national (UK) level at the language used by universities to discursively construct the symbiotic relationship between the two primary activities of the academy, be they complimentary, conflicting, bundled or unbundled.

CHAPTER 5 – HIGHER EDUCATION AND TECHNOLOGY

This chapter focuses on the relations between higher education and technology. Having mapped out the genealogy of the idea of a university in Chapter 3 and carried out analysis of human-higher education relations in Chapter 4, here I pick up the aspect of my research question which asks how technology is disrupting the idea of a university.

The two published papers making up this chapter look at this from two different perspectives. Firstly (5.1), I use published UK university strategy documents describing the future university and 2017 TEF statements to see how technology is described in the context of teaching. Secondly (5.2), I was interested in a particular kind of disruption aided my digital technologies which in theory allows for greater and more flexible access – the mode of study at UK universities. I carry out analyses of UK university prospectuses to identify how part-time study is advocated and promoted in the context of the affordances of digital technologies for flexible access and widening participation.

5.1 Sociotechnical imaginaries in the present and future university: a corpus-assisted discourse analysis of UK higher education texts

5.1.0 Abstract

Technology has dominated discourse on the future university and how digital technologies disrupting wider societal activities can be leveraged in higher education. To gain an insight into UK institutional perspective on technology adoption in teaching and learning and visions for the future, two corpora of text are analysed: Teaching Excellence Framework statements (n = 88) and university strategy documents (n = 88), totalling 1, 129, 736 words. Quantitative empirical analysis reveals that institutions write about how they ‘use’ technology for teaching and learning. Interpretative analysis found that technology is ‘used’ as an end in itself as well as a means for specific ends (such as assessment and feedback and flexible learning). Using concepts from science and technology studies and philosophy of technology, these perspectives are theorised as instrumentalist, substantivist and essentialist and problematised when viewing technology in education as apolitical, neutral and inevitable. Perceived neutrality ignores the many competing ideologies and interests at play. In this context, a dichotomy of ‘pedagogy first’ or ‘technology-led’ design is explored. Critical theory of technology is used to bridge these binary discourses which are described as reductive in a complex sociotechnical university assemblage.

5.1.1 Introduction

There have been a growing number of critical scholars questioning the deeply embedded term technology-enhanced learning (TEL) in Higher Education (HE). One of the main questions has centred on the unchallenged and inherent assumption that technology automatically enhances learning. Bayne (2015), questions the simple acceptance of technology ‘enhancing’ learning, which then, restricts rather than opens up new and diverse possibilities for digital technologies. Goodchild and Speed (2018) problematise this enhancement as not a fixed set of practices but discursive and an accepted orthodoxy as ‘social, political and fantasmatic logics combine to create the hegemonic dominance that TEL enjoys in the field’ (p959). In policy terms ‘TEL’ has

become nominalised, again seen as an uncritical good whereby any human agency is removed and it is the technology which enhances learning and not teachers and students (Hayes, 2019). Gourlay (2012) sets out the challenge of the increased ubiquity of digital technologies in the contemporary university in trying to maintain traditional practices in digital form or to adopt a techno-rationalist model of ‘elearning’ which has the potential to reduce higher education to knowledge transmission. Gourlay goes on to use a posthuman perspective to bridge such binary divides which she describes as allowing for universities to truly innovate in the posthuman university.

Critical engagement with these issues is important as there is hope that new technologies do have huge potential to be part of meaningful approaches to help tackle some of the most pressing issues in education, such as massification, government regulation, funding issues, access and participation, inequalities and teaching quality (Selwyn et al. 2020). Critical theory and new perspectives are required to meet the call for the future of EdTech to be critical and to find alternatives:

Amidst all these ‘big’ challenges is the need to remain hopeful and continue to ‘think otherwise’. In an era when many commentators presume ‘there are no alternatives’, one of the key roles of critical scholarship is to find alternatives. (Selwyn *et al.*, 2020, p. 4)

Communication technologies have long promised to ‘disrupt’ education as well as widen access. The mid twentieth century saw adoption of radio and television, followed by personal computers in the 1990s and then widespread access to the internet at the turn of the century (Spector, 2002).

This article looks at texts produced by UK universities to analyse how institutions discursively construct technology adoption in teaching and learning. In pursuing a critical approach to the discourse of university adoption and visions of new

technologies, concepts from Philosophy of Technology (PoT) and Science and Technology Studies (STS) are used to theoretically position the findings of the corpus-assisted discourse analysis of institutional texts and the ‘use’ of technology. Hamilton and Friesen (2013) report a lack of engagement from researchers in education with PoT and STS, summarising that:

A neat fit thus appears to exist whereby, for essentialists, human capacities are enhanced by technology, or by which, for instrumentalists, technical things transparently correspond to the intentions of users. As we will see, both positions have significant flaws that must be addressed if we are to understand online education as a field of development, research and practice. (Hamilton and Friesen, 2013, p. 4)

High on the wishlist of *Learning, Media and Technology* in 2019 was new ways of representing networks of humans and things in the context of posthumanism and learning (Williamson, Potter and Eynon, 2019). This has been hastened by the 2020 Covid-19 pandemic and the need for critical perspectives and reflections on the sociotechnical in education as the planet pivots to online, adopting ‘pandemic pedagogies’ (Williamson, Eynon and Potter, 2020). The posthuman and the established fields of PoT and STS are useful and fruitful areas of study and integration for those studying education as the social and the technical become ever more intertwined.

I begin with an overview of some of the sociotechnical imaginary discourse which has described some of the potential for education and new technologies. These positions will form a thread to the article with insight from PoT and STS to analyse the results of a corpus-assisted discourse analysis of texts in which institutional discourse is dominated by ‘uses’ of technology. Methods and data are then presented before a corpus-assisted discourse analysis of publicly available UK university regulatory and strategy documents. The analysis of UK university texts as instrumental and essentialist

are then viewed through the argument of ‘pedagogy first’ or ‘technology led’ educational design. The article concludes with a counter discourse to the instrumental and essentialist ‘use’ of technology in education using critical theory.

5.1.2 The discourse of sociotechnical imaginaries for the future of education

Sociotechnical imaginaries occupy a hinterland between politics, culture and sociotechnical systems (Jasanoff and Kim, 2015).

Multiple imaginaries can coexist within a society in tension or in a productive dialectical relationship. It often falls to legislatures, courts, the media, or other institutions of power to elevate some imagined futures above others, according them a dominant position for policy purposes. Imaginaries, moreover, encode not only visions of what is attainable through science and technology but also of how life ought, or ought not, to be lived; in this respect they express a society’s shared understandings of good and evil. (p4)

Analyses of discourses associated with technology and education then is an important object of analysis in uncovering the accepted as well as contested discourses and the ideologies which produce sociotechnical imaginaries of the university. In analysing institutional discourse, the university is just one of the institutions with the power to elevate some imagined futures above others.

There are a range of sociotechnical imaginaries currently playing out in higher education and wider society. This discourse is dominated by a culture of disruption and solutions to ‘fix’ a ‘broken’ education system. Predictions of the future with increased automation and rapid pace of technological change have placed thinking about desired or inevitable futures as a field of study as well as big business (Facer, 2011; Amsler and Facer, 2017).

Means (2018) analysed the discourse and sociotechnical imaginary of two US organisations (The Institute for the Future and Knowledge Works) that strategically

forecast the future of learning and work. The discourse of both organisations included a global integration of work, learning and life (learning, earning and living); personalised to each individual with user-profiling data; connecting ‘edu-preneurs’ to employers in a gig economy via a ‘talent cloud’; learning as currency in a learning economy; learning will be abundant rather than scarce as it is within schools and universities and learning will be unbundled from these institutions in a platform-based ecosystem powered by machine learning; mobile apps and continuous data and feedback loops. Both examples for Means are underpinned by a discourse of liberatory evolution and the shattering of traditional, publicly regulated education institutions through computational logics, efficiency and digital optimisation, all underpinned by neoliberal economics and individualism. Importantly, these discourses for Means are presented as apolitical, neutral and a natural and inevitable development. Discourse then which presents technology as apolitical, neutral and inevitable is an important area of analysis in higher education and, in the context of this study shines a light on institutional perspectives on such adoption and visions of new technology in the university.

Sociotechnical imaginaries within education have been influenced by the prevalence in many aspects of society of the digital platform. Digital platforms for sharing have emerged in the past 10 years and have been broadly termed the ‘sharing economy’ disrupting industries such as hospitality and travel with the platforms Airbnb and Uber (Sutherland and Jarrahi, 2018). These centralised platforms use digital technologies to connect producers with consumers at a large scale. Major technology companies are economic actors within these platforms, mining big data from their users for advertising (Google and Facebook, etc.), providing products (Spotify, etc.) and lean (Uber, Airbnb) platforms with a business model of free and paid for services (through data and money) (Srnicsek and De Sutter, 2016). This technological market of platform

capitalism-driven ideology is present and expanding into higher education externally through student services and apps, such as LinkedIn for employment (Komljenovic, 2019) as well as internally through plagiarism and EdTech products procured by universities themselves (Hall, 2016; Williamson, 2019c). The introduction of third parties to provide products and services to universities has been termed ‘unbundling’ (McCowan, 2017). The unbundling of functions of the university has been viewed in a positive light when helping to reduce costs and take advantage of specialist expertise and technology, which can help to increase access to a university education. The negative view of unbundling includes loss of expertise, deprofessionalisation of faculty and the removal of a holistic approach to a university experience and mission (Gehrke and Kezar, 2015). A case study of a major multinational providing digital platform products and services by Williamson (2020) concluded that marketisation is accomplished through a complex sociotechnical assemblage ‘including platforms, as well as the numbers and charts, human and nonhuman agents, machine learning algorithms, visualizations and infographics, market valuations, reports and discourses that all support the construction, maintenance and diffusion of those platforms’(p14).

Williamson raises issues over governance; stripped back reductive data analysis of human learning which are reshaping understandings of learning processes and thus approaches to education result in ‘robot pedagogies’; pedagogic relationships then become market exchanges and transactions aligned with employability as a key metric for labour markets, producing dependencies on the ‘edu-business’ technology companies. Outside of the campus boundaries, the social media platform for professionals and the labour market, LinkedIn, is able to take the employability agenda and match individuals to employers as well as learning resources for students.

Universities themselves are encouraged to use the platform as a resource for students

and their future careers and thus track alumni and their career trajectories (Komljenovic 2019). Moreover, students and universities are becoming ‘prosumers’ in that they are using products and services as consumers and also producing the currency of such sociotechnical assemblages – data. The centralised approach of digital platforms then has the potential to change education values and systems (Hillman, Rensfeldt and Ivarsson, 2020). Returning to the focus of this article we can begin to see issues when looking to instrumental and essentialist ‘use’ of technology in that complex sociotechnical assemblages have many actors involved with competing priorities in the design, development, marketing and implementation of technologies from a political, social and technical perspective. At the level of software itself, Duvall (2016) analysed the discourse of software which enacts certain ways of teaching with the choices of words which are used to describe ‘functions’ of the software. More broadly Knox, Williamson and Bayne (2019) report how the influences of data science and machine learning can determine the very essence of education, resulting in ‘machine behaviourism’ whereby education comes to resemble quantifiable sciences such as data science, machine learning and behavioural psychology with learning analytics and nudging for efficiency precision.

With these ideas and perspectives from some of the current sociotechnical imaginaries for technology and education and critical responses, I move forward with an empirical analysis of discourse written by UK universities on technology in teaching and learning.

5.1.3 Methods and data

The study of discourse in education has grown from the peripheries of the broader social sciences to a mainstream field of research influenced by poststructuralism in philosophy, a ‘linguistic turn’ in the social sciences and a ‘social

turn' in linguistics (Edwards *et al.*, 2004). Edwards links rhetoric to discourse, but takes rhetoric further as a persuasive act or what some may more cynically describe as 'spin doctoring'.

Language, enacted as discourse, is an instantiation of what people believe, for example, their personal values related to technology and learning. Yet widely held conceptions persistently sever technology from people and the social, political and cultural relationships that brought it into existence in the first place. A 'developer's itch' may bring a technology into being, but the human hand of development, the voice of aspiration and indeed acts of mis-appropriation do not leave the scene just because we claim in discourse that 'the use of technology' achieves only positive improvements. (Hayes and Jandrić, 2014)

The data used in this study (TEF2 statements and strategy documents) are designed to be persuasive in that they are persuading a regulatory panel of the worthiness of teaching excellence and more widely, the ambitious plans for the institution over the coming years. Some scholars hold that every text has an element of persuasiveness, including scientific discourse (Fahnestock, 1986). Here we can start to see some of the potential 'traps' when attempting to understand and analyse discourse which studies science and technology – the mechanical and the scientific can commonly be seen as neutral and objective.

Rhetoric itself in the common use of the word is contrasted with action and associated with lies and half-truths and often described as 'mere rhetoric' to somewhat dismiss it as pointless or ignored (Leach, 2000). Despite this common view, the discourse of persuasion, half-truths and lies play an important role in forming knowledge. 'Once discourse enters a communication arena, it is no longer under full control of those who produced it. This is central to remember in analysis' (Leach, 2000, p. 224). Selwyn (2016b) goes as far as to call rhetoric claiming technological fixes for

education as bullshit which can become invisible as we see and hear so much of ‘Ed-Tech Speak’.

The restricted forms of language that prevail in any area of society play a key part in maintaining the parameters of what is, and what is not, seen as preferable and possible. Language therefore needs to be recognized as a key element in informing ideas and shaping actions within any educational context. (Selwyn, 2016b, p. 2)

Selwyn uses Harry Frankfurt’s theoretical understanding of bullshit in that these claims are not out right lies or bluff, but the discourse could be true, but is produced without concern for the truth, thus leading us away from reality. Lies and truths are symmetrical, but bullshit is somewhere in between and not necessarily under full consciousness of the speaker or writer (Frankfurt, 2005).

Language is clearly a key element to improve the conditions of education and technology. So let us be more mindful of the words that are used, and the ways in which they are used. Let us set about talking more frequently and forcibly about education and technology in ways that foreground issues such as democracy, public values, the common good, morals and ethics. Let us challenge the tired buzz-words and taglines that distort discussions of education and technology. Let us be more confident in calling out lazy generalizations and out right bullshit. (Selwyn, 2016b, p. 6)

Corpus linguistics has a long tradition of complete and systematic investigation of large, authentic and representative texts which are computer readable using corpus analysis software (Stefanowitsch, 2020). Quantitative computer analysis most commonly feature word frequencies, collocations and concordance lines (McEnery and Wilson 1996). Word frequencies tell us the prominence and dispersion of a word, collocations statistically identify adjacent words and concordances allow us to view the keyword in context in series of (concordance) lines (Baker 2006). This analysis uses an initial quantitative corpus analysis followed by a more traditional qualitative analysis.

Baker (2006) describes this as ‘mapping’ the corpora which can then guide the next stage of the analysis informed by quantitative results examples include (Mautner, 2005a; Baker *et al.*, 2008; Matthews and Kotzee, 2019, 2020). This study will map the assembled corpora by focusing on ‘technology’ as a point of entry into the corpora and then follow up with interpretative analysis of the identified keywords in context. Baker (2010) describes this as combining socio and corpus linguistics for frequency to indicate markedness, collocations to unpack ideological assumptions and concordances for semantic preference and discourse prosody.

The data are made up of naturally occurring text produced by UK universities. 88 university TEF2 statements from summer 2017 and their university strategy documents were analysed. The sample of 88 was dictated by the availability of both documents. For example, not all universities submitted to the TEF2 exercise in 2017 and not all HEIs have online strategy documents available in PDF format. Table 1 provides an overview of the assembled corpora. The 88 HEIs from both corpora are the same institutions.

Table 1: An overview of corpora used for analysis		
Corpus	Documents	Words
Teaching Excellence	88	767,168
University Strategy	88	362,568

The Teaching Excellence Framework in the UK has been introduced as a regulatory tool to raise standards in teaching and attempt to bring parity between research and teaching (Gunn, 2018). The framework, devised in 2016, has three aspects: Teaching Quality (TQ), Learning Environment (LE) and Student Outcomes and Learning Gain (SO) (HEFCE 2016). Each participating institution was awarded gold,

silver or bronze based on quantitative measures as an initial hypothesis, followed by the reading of a 15-page, written, qualitative submission. As part of the guidance under the aspect of TQ, universities are encouraged to provide examples of evidence on (amongst 10 other possible examples) ‘Impact and effectiveness of innovative approaches, new technology or educational research’ (HEFCE, 2016, p. 44). Each participating institution’s qualitative submission has provided an openly available set of documents for analysis (Office for Students, 2018).

TEF2 statements provide a narrative of teaching activity under the context of prescribed government policy. Strategy documents in contrast, look to the future, they set out the aim of the university and how they will achieve these aims. The discursive construction of the university in such documents have been used as insightful data for the discursive construction the very idea of the university but also its future (Mayr, 2008; Özdem, 2011; Matthews and Kotzee, 2019, 2020).

Clearly, both genres of texts have a communicative purpose in that work has taken place by a variety of actors to agree upon the texts form, structure and content. Communicative purpose of a genre then becomes a complex relationship between writer(s), the text and readers (Askehave and Swales, 2001). The producers and users of texts are epistemic communities who ‘manage’ the discourse in certain ways. By analysing both genres of texts described here, intertextuality is presented which offers a deeper insight into institutional discourse from two different perspectives and contexts to investigate underlying ideologies and perspectives (Mayr, 2008).

5.1.4 Corpus-assisted discourse analysis

Firstly, an introductory analysis was conducted on the key word ‘technology*’. [Table 2](#) shows the frequency of the keyword in both corpora, including relative frequency for comparison and dispersion across all documents. This initial analysis is

not particularly enlightening but gives us a starting point to map the corpora with the keyword ‘technology*’. LancsBox4.0 software was used to conduct the analysis (Brezina, Timperley and McEnery, 2018).

Table 2: An overview of keyword analysis – ‘technology*’

Corpus	Frequency	Frequency per 10k	Dispersion
TEF2	338	4.41	81/88
Strategy	284	7.83	70/88

To further the analysis of this keyword, the collocations of ‘technology*’ were extracted to begin to give a deeper understanding of the keyword in context. As Firth (1957, p11) famously quoted: ‘you shall know a lot about a word from the company it keeps’. Table 3 contains the strongest and most frequent collocations for the keyword (technology*).

Table 3: Collocations of keyword “Technology*” spanning 5 words either side (5x5).

Collocations are listed with the highest frequency, frequencies are reported with a minimum frequency of 10 and minimum MI statistic of 5.0.

Corpus	Collocate (frequency)
TEF2	Learning (136), use(52), enhanced (47), science, (20), new (20) digital (19), engineering (15), enhance (12),

	assistive (11), tel (11), innovative (11), school (11), media (10), spaces (10)
Strategy	Learning (51), science (36), use (36), digital (27), engineering (25), information (19), mathematics (13) & (12), appropriate (11), using (10), resources (10) facilities (10)

The most frequent and strongest collocate in both corpora is ‘learning’. In TEF2, the third most frequent is ‘enhanced’ which, as described above, technology enhancing learning unquestionably and uncritically, has been challenged (eighth is ‘enhance’). Also, in the list is ‘tel’ which is the acronym for ‘technology-enhanced learning’ which dominates higher education. ‘Assistive’ technologies are deployed for those with special education needs (Erdem, 2017).

Dominating both corpora in the context of technology is ‘use’ and ‘using’. The second most frequent of the strongest collocates is ‘use’ in TEF2 (third in strategy is ‘use’ and tenth ‘using’). The initial corpus analysis has uncovered the prevalent terms such as ‘technology enhanced learning’ and also that universities ‘use’ technology both in describing teaching excellence and also in the future vision of the university.

In order to go beyond a quantitative analysis of technology discourse in relation to teaching and learning, text passages (concordance lines) were extracted from the corpus manually in which ‘technology*’ was used in relation to the broad focus of technology in education. Text extracts, which described technology in the context of courses or departments involving technology, were not included for this follow-up. From these extracts only those, which contained ‘use’ or ‘using’, were taken forward for interpretative thematic analysis (Braun and Clarke, 2006) to understand how

universities write about their use of technology in both corpora. Nvivo software was used to inductively code these text extracts. Constant comparison was used (Bryman, 2008) within and between text genres to construct a substantive theory of the ‘use’ of technology in the context of the contemporary university.

Table 4 shows the results of the thematic analysis of ‘use’ of technology in the follow-up, qualitative analysis of the TEF2 corpus. The use of technology as a means with defined ends has a sub theme. This is included to present what those ends were. The subtheme of ‘Improved student attainment and learning gain’ is illustrated by the following quote:

Critically, use of Blackboard is strongly correlated with academic success, demonstrating its effectiveness in supporting student outcomes: students who make most use of the environment double their chances of a good honours grade at module level.

This quote was not substantiated further, a bold claim and whilst extreme in the corpus shows an example of datafication, machine behaviourism and robot pedagogies of education explored above.

Table 4: Thematic analysis of TEF2 corpus text extracts			
Theme	Frequency	Sub theme	Frequency
Use of technology – means and ends	57	Feedback and Assessment	22
		Flexible and interactive learning	12
		Lecture video and audio capture	10
		Access to hardware (ipads and laptop)	7
		Workplace and professional skills	4
		Analytics and metrics	3
		Improved student attainment and learning gain	3
		Connect with students on placements	2

		Physical spaces and technology	2
		Polling and response systems	2
		Assistive technology	1
Staff development, resources, monitoring and awards	31		
Use of technology as an end in itself	23		
Student development	6		

Feedback and assessment themes dominated ends and the discourse was generally using technology to ‘fix’ the issue of timely feedback and assessment. Further themes include staff development which included resources to support development and monitors in place to ensure teaching quality when technology is deployed. Student development is characterised by students’ exposure to technology as a learning outcome in itself. The use of technology as an end in itself was used as a marker of excellence, examples from this discourse include:

The TEL roadmap aimed to facilitate greater levels of student engagement through the use of technology throughout the whole student journey.

The introduction of a comprehensive programme of training is developing a culture that maximises the use of, and commitment to, TEL.

Our use of digital technology is integrated into all aspects of education.

Table 5 shows the results of the same analysis for the Strategy corpus. Again, the use of technology, including means and ends, is articulated as well as broader uses such as use of technology in everything the university does and the implementation of technology into physical spaces. As in the TEF corpus, the theme of technology use is constructed as an end in itself as these examples show:

Implementing the second phase of the current initiative, [software name], to expand the use of technology enhanced learning.

This will allow us to ensure that the use of leading-edge technology-enhanced learning is fully embedded into the academic life of the University.

Table 5: Thematic analysis of Strategy corpus text extracts			
Theme	Frequency	Sub theme	Frequency
Use of technology as end in itself	12		
Use of technology – means and ends	8	Expand reach and participation	3
		Online distance blended learning	2
		Learning and skills development	1
		Peer teaching	1
		Personalised learning	1
Use of technology across all activity	8		
Communications	3		
Student expectations and support	3		
Secondary to ‘face to face’	2		
Physical Spaces and technology	2		

This analysis has revealed empirically that UK universities construct technology in the context of education as a tool to be used as both an end in itself and as a neutral tool for achieving a specific end. This use aligns closely with the essentialist and substantive (an end in itself) as well as instrumental perspectives (neutral tool to achieve a specific end) in the fields of PoT and STS outlined in Figure 1. These links, I will be explore further in the context of what is privileged in the educational design process – the pedagogy (as instrumental use) or the technology (as technologically determined, substantive or essentialist).

Technology is:	Autonomous	Humanly Controlled
Neutral (complete separation of means and ends)	Determinism (e.g. modernization theory)	Instrumentalism (liberal faith in progress)
Value-laden (means form a way of life that includes ends)	Substantivism (means and ends linked in systems)	Critical Theory (choice of alternative means-ends systems)

Figure 1. Theorising technology use. Taken from Feenberg (1999)

Which comes first, the pedagogy or the technology?

Kirkwood and Price (2014) calls for a resistance to a technological determinism which results in an essentialist view of technologies having one reified use, and that educational goals and purposes should be prioritised over technology. A pedagogy first approach then, challenges educators and technologists to consider the approach to teaching and learning and then choose or build the appropriate technology (i.e., Sankey (2020)).

PoT and STS have grappled with many of these complex relationships between the social and the technical. For example, Feenberg (1999) compares these positions of determinism, instrumentalism and substantivism (which others have termed essentialism-see Figure 1). Instrumentalist perspectives see technology as a neutral tool to be used by the individual or organisation as they see fit – a goal to be achieved with the tool as a means with which to achieve this. This idea is isomorphic with the discourse of ‘pedagogy first’ – a piece of technology helps to achieve an educational end, regardless of technology. As we have seen in the analysis above, UK university

discourse on technology in higher education could be associated with the instrumental as a 'use' with a specific end in mind. In direct contrast, technological determinism removes agency from society to place technological development as the driver of social activities. An extreme technological determinism in the context of education is characterised by technological development changing pedagogical practice based on the technology available and its on-going development (for example, prevalence of social media and other platforms in wider society being adopted in education). In this study we see that technology use as an end in itself and could be described as deterministic in that the goal is to include technology in the educational assemblage of a university which then has the potential to determine educational practices. Media theorist McLuhan famously stated that the 'media is the message' in that the media with which a message is delivered, changes that message and thus is determined by the media technology (McLuhan, 2010). McLuhan might say then in a technologically deterministic manner that the technology is the pedagogy. The use of technology as end as found in the above analysis can be described as substantivism or essentialist in that a piece of software or other technology is seen as a fix and value-laden with a specific purpose. For example, assessment and feedback was the most referenced end to be improved by technology. We can say that by using a specific technology for this end that the chosen technology is a substantive 'solution' to that issue. Many contemporary scholars have dismissed the idea that technology purely determines society, but there has been some resurgence in this position in STS, as characterised by Wyatt's (2008) chapter titled: *Technological Determinism Is Dead; Long Live Technological Determinism*. Dahlberg (2006) explores instrumentalist, technological determinist and social determinist positions from a media and internet research perspective and cautions against such reductive moves to overemphasise use, technological form and social context and the risk of determining

one position over another (for a detailed description of social constructivism and technological determinism see Matthews (2020a). Hayes and Jandrić (2014) challenge extreme technological determinism discourses in higher education, highlighting complex relationships between technology, the university and people where technology and neoliberal policy agendas can be co-opted to result in single minded technological development. In direct contrast, while attractive is the idea that humans simply need to harness and take control of technologies (instrumental use) for the good of education, there are a complex set of actors and ideologies at play (see sociotechnical imaginaries discourse above). Following the positioning of the discourse of UK universities in the context of sociotechnical theory of instrumentalism ('pedagogy first') and technological determinism, substantivism and essentialism ('technology-led') in education I now go on to explore a counter discourse designed to open up possibilities for new technologies and pedagogies to bridge any binary pedagogy-first and technology-led perspectives which I argue are reductive and oversimplified.

5.1.5 Alternative and counter-discourse: critical theory of technology

Dominating the discourse of universities in regulatory written submissions of teaching excellence as well as strategy documents is that technology is a tool to be used for desired ends as well as technology as a given uncritical good.

Feenberg's (2002) critical theory of technology is a response to the divides of instrumentalism, substantivism and determinism and is described as charting 'a difficult course between resignation and utopia' and to '... explain how modern technology can be redesigned to be adapted to the needs of a freer society' (p13). Feenberg adopts Lukács reification (1990) and the Frankfurt School of critical theory concept of one-dimensionality. Both reification and one dimensionality in the context of technology place 'things' with a one way of being. Feenberg's critical theory of technology and his

project to transform technological thinking reject such universalism to include technical rationality along with the experience of non-technical actors. Here we can say that both pedagogy and technology are brought together holistically rather than one privileged over the other. Critical theory of technology opens various potentialities for development in both means and ends with a greater participation in design and development from different and diverse perspectives (for example, educators, technologists and students). For example, Selwyn and Gašević (2020) a critical social scientist and data scientist through dialogue and exchange of ideas find common ground and divergence in the potential of technology in education (in this case, data science and analytics). The use of technology then becomes a much more complex and philosophical exercise in that there is a technical design and implementation and also a guiding educational principle adopted by an institution or individual all of which are value-laden and not neutral and objective. Feenberg's *Alternative Modernity* (1995) further critiques the two extremes of instrumental use and substantive (essentialist) determinism and presents a perspective of not moving beyond modernity but to a different, alternative form which acknowledges the rational technical culture approach as well as a democratic societal engagement and public participation with technologies. In education terms, this moves us beyond binary thinking of utopian uncritical enhancement and dystopian datafied control, to imagine and create new possibilities for technology. In the case of the discourse analysed above, a 'solution' to assessment and feedback as a technological 'fix' can go beyond the technical, objective and neutral to include principles and approaches relating to good practice in assessment and feedback which incorporate the affordances of new technologies as reciprocal shaping of assessment practices in a sociotechnical assemblage. New perspectives, such as the postdigital (Jandrić, Ryberg, *et al.*, 2018) and the posthuman (Ulmer, 2017), offer ideas

and concepts which go beyond the technocratic black box of technology to involve the human (student and teacher) in more democratic ways. Posthuman and postdigital perspectives expand such democracy beyond humans and consider the network of humans and non-humans in complex sociomaterial assemblages. Technologies from these perspectives act and mediate socially situated practices in multimodal digital and analogue contexts (Gough, 2004; Gourlay, 2015). Feenberg's critique of modernity states that rational technological systems play a privileged role in modern societies, promoting quantitative, rational and neutral ways of thinking. For Feenberg technologies acquire meaning through rhetorical procedures (discourses), interconnections with other technologies that embed a way of life and design features which embed values. I have provided an analysis of two genres of text on the discourse (rhetorical procedures) of technology in higher education which has shown the instrumental and essentialist 'use' of technology and its uncritical 'enhanced' discourse. Technical choices are made at a range stages in technology product development which influence higher education practices. These decisions and technical choices may exclude and include different voices and experiences (Williamson, 2017). When opening such technical black boxes for analysis and going beyond the technical, we may find ourselves questioning the purpose of higher education and other such philosophical questions which not only open up possibilities for technology in education but result in a reflective practice in the ontology of the university. Examples here are the datafication (Williamson, Bayne and Shay, 2020) of approaches to education resulting in 'machine behaviourism' approaches to learning (Knox, Williamson and Bayne, 2019) or the purpose of higher education being quantified by outcomes and employment (Matthews and Kotzee, 2019).

Gilbert Simondon's theory of 'concretization' (Simondon and Simondon, 2012; Iliadis, 2015) describes one design which takes in various perspectives – the technical, the social, the efficient, the economic etc. (the technologist, management, the teacher, the student, the environment). Concretization conceptualises elegant design in bringing to bear all needs and requirements and not achieving one perspective and 'bolting' on others after the design. Returning to the example of what comes first 'the pedagogy' or 'the technology', an elegant concretised design brings together pedagogy and technology as well as contemporary issues in higher education which include massification, government regulation, funding issues, access and participation, inequalities, teaching quality etc all identified as current and historical issues in the future of EdTech (Selwyn *et al.*, 2020). Design is becoming a more established field of study in higher education (Goodyear, 2015; Fawns, 2018; Matthews, 2019a), interested not just in the technologies, but a network approach which looks at the technical artefact, the human and the social as a symbiotic ecosystem (Goodyear, Carvalho and Dohn, 2016; Ulmer, 2017).

5.1.6 Conclusion

2020 will be characterised by the year of the Covid-19 pandemic which has left few areas of life unimpacted by the virus including Education and a pivot online has jettisoned many learning technologies. Many of the issues concerning EdTech remain from before the pandemic and have been amplified from disruptive innovations to palliative solutions to 'save' and 'fix' education (Selwyn, Macgilchrist and Williamson, 2020). The texts analysed in this study were written before the global pandemic but serve to highlight issues which have become more urgent following the 'pivot' online in early 2020. Using a corpus analysis of UK institutional texts, this article reveals a dominant discourse of technology being 'used' for specific ends or an end in itself. This

may seem innocuous, however, when aligned to conceptualisations of instrumental, substantivist and deterministic theory from STS and PoT we are able to critically analyse the seemingly apolitical and neutral discourse of technology. Critical scholars in the field of EdTech have posed questions and raised issues of the neoliberal, datafied influence of educational technologies in changing pedagogical practices and the very idea of a university with value-laden ‘fixes’ for education systems. Caution should be taken when a neutral, apolitical discourse is espoused and enacted by internal and external actors when it comes to technology ‘use’ in light of some of the competing perspectives and ideologies that have been explored in this article across a range of actors and technologies. I have problematised the discourse of ‘pedagogy first’ in contrast to a technology-led approach in that both philosophically and in practice they are reciprocally influential. Critical theory of technology has been presented to show the complex assemblages of many actors in education which have grown with the emergence and further development of the unbundled university. As highlighted by critical scholars of EdTech, a complex network of actors include commercial and public interest in the unbundled university as well as student and teacher agency mediated by sociomaterial network assemblages of human and non-human actors (Gourlay and Oliver, 2018). Gourlay and Oliver conclude that ‘institutions, just like students, are neither purely users of technology nor entirely powerless before it’ (157). This article has served to broaden the debate beyond binary divisions of instrumental use (i.e., ‘pedagogy first’) and essentialist, substantivist and technologically determined (i.e., ‘technology-led’) in response to the dominant discourse of using technology for specific ends or as an end in itself. For Hamilton and Feenberg (2012) these reductive binaries are often characterised by factions claiming that to accept technology in the university is to accept neoliberal marketised education and in direct opposition, to reject technology

is traditionalist and ‘luddite’. Whilst these polar debates are occurring within the politics of the institution and sector, change is occurring in a more complex manner with new and emerging technologies procured by the university itself and digital platforms used by students and teachers outside of the campus boundary and network.

This work serves to highlight the issues facing higher education and the ever-changing technological and economic landscape of EdTech discourse which has been elevated in 2020 with the COVID-19 pandemic. Critical thinking, reflection, debate and collaborative design is called for rather than oversimplifications of instrumental pedagogy-first over technology-led (or vice versa) or technology as an end in itself, determining teaching and learning in an essentialist and substantive manner. New potentialities for education and technology are possible and critical theories of technology are offered here to provide new perspectives on the relationship between the university and digital technologies.

5.2 UK university part-time higher education: a corpus-assisted discourse analysis of undergraduate prospectuses

5.2.0 Abstract

In the UK, higher education (HE) policy discourse over the past 60 years has advocated flexible part-time HE for social mobility, personal development, economic advantage and leisure. However, part-time undergraduate HE in the UK is in steep decline. Against this backdrop, we were interested in how universities promote, or fail to promote, part-time study options today. We built a corpus of 90 UK undergraduate prospectuses for 2018 entry (5,673,799 words). Using a corpus-assisted discourse analysis approach, we found significant mismatch between policy discourse and marketing discourse regarding part-time study. In particular, we found that UK university marketing discourse positions full-time study as the dominant mode of study and writes of part-time study as ‘second-best’. This discourse mismatch is particularly marked when it comes to the elite Russell Group of universities. Viewing the absence of strong promotional discourse relating to part-time study alongside other factors such as increased tuition fees and the rise of global online education platforms adds a new perspective to the decline of flexible part-time undergraduate HE at campus-based universities in the UK.

5.2.1 Introduction

Since the 1960s, academics and policy-makers interested in equity in higher education (HE) have represented flexible, part-time and lifelong university education as possible solutions to issues to do with, on the one hand, changes in career patterns and, on the other, low levels of social mobility. By making it possible to complete a university degree (a) later in life and (b) alongside other commitments, early pioneers of lifelong learning aimed to break the monopolisation of university education by the well-off and to widen access to HE.

Over the last seven decades, UK HE policy discourse has consistently promoted the benefits of part-time HE. However, the realities of UK policy implementation have

led to a dramatic decline in part-time, flexible undergraduate HE in the UK (Callender and Thompson, 2018). In order to assess the status and place of part-time undergraduate education in the UK university today, we studied how universities present themselves as sites for full-time and part-time study in undergraduate prospectuses. The university prospectus portrays the university through promotional discourse (Askehave, 2007). Our examination of university prospectuses found that higher status universities tend to present themselves as places for full-time study, while it is predominantly lower status universities that promote part-time options.

We do not claim that prospectus discourse is the primary cause of the decline of part time study in the UK. Instead, our discourse analysis (DA) adds a further perspective to the decline by showing how UK universities construct the purpose of part-time study in relation to the ‘norm’ of a full-time undergraduate degree.

The article opens with a brief overview of part-time education discourse in the UK and beyond. Next, we chart the recent fortunes of undergraduate part-time study at UK universities. We then gauge how universities position themselves in terms of full-time and part-time study through a corpus-assisted DA. We also compare discourse of campus based institutions with new emerging online platforms. We close by discussing our findings.

5.2.2 Part-time and flexible higher education policy: discourse and reality

2.1. Part-time HE study in the UK (1963–)

The Robbins Report (Robbins, 1963) evaluated the state of UK HE and proposed a plan for the future. One of the main conclusions of the report was that HE should be available to all that are qualified with an ambition to study. In 1963, (soon to be Prime Minister) Harold Wilson delivered his ‘White Heat of Technology’ speech at

the Labour Party conference, which set out plans to take advantage of new technologies to promote wider access to HE; this vision culminated in the foundation of The Open University (1969). Wilson's vision pictured mature students studying while working, breaking the stranglehold of the middle and upper classes on HE by providing more opportunity for all (Wilson, 1963). This period saw a steady rise in the numbers of part-time students at UK universities, from 16,146 in 1954 to 40,752 part-time students and 76,295 (separately counted) Open University students in 1984 (Tight, 1991)³⁷.

1992 saw the expansion of the UK HE sector and part-time HE was back on the agenda. The 1998 Labour Government paper: *The Learning Age* (Department for Education and Employment (DFEE), 1998) outlined the approach that the UK would take to lifelong learning in response to challenges requiring workers to return to education periodically to 're skill' and 'up-skill' to keep pace with the changing labour market. The paper presented flexible learning, aided by technology, as the key to a well-educated, adaptable workforce and successful economy. Part-time student numbers continued to grow to a high point in 2008 of 344,775 first-year undergraduate students (HESA, 2019). Policy throughout this period advocated part-time study for educational opportunities across the life-course, increasing social mobility and giving students greater choice. The 2012 Research Report 'Expanding and Improving Part-Time Higher Education' (Department for Business Innovation and Skills, 2012) even called for a 'blurring of the line' between full-time and part time, making flexible study available to all. Outside of the UK, the OECD, World Bank, UNESCO and the European Union

³⁷ 1 These figures include all levels of tertiary education (from undergraduate to postgraduate).

have all advocated lifelong learning as a solution to many educational and economic problems (Schuetze, 2006).

Despite the fact that UK governments since the 1960s have emphasised the importance of part-time study, since 2008 part-time undergraduate student numbers have declined dramatically. First-year UK undergraduate part-time students have dropped from the 2008/2009 high point of 344,775 to 128,730 in 2017/2018 (HESA, 2019). A number of factors contributed to this decline. In 2006/2007, tuition fees in England were increased to £3000 and in 2012/2013 fees rose to a maximum of £9000. Although part-time students started to qualify for the same student loans as full-time students in 2012/2013, loan and repayment terms for part-time students were less favourable for part-time compared to full-time students (Callender and Thompson, 2018). Moreover, potential part-time students reacted differently to the new fee and loan regime than full-time students. The higher fee seemed to be offset in the minds of full-time students by the availability of fee and maintenance loans, part-time students were put off by the higher fees and the availability of loans did not alleviate this (Shaw, 2014).

Alongside fees, a number of other factors are important in understanding the decline of part-time students. One factor was the Equivalent or Lower Qualifications (ELQ) policy. In 2007, the Higher Education Funding Council (HEFCE) withdrew subsidies for student numbers studying for qualifications equivalent to or lower than a qualification they already held, meaning that students studying for an 'ELQ' were liable to pay fees at a higher rate (Lingwood, 2015). Because many part-time students undertake part-time study later in life to re-skill and already hold an ELQ, part-time study became a bad financial proposition for these learners. Furthermore, Mason (2014) documents that employer support for part-time study also declined in the period, making

it increasingly hard for UK students to study part-time. Next to these factors (fee levels, the ELQ policy and employer support), other factors that may have led to the decline in part time study in the UK are poor economic returns, the economic downturn and a decline in leisure learning (House of Commons Library, 2019).

2.2. International comparisons

Across OECD countries, 16% of those studying for a bachelor's degree are studying part time (OECD, 2019). The highest percentage of part-time undergraduate students can be found in New Zealand (39%), Norway (35%) and Sweden (53%) (OECD, 2019, p. 159). The Nordic model of lifelong learning is a frequently cited example of a culture of learning throughout the lifespan underpinned by national corporatism and strong employer engagement through trade unions (Rubenson, 2006). In the USA, total part-time fall enrolment in degree-granting postsecondary institutions between 1959 and 2014 increased year-on-year with projected increases expected until 2025 (NCES, 2015) and in Canada, part-time enrolments have remained fairly consistent between 1992–1993 and 2015–2016 (Usher, 2018). In Australia the numbers of students on part-time HE courses (at undergraduate and postgraduate levels) have consistently increased in line with full-time students; there were 8701 part-time students enrolling in 1949, this steadily rose to 102,762 in 2000 and 206,307 in 2008 (Department of Education, and Training and Youth Affairs, 2001; Department of Education, Employment and Workplace Relations, 2008). In 2008, 31.2% of all Australian students attended on a part-time basis. In English-speaking countries, like the US, Australia and Canada, we have clearly not seen the decline in part-time provision that we have seen in the UK. One example of an OECD country with particularly low levels of part-time HE is Germany. In Germany, only 7% of all HE students are officially registered as part-time and only 13% of programmes can be studied part-time.

Like in the UK, there have been calls to improve part-time study options in Germany (Gehlke, Hachmeister and Hüning, 2017).

2.3. The rise of global online providers

The innovative use of technology in the 1960s, such as that adopted by the UK's Open University, led to the use of technologies such as television and radio to widen access to HE. The Massive Open Online Course (MOOC) has become the symbol of online digital learning opportunities provided by universities and others on a worldwide scale. In 2018, there were 101 million students and 11.4k courses offered globally by the top 5 MOOC providers: Coursera, edX, XuetangX, Udacity and FutureLearn (Class central, 2019). The variety, flexibility and range of study opportunities offered by MOOCs is increasingly popular with potential students and, as a flexible offering, threatens the position of the (traditional) 6-year part-time undergraduate degree on university campuses. The possibility of online education has redefined time and space for the learner (Sheail, 2018) and it is very possible that the rise of online study has contributed in some way to the decline of part-time campus provision in UK HE. However, doubts continue to be raised over whether MOOCs can or will replace campus-based study. Firstly, MOOC completion rates are poor – less than 10% of students signing up for a MOOC are likely to complete (Jordan, 2014). The MOOC has been praised for potential expansion of educational opportunities; however, others hold that it provides only a lower-quality alternative to traditional education (Literat, 2015). It is true that online education that is open to all provides the potential for social justice and opportunity for all, however, it can also be argued that this results in an equality of access rather than equitable outcomes (Selwyn, 2016a). There are also concerns that global online platforms are not designed by educators but by programmers and technologists, funded by technology venture capitalists, focused on large-scale data

capture and private sector profit (Williamson, 2017). MOOCs, rather than offering education to all, have potentially had the opposite impact on social mobility and widening access in that they exclude less privileged groups and privilege those with a degree (van de Oudeweetering and Agirdag, 2018). Possible migration to online study is one of a set of complex reasons that must be borne in mind when understanding the fortunes of part-time study in the UK.

5.2.3 Methods: a corpus-based discourse analysis of university prospectuses

Given the decline of part-time study in the UK today, we were interested in how much attention part-time study receives in terms of discourse. One of the clearest ways to illustrate the status that universities themselves give to part-time and full-time study, and how they position the two against one another, is by reading university prospectuses. To map discourses of part-time HE in the UK, we collected undergraduate prospectuses from 90 universities, 22 from the Russell Group and 68 from other universities. Together, these prospectuses form a corpus of 5,673,799 words. To evidence how universities in the UK represent mode of study, we used a hybrid method of corpus linguistics (CL) and DA to compare and contrast how the universities of the Russell Group and those outside the Russell Group write about part-time study. We also compared this discourse against two contrast cases: (1) discourse around part-time study at the two best known specialist part-time universities in the UK – the Open University and Birkbeck, University of London and (2) discourse around part-time study as found on the websites of some leading global online providers.

The social sciences have increasingly turned to CL methods to analyse the real-world use of text (Baker *et al.*, 2008), but the method is still seldom used in education

studies³⁸. In our study, we used standard CL methods of word frequency, collocation and concordance analysis to build a descriptive picture of part-time study in university prospectuses. Large corpus approaches can provide systematic evidence regarding the pattern of use of words (Stubbs, 2001), however it can lack the nuanced contextual interpretation provided by a more qualitative approach. To focus more closely on what university prospectus writers mean by using language in a certain way, we, therefore, paired our corpus approach with a follow-up DA. We modelled our approach of pairing CL and DA on the approach of Baker et al. (2008) and Efe and Ozer (2015). Following initial analysis, we followed up by using Van Leeuwen's (Van Leeuwen, 2008) discursive construction of purpose as a theoretical framework to analyse use of part-time study. This allowed us to measure how frequently universities talk about part-time study and also how they present the possibilities for part-time study.

5.2.4 Results: corpus analysis

First, we explored the very simple matter of how frequently universities in the UK write about part-time study in their prospectuses. Tables 1–3 show the number of occurrences of 'part-time'/'part time' and 'full-time'/'full time' across our corpora.

Table 1: Representative corpus of the UK HE sector (HE corpus)

- **90 undergraduate prospectuses for academic year 2018/19**
- **5,673,799 words**

Word	Occurrences	Relative frequency per 10k words
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³⁸ A search on 'corpus' in the pages of Higher Education Research & Development yielded one result.

'Part-time' and 'part time'	2353	4.15
'Full-time' and 'full time'	6024	10.62

Table 2: Russell Group corpus (RG corpus)

- 22 undergraduate prospectuses for academic year 2018/19
- 1, 546, 065 words

Word	Occurrences	Relative frequency per 10k
'Part-time' and 'part time'	224	1.55
'Full-time' and 'full time'	888	6.13

Table 3: Non-Russell Group corpus (NRG corpus)

- 68 undergraduate prospectuses for academic year 2018/19
- 4, 142, 962 words

Word	Occurrences	Relative frequency per 10k
'Part-time' and 'part time'	2,155	5.21
'Full-time' and 'full time'	5, 324	12.85

A high-level comparison shows that the word ‘full-time’ is used over twice as frequently as the word ‘part-time’ across the HE corpus. In the RG (Table 2) corpus, we can see that the word ‘full-time’ is used almost four times as often as the word ‘part-time’.

Table 4 compares the occurrences of ‘part-time’ and ‘full-time’ in the HE corpus and both sub-corpora (RG Corpus and NRG Corpus). It illustrates that Russell Group universities use the word ‘part-time’ far less frequently in their prospectuses than non Russell Group universities and the university sector as a whole. We used log-likelihood to test for statistical significance in comparing the frequency of words used across two or more corpora. While the chi-square test is a more familiar test for social scientists, Rayson, Berridge, and Francis (2004) hold that log-likelihood provides a more accurate test of significance than chi-square for CL (a log-likelihood of >15.13 is equivalent to a p-value of <0.0001).

Table 4: Comparing statistical significance	Observed frequencies of words			Loglikelihood
	HE Corpus	RG Corpus	NRG Corpus	
‘part-time’	2353	224	2155	384.60
‘full-time’	6024	888	5324	514.45

Counting the frequency of use of the word ‘part-time’ in prospectuses gives us an indication of how frequently universities write about part-time compared to full-time study. However, what do universities say about part-time study? Using collocation analysis allowed us to show which words most frequently appear in close proximity to the node word. As Firth said:

You shall know a word by the company it keeps. (1957, p. 11)

Tables 5–7 present collocation data for ‘part-time’ and ‘full-time’ across the assembled corpora, that is, the frequency of a collocate appearing within five words either side of the node word. Mutual information is used to measure the strength of the collocate – the higher the number the stronger the collocation (Baker, 2006). A minimum threshold of 5.0 was set to ensure the strongest and most relevant collocates were identified. The 10 most frequent collocates are listed. Frequency of the collocation is reported.

Table 5: Collocation in HE corpus							
Part-time				Full-time			
Collocate	MI	Freq (coll.)	Freq (corpus)	Collocate	MI	Freq (coll.)	Freq (corpus)
years	7.6380664 9	1275	17546	years	7.94466598	3812	17546
full-time	8.7823983 8	762	4744	3	6.93354173	1300	12060
study	5.3506619 7	365	24521	ucas	6.57075034	1075	12824
3	6.0175152 8	285	12060	code	7.36186273	971	6694
available	6.9752946 5	276	6013	4	6.89415514	965	9200
code	6.6188773	240	6694	course	5.1444718	912	29239
options	7.3976050 7	233	3788	duration	8.67611668	909	2520
costs	8.5031015 6	225	1700	part-time	8.69431193	762	2086

ucas	5.4107054 2	199	12824	campus	6.75644181	700	7342
location	8.1129103 8	194	1921	placement	6.39541818	652	8783

Table 6: Collocation in NRG corpus

Part-time				Full-time			
Collocate	MI	Freq (coll.)	Freq (corpus)	Collocate	MI	Freq (coll.)	Freq (corpus)
years	7.8991809	1260	11528	years	8.15941292	3438	11528
full-time	8.63198249	742	4085	3	6.9395762	1111	8677
study	5.32971032	314	17053	ucas	6.57196134	1069	10772
3	6.16466501	285	8677	code	7.34266345	971	5735
available	7.09316533	267	4271	duration	8.53153888	909	2355
code	6.51414034	240	5735	course	5.1329716	897	24507
options	7.67211663	230	2463	4	7.20528228	824	5353
costs	8.94515879	225	997	part-time	8.53856785	742	1913
ucas	5.31253883	196	10772	campus	6.8713611	680	5568
location	7.91877694	194	1751	hons	5.4126624	644	14494

Table 7: Collocation in RG corpus

Part-time				Full-time			
Collocate	MI	Freq (coll.)	Freq (corpus)	Collocate	MI	Freq (coll.)	Freq (corpus)
years	6.31489957	58	5225	years	7.73462256	664	5225
full-time	8.80813378	54	864	3	7.58401217	347	3031
work	6.56871306	47	3551	4	7.04356859	240	3049
students	5.510951	43	6763	full-time	8.46370562	182	864

study	5.42801602	41	6830	including	5.91272133	156	4340
please	6.96978168	37	2117	honours	6.84714318	140	2038
fees	8.24663041	31	732	campus	7.12497134	139	1669
start	8.90766968	30	448	duration	9.39104147	133	332
september	8.89438974	28	422	start	8.65833104	108	448
date	9.17669704	28	347	park	8.51465614	103	472

Table 5 gives us a view of the UK HE sector and collocate words with ‘part-time’ and ‘full-time’. The second most frequent collocate of ‘part-time’ in the HE corpus is ‘full time’. This shows how relational the word ‘part-time’ is – it is frequently found alongside the word ‘full-time’. In contrast, the word ‘full-time’ is often used without ‘part-time’ and ‘part-time’ is only the 8th most frequent collocate of ‘full-time’. Table 6 summarises this analysis for the NRG corpus. Again, we can see that ‘part-time’ is paired with ‘full-time’ much more often than vice versa. Frequent collocates of ‘part-time’ that do not also collocate with ‘full-time’ include ‘study’, ‘available’, ‘options’, ‘costs’ and ‘location’. This gives us a hint as to what the writers of NRG prospectuses are mainly concerned with when they write about ‘part-time’: they are writing about ‘part-time study’, what is ‘available’, the ‘options’ that are for part-time students, the associated ‘costs’ of part-time study and the ‘locations’ in which students can study.

Table 7 summarises this same analysis for the RG corpus. Again, we can see that ‘part time’ collocates more frequently with ‘full-time’ than vice versa. However, frequent collocates of ‘part-time’ that do not collocate with ‘full-time’ include ‘work’, ‘students’, ‘study’, ‘please’, ‘fees’, ‘September’ and ‘date’. These collocates are not necessarily what one would expect. ‘Please’ appears to collocate due to the texts often

referring potential part-time students to other sources that they should ‘please’ consult – a telephone number or website. ‘September’ and ‘date’ appear to emphasise when part-time study is available; despite the potential flexibility, we see that the start of the traditional academic year (September) is emphasised. Notably Table 6 shows that ‘study’ frequently collocates with ‘part-time’ in the NRG corpus. In contrast, ‘work’ collocates much more frequently with ‘part-time’ in the RG corpus. This hints that the authors of RG prospectuses may have something different in mind when they write about ‘part-time’ than the writers of NRG prospectuses: when they say ‘part-time’, RG prospectuses are often concerned with part-time work performed by students alongside full-time study rather than with part-time study. We were interested in how universities write about part-time study. We, therefore, eliminated references to part-time work by taking all uses of ‘part-time’/ ‘part time’ in the HE corpus, and excluded all cases where the word ‘study’ does not appear within 10 words of the node word, ‘part-time’. We also manually removed instances of ‘part-time’ used as a heading; while the use of headings is informative, headings alone do not show how part-time study is presented to students by the university. Following this process, we were left with 256 uses of the word ‘part-time’ of which we could be sure that they referred to part-time study.

Next, we analysed these 256 instances of ‘part-time’ using Van Leeuwen’s three-dimensional framework (2008) of the discourse of purpose. Van Leeuwen distinguishes three different constructions of purpose. A goal-oriented use is one in which the producer of the text is talking about potential, opportunities and the possibility of achievement. In the context of our study, we classified use of the word ‘part-time’ in a university prospectus as ‘goal-oriented’ if it were used to signal how a student might use part-time study to achieve some goal. A means-oriented use is instrumental, giving instructions or sign posting how to do something. Use of the word

‘part-time’ was classified as instrumental if it gave information about how to apply for a course or what to do in order to study part-time. An effective action use describes the result of something or to report the outcome or possible outcome of an action. We classified uses of the word ‘part-time’ as ‘effective action’ if it made mention of the consequences of studying part-time; achieving a part-time degree resulting in career progression, for example.

In analysing the use of each of the 256 uses of ‘part time’ and coding them as described (Table 8), we found that the most frequent use of the word ‘part-time’ was goal oriented. These were uses that give agency to prospective students by offering them options and by talking about the possibility of studying part-time. Means-oriented coded concordance lines included mostly discourse on fees and how a prospective student should go about applying. Tables 9 and 10 show ‘goal-’ and ‘means-’ oriented examples.

Table 8 – Coded discourse analysis	
HE Corpus – All institutions	
Goals Orientated	141
Means Orientated	102
Effective Action	13

Table 9: Examples of Means Orientated discourse.		
www.ucas.com Part-time study If you would like to study	part-time,	please apply to GCU directly. See www.gcu.ac.uk/parttime UCAS Code for
I want to study part-time? If you wish to study	part-time	(starting in either September or January), you also apply directly

Fees are reviewed annually and increases should be expected. Annual	part-time	fees are based on the number of modules you study
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Table 10: Examples of Goal Orientated discourse.		
late, we cannot guarantee that your application will be accepted.	Part-time	study All our full-time courses are modular and many can
studying for a degree with other commitments. We offer specific	part-time	degrees, including BA English Literature and Community Engagement (see p84).
STUDY Most of our degrees are also offered on a	part-time	basis. Typically, part-time students study one or two modules each

Goal-oriented and means-oriented discourse around part-time study is essentially neutral; for instance: if individuals would like to study part-time, the following is available (goals-oriented discourse) or, if they would like to study part-time, this is how to go about it (means-oriented discourse). Goals-oriented and means-oriented discourse do not promote part-time study.

By contrast to the neutral discourse regarding part-time study, just 13 instances were found that showed effective action discourse (Table 11). In these cases, the prospectus presents positive effects of part-time study. Looking at these 13 instances, it is clear that effective action of part-time study mostly concerns gaining a job, in one case ‘a dream job’. A small number of uses of the word were in the context of how studying part-time helps students overcome other challenges (like studying while having work or caring responsibilities).

Table 11: Effective Action discourse in HE corpus.

however. Much later in life I returned to education, studying	part time	in the evenings or at weekends whilst still working. Having
of study to meet each student's personal and professional needs.	Part-time	students are normally permitted to study a maximum of three
Flexible Learning Degrees Flexible Learning Degrees Studying a degree	part-time	is a popular way of addressing the challenges students may
roles, can be completed in a minimum of two years	part-time	study. Successful completion of this programme leads to the award
They provide you with the opportunity to learn by studying	part time,	and gain on-the-job training by working full time and earning
The first step in this journey was to move to	part-time	working in her role as office/IT manager and study towards
AND FLEXIBLE STUDY MODES Many of our students are studying	part-time,	either taking degrees, on short courses or working to gain
the job or career you have always dreamed of. www.uea.ac.uk/return	PART-TIME	STUDY We offer part-time degree programmes in a number of
you have always dreamed of. PART-TIME STUDY We offer	part-time	degree programmes in a number of subject areas, allowing students
aged 19+ at entry for all of our full- and	part-time	programmes. Whether you return to study for career enhancement, or

We repeated this analysis for the RG corpus and again found mostly goals-oriented and means-oriented discourse regarding part-time study. We could find only three instances where Russell Group prospectus speaks of the effect of pursuing a part-time study (Tables 12–13).

Table 12: Coded discourse analysis

Russell Group corpus

Goals Orientated	21
Means Orientated	21
Effective Action	3

Table 13: Uses of Effective Action discourse in RG corpus.		
however. Much later in life I returned to education, studying	part time	in the evenings or at weekends whilst still working. Having
also go on to postgraduate study, on a full or	part-time	basis. The following is a list of the major career ³⁹
of study to meet each student's personal and professional needs.	Part-time	students are normally permitted to study a maximum of three

Word frequency, collocation and concordance analyses indicate that non-Russell Group universities write more often of matters of part-time study. Moreover, across the UK HE sector, prospectuses seem to mention part-time study mostly in terms of goals and means, rather than effects. The scarcity of discourse of effective action across the UK HE sector illustrates the absence of promotional discourse around part-time study in UK university prospectuses in 2018. This is despite government policy discourse advocating part-time study.

5.2.5 Results: corpus-assisted discourse analysis

5.1. UK campus-based prospectuses

³⁹ Although this references postgraduate study, the concordance line is in an undergraduate prospectus. We concluded that this is still promoting part-time study on completion of an undergraduate degree by the institution.

In the second part of our analysis, we used our descriptive findings as entry points to reading the prospectuses in more critical depth. Moving from a CL approach to a DA approach, we widened our view beyond study of the patterns of words towards a reading of targeted lines of text in more depth. We found that broadly there are three quite different approaches to writing about part-time study in university prospectuses in the UK. (1) A first group of prospectuses sketch part-time study as being essentially the same as full-time study, but as offering greater flexibility. (2) A second group of prospectuses sketch part-time as markedly different from full-time study and position part time students differently due to their unique circumstances. (3) A selection of elite universities actively discourage both part-time study and part-time work.

It was mostly non-Russell Group universities that presented part-time as well as full time study as essentially the same. For instance, we found two ‘less prestigious universities’ who offer the majority of their programmes on a full-time and part-time basis. They do not describe part-time study as essentially different – they present the two options side by-side as equals. For instance,

A lot of our courses can be studied on a part-time basis.

When studied part-time, the duration of the course depends on the speed at which you wish to progress through it. This is called the ‘intensity of study’.

Another non-Russell Group institution uses the word ‘part-time’ 135 times, but next to the frequent mention of part-time study, they not only list part-time study as an option but also include more detail about how students can combine part-time study with work and that evening study is available. The options on the course pages state whether the part-time option is ‘day’ or ‘evening’ and there is a section dedicated to part-time students called ‘Part-time, flexible learning’.

Studying part-time doesn't mean you receive part-time support; in fact quite the opposite. We understand that part-time students often have multiple commitments to juggle, such as work and family, so strong support systems are absolutely crucial.

A similar ranking institution also uses the word 'part-time' frequently in their prospectus, and has part-time options listed on the majority of course descriptions. Major themes in this prospectus are (1) what a big step part-time study is and (2) the services and support on hand to support part-time students from a range of perspectives. For instance, we read:

While part-time students and those returning to study or with other commitments do face certain challenges, we believe you can take these in your stride with the right support.

By contrast, Russell Group universities are far less enthusiastic about part-time study and work. For instance, in one Russell Group prospectus we read:

Our degrees are principally designed to be taken on a full-time basis; all teaching takes place during the daytime. However, some departments do permit part-time study. Please enquire with the relevant programme contact.

You can work part-time, as many students do, to supplement your income during your studies. That said, we'd like to emphasise that your academic work should take priority.

We could only find one example of a Russell Group institution in our sample promoting part-time options actively, writing:

We know that many mature and part-time students face unique challenges, including balancing academic study with family and employment commitments. For that reason, our Lifelong Learning Centre provides specialised guidance, advice and support to mature and part time students, from pre-application right through to graduation and beyond.

Still, regarding this prospectus, we found it telling that the option to study part-time at this university is not university-wide, but confined to the Lifelong Learning Centre.

5.2. Contrast cases

In Sections 4 and 5, we analysed part-time study discourse at mainstream UK universities. We found that mainstream universities tend to present full-time study as the default option and that part-time study is not actively promoted; we also found an important status difference in that the elite universities of the Russell Group tend not to promote part-time study and that it is only lower status universities that do promote part-time study. In order to set this discourse in context, we compared this part-time study discourse with two contrast cases: the discourse of two specialist part-time and distance universities in the UK (arguably outside the mainstream) and the flexible online offerings of four prominent global online providers.

In the UK, there are two established universities with long histories of part-time and flexible approaches to undergraduate study, the Open University and Birkbeck, University of London. The Open University has traditionally provided distance learning through a variety of media: from posted materials and television to online digital media today. Birkbeck is a campus-based institution, but teaches mainly in the evening (6–9 pm), to accommodate part-time and full-time students. In order to provide a contrast case to our sample of ‘traditional’ UK university prospectuses, we constructed a mini corpus (60,077 words) (OUBBK) of these two institutions’ most recently available prospectuses 2019 (OU) and 2020 (Birkbeck). Table 14 reports the top 10 most frequent collocates of ‘part-time’ and ‘full-time’ in this small corpus.

Table 14. Collocation in OUBBK corpus. Mutual information => 5.0.			
	Part-time		Full-time
Collocate	Frequency	Collocate	Frequency
years	151	years	177
or	108	4	100
this	99	or	94
course	95	this	74
4	76	3	72
full-time	71	part-time	71
enrolment	34	ba	71
higher	30	bsc	50
will	27	foundation	32
modular	25	course	30

Across this small corpus we can see that when talking about part-time and full-time study, the length of the programme is important with the top collocate for both words being the word ‘years’. Interestingly, in the OUBBK corpus, the word ‘part-time’ collocates with ‘full-time’ equally frequently, showing that the two words tend to be used alongside one another. This is in contrast with our findings regarding traditional campus-based institutions above (Tables 5–7). In addition to the evidence provided by this collocation analysis, specific examples of how the word ‘part-time’ is used positively (and indeed in an ‘effective action’ mode) in the OUBBK corpus. For instance,

We’re pioneers in distance learning and, since we were founded, have helped more than two million people realise their potential. Our unique approach to learning means you don’t have to put your life on hold to get the qualification you want.

You’ll have the flexibility to fit study around the other things going on in your life, whatever they may be.

Our unique evening teaching means that you can study alongside London's working professionals and pursue internship or part-time work opportunities during the day. This will not only help you finance your studies, but also means you can explore job opportunities and enhance your career prospects.

As we held above, the rise of MOOCs and online platforms that offer opportunities to study short non-credit bearing courses through to fully online degrees may also have played a part in the decline of part-time HE in the UK. For this reason, we were interested to compare mainstream, campus-based UK universities' part-time learning discourse with the promotional material offered by online providers. To make this comparison, we compared our findings from the analysis of UK undergraduate prospectuses with the 'about us' pages of the large online providers Coursera, EdX, FutureLearn and Udacity. Just as we found in the considerably more formal discourse found in the OU and Birkbeck prospectuses, these online pages revealed strongly promotional discourse designed to highlight the effective action of studying flexibly.

Our mission

Our mission is to democratize education through the offering of world-class higher education opportunities that are accessible, flexible, and economical. Virtually anyone on the planet with an internet connection and a commitment to self-empowerment through learning can come to Udacity, master a suite of job-ready skills, and pursue rewarding employment. (Udacity, 2019)

The mission

- Increase access to high-quality education for everyone, everywhere
- Enhance teaching and learning on campus and online
- Advance teaching and learning through research (edX, 2019)

We offer a diverse selection of courses from leading universities and cultural institutions from around the world. These are delivered one step at a time, and are accessible on mobile, tablet and desktop, so you can fit learning around your life. (FutureLearn, 2019)

We envision a world where anyone, anywhere can transform their life by accessing the world's best learning experience. (Coursera, 2019)

Here, we see a striking difference in the discourse of the global online platforms who promote educational opportunities for all, available online and globally. Taking this small sample, we can see that using the Van Leeuwen construction of purpose framework (Goals oriented, Means oriented and Effective Action), the discourse of global online platforms reflects both goals-oriented discourse, explaining study options that are available if one has certain goals, and effective action discourse, reflecting goals that student should strive for, such as self-improvement or career progression resulting in widening educational opportunity, worldwide, for all.

5.2.6 Discussion

Scholars studying the decline of undergraduate part-time HE in the UK have charted its decline mainly in terms of the changing funding regime. Here, we add another perspective, by looking at how universities themselves construct and promote discourse around part time HE. Using corpus techniques to analyse the part-time discourse in university prospectuses, we found that, in 2018, UK universities simply write less frequently about part-time study options than full-time study. This is especially the case for elite Russell Group institutions, who, in the main, are silent or muted about part-time undergraduate study. Next, we looked at how the word 'part-time' is actually used in prospectuses when it is used. Looking at the words that are typically collocated with 'part-time' in university prospectuses, we saw that part-time study is positioned very differently from full-time study. While institutions outside the Russell Group broadly inform students about the part-time options that are available,

Russell Group institutions seem to downplay the possibility of part-time study and position ‘part-time’ options mostly in terms of working part-time while studying full-time. Moreover, reading UK universities’ prospectuses in depth, we found that UK universities mainly use ‘part-time’ in the context of study in a goal and means oriented way and that few uses of part-time in relation to study are effect oriented and therefore truly promotional regarding the benefits of part-time study. This contrasts strongly with the way in which the two specialist distance and evening study universities in the UK and a cohort of rising online education providers write of part-time and flexible study.

Three broad explanations are possible as to why UK universities’ promotional discourse is so muted about part-time study: (1) universities do not find it worthwhile offering part time options and have therefore taken the step to promote part-time study less actively; (2) the market for part-time study in the UK has shrunk because those wishing to study part time are looking at alternative options such as global online platforms instead of traditional undergraduate degrees or (3) the decline of part-time students may be due at least in part to the meagre promotional efforts that UK universities themselves make to promote part-time study. Our research cannot itself answer these three questions and all three deserve further study. However, our research adds detail to the picture, showing that on the whole, UK universities make comparatively meagre efforts truly to promote part-time undergraduate study.

With increased digital global connectivity, potential part-time learners may well be looking at alternative short courses provided by global online learning platforms. The unbundled university or the unbundled degree (McCowan, 2017) may mean that small modules can be studied over shorter periods of time, potentially with different ‘providers’.

Students may choose then to link these together to form a larger qualification (or not). While currently there are a variety of platforms available to students globally, ambitions to create a ‘Netflix style’ platform for education are predicted:

Pearson is building a Silicon Valley-inspired platform with potential reach to millions of students, who it addresses explicitly as social media consumers, at the same time as treating universities as long-term partners in its online learning services infrastructure and as labour market preparation centres. (Williamson, 2019, p. 11)

On the one hand, platforms such as these have the potential to ‘disrupt’ not only part-time education but all forms of education, going as far as to challenge the future of the undergraduate degree. However, on the other hand, our study shows that full-time, campus based study is implicitly shown as the standard route for UK undergraduate HE. Part time and online study is generally presented as a form of study that is special, different, less valued or of lower quality. Moreover, MOOCs have not delivered the equitable access to education that was hyped during the early 2010s. Despite consistent policy discourse encouraging part-time options, the standard full-time, three-year degree is still presented as the norm at UK campus-based universities.

CHAPTER 6 – HUMANS AND TECHNOLOGY

Chapters 4 and 5 have focused upon human-higher education and higher education-technology relations. In this chapter I use human-technology relations from a more theoretical and conceptual perspective to pull together both the ‘Ed’ (Chapter 4) and ‘Tech’ (Chapter 5) of EdTech as advocated by An and Oliver (2020). The relations between humans and technologies in relation to higher education is a key aspect of my conceptual framework in answering the research question (see introduction). Theories and concepts explored in this chapter are used help understand the relationship between humans and technology more broadly. Both published articles in this chapter draw upon such theories and concepts.

Firstly (6.1), I use the case study of data tracking devices using theories and concepts from STS and PoT, first, at the extremes of society determining technology (social constructivism) and technology determining society (technological determinism). Whilst showing examples of these binary opposites I advocate more of a middle ground whereby the social and the technological are much more co-influencing and mediating. These theoretical concepts are postdigital, postphenomenology and ANT. Secondly (6.2) in a more applied fashion I show how design theory can be used to create learning environments in higher education which accept the agency of the human and non-human network. Examples of techno-optimism and technological determinism discourse are challenged using such mediating and network thinking.

In this chapter I use social constructivism and technological determinism as a way of laying the theoretical and conceptual groundwork for answering the research question in terms of the biggest disrupting influences on the idea of the university based on the findings in chapters 4 and 5. Chapter 7 builds upon this work in pulling together the social and technological and answering the research question of the most influential disrupting influences on the idea of the university.

6.1 Blurring boundaries between humans and technology: postdigital, postphenomenology and actor-network theory in qualitative research

6.1.0 Abstract

Digital technologies in sport, exercise and health along with every other aspect of human activity have the potential to change practices but also the very discourse and perception of an activity. As technology develops and devices become more ‘smart’, qualitative research requires theories and concepts with which to frame empirical study. Social constructivism at one end of a continuum says that society determines how new technologies are designed and used, in contrast, technological determinism states that technology develops along a single track of progress of development to determine the social. Both of these are explored and used as polar extremes to then blur boundaries with the theoretical positions of postdigital, postphenomenology and Actor-Network Theory (ANT). These perspectives critically look at the digital and the human and the mediation of experiences through technological artefacts and human agency in a network of humans, artefacts and culture. These perspectives are explored and contextualised through health and fitness tracking devices and presented as theoretical frameworks for qualitative research in sport, health and exercise.

6.1.1 Introduction

This article explores theoretical perspectives for qualitative researchers interested in exploring the use of digital technologies in sport, exercise and health. Postdigital, postphenomenology and Actor Network Theory (ANT) give the opportunity to blur boundaries between affording full agency to society or technological artefacts in the growing complexity of relationships between humans and digital technologies. Social constructivism and technological determinism are two polar extremes – the former, socially shapes technology and conversely, in the latter, technology shapes the

social. Science and Technology Studies (STS) is an interdisciplinary field which intersects sociology, history, philosophy, anthropology and other social sciences to study the process and outcomes of science and technology in society, incorporating humans, artefacts and culture. STS is extremely diverse due to its interdisciplinary nature. Social constructivism within STS claims that social factors and forces result in new technological development in a non-linear manner whilst technological determinists state that technology develops independently of society along a single track with developments in the sciences which thus goes on to determine the character of society (Johnson and Wetmore, 2008), Feenberg contrasts the two positions as:

[Technological] Determinists usually argue that technology develops along a single track and in doing so shapes society. This view contrasts with a [social] constructivist position according to which there are multiple possible lines of development between which social forces choose. (Feenberg, 2017, p. 77)

When posing the question of how digital technologies shape behaviours, societies and research, the ubiquitous and situated, embedded and habitual use of digital technologies in the everyday, adds complexity which does not neatly fit into siloed and potentially reductive, deterministic boxes. STS is particularly useful as a field for qualitative research which has emerged to research the sociotechnical environment and has established itself as a discipline in its own right (Monberg, 2005). This article reviews a range of perspectives for use in qualitative research in sport, exercise and health, embracing complexity and diversity of approaches as the digital, the material and the social become ever more entwined and boundaries are blurred between the human and the machine, particularly where the moving body is concerned. Following this introduction is a brief look at the current technological landscape and a presentation of a case example to be used throughout. This is followed by an exploration of the two deterministic extremes of social constructivism and technological determinism. These

serve as extremes and polar opposites with which to explore the agency of individuals with three points of exploration – the postdigital, postphenomenology and ANT. These theoretical concepts are described and contextualised using the example of health and fitness tracking devices. The article concludes with a summary of the approaches covered to offer researchers in sport, exercise and health, theoretical and conceptual frameworks to use when considering human and technological relationships in qualitative research.

6.1.2 Case study example – health and fitness tracking

Throughout, I will use the work of Esmonde (2020) “*There’s only so much data you can handle in your life*”: *accommodating and resisting self-surveillance in women’s running and fitness tracking practices*. I use this case study to add context and examples for the theoretical positions covered. As we can see from the title of this work, there is a balanced perspective in both accommodating and resisting different health and fitness data tracking practices. This balance of accommodating and resisting fits well with the conceptual polar extremes explored here of social constructivism and technological determinism along with the less binary postdigital, postphenomenology and ANT. Esmonde’s work which I will reference from now on throughout the article as ‘Esmonde’s Runners’ takes Foucault’s biopower as a theoretical and conceptual framework with which to study the running practices of 10 women who run regularly using a self-tracking device, such as a watch or smartphone app.

The Foucauldian biopower perspective identifies the influence of discourse, power and knowledge in influencing individual behaviour. The practice of digital self-tracking can be conceptualised with biopower when underpinned by socially normative practices, influencing runners to conform to and regulate their running and health practices. For example, a common discourse that has become normative is that by

taking 10,000 digitally tracked steps per day, this equates to a healthy lifestyle. This data surveillance culture has resulted in what Haggerty and Ericson (2000) have termed 'data doubles'. A data double takes an individual's health and fitness data (in fact any personal data) which can then be scrutinised individually or aggregated with others by organisations (for consumer profiles, service delivery and target-specific markets), employers, doctors and individuals themselves. Esmonde's Runners perceptions of running under these surveillant assemblages are examined under the practices of dataism, the Quantified Self (QS) movement and technologies of femininity. In relation to the QS movement, by using running apps, runners engage with digital tracking practices whereby they monitor the time, speed, location, distance of their runs and often share these in communities within apps (such as Strava). In relation to dataism, the universe is seen as a series of data flows in which human experience is seen as irrelevant, a dataist is only concerned with quantitative data and analysing the patterns of the data produced (Harari, 2016). In relation to femininity, these quantifiable data streams and patterns conform to and reinforce normative stereotypes of gender, which women if they feel they do not live up to, may take up self improvement projects such as self-tracking to attempt to align their data double with those which are held as quantifiably in the data as 'feminine beauty ideals'. Esmonde was interested in the agentic practices of self-tracking and found that individuals were not determined and dominated by tracking practices but describe resistance and selective affordances of tracking. Esmonde's Runners' strategies included labelling some forms of data tracking as excessive, choosing not to track every day, acknowledging that they cannot be perfect and valuing feeling over data. The final strategy of feeling over data contrasts the concept of dataism described above. The study (Esmonde, 2020) does comment however that this particular group of runners were happy with the amount they

exercised, and many have always maintained a healthy weight with little worry for diet and calorie control. Others may not be in such a position of control. Using this case study example of health and fitness tracking practices and devices, I will contextualise the theoretical positions of social constructivism, technological determinism, postdigital, postphenomenology and ANT throughout with Esmonde's Runners.

6.1.3 The development of digital technologies in sport, exercise and health

The near future of technological development has been termed 'the fourth industrial revolution' or 'industry 4.0' (Schwab, 2016) and 'Life 3.0' (Tegmark, 2018). A key feature of future digital technological development is the 'cyber physical system' which blurs boundaries between the digital, the physical and the human. Material everyday objects are becoming 'smart' whereby they collect data and use algorithms, connecting to other data sources to advise on human action or to act independently. We are moving into a period whereby living with 'acting' technologies is central to human life. Physical artefacts are becoming connected to the internet, for example, health and fitness trackers used by Esmonde's Runners but also artefacts as diverse as home entertainment systems, fridges and cars – this has been termed the 'internet of things'. As Figure 1 shows the move into industry 4.0 connects material 'things' to the internet.

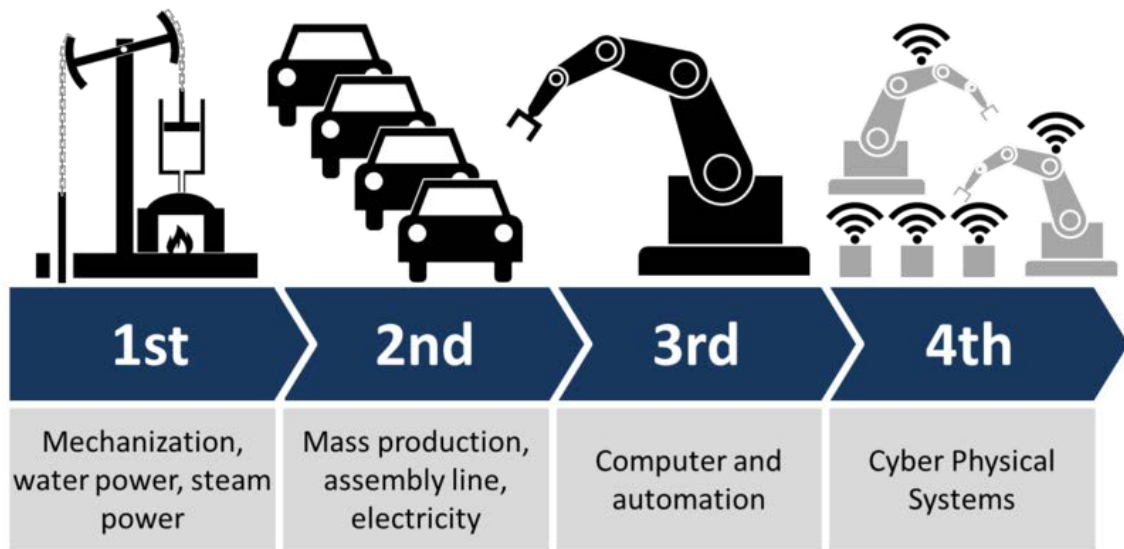


Figure 1. Illustration of industry 4.0. Creative Commons Licence
https://commons.wikimedia.org/wiki/File:Industry_4.0.png

In sport, exercise and health, these technology developments have recently been seen through the growth in access and use of wearable trackers (e.g. Fitbits), the use and adoption of apps (e.g. Strava) and social media as a source of health-related information, alongside the growth in virtual and augmented environments that are challenging the conceptualisation of sport and games. The data collection of wearable trackers and the use of this data has many opportunities but there are growing concerns over data privacy and surveillance practices. These developments in technology, widespread use and their influences require researchers to analyse the design, impact, affordance and use of such technologies. Two key questions for which scholars in the field of STS have grappled with throughout all of the ‘ages’ of technological revolutions and development, are:

- Will individuals and groups design and use technologies with an agency that allows for self determination?
- Will technology determine, and control societies?

Theoretical and conceptual perspectives are needed, alongside empirical data to conduct qualitative research in response to these developments.

Within sport, exercise and health, digital technologies are playing a significant part in shaping behaviours and practices. New technologies can collect and analyse huge amounts of data, learn from these data and make recommendations for change (Bartlett, 2004; Novatchkov and Baca, 2013). Methods and analogies of software development have been co-opted to ‘debug’ the self and think of bodies and minds as our ‘own computers’ which can be fixed and debugged without the need for health professionals (Ajana, 2017). As artificial intelligence develops further and more data is collected, these decisions could be outsourced to the app or platform in question in the sense that intelligence is becoming artificial. Lupton and Jutel (2015) suggested that ‘It’s like having a physician in your pocket!’ in analysing the sociology of digitised diagnosis mediated by apps and the effects of doctor-patient relationship, medical authority and data surveillance. Data can be analysed at the individual level but also aggregated across populations (such as workforces as well as nations). This all falls under the discourse of self-optimisation which, it could be argued has a neoliberal, individualised aspect – if one does not take responsibility for their own self improvement they are deemed as irresponsible. Platforms which people share their data with, hand over this data as payment for using services which may appear to the user as being ‘free’, these sociotechnical services have been termed platform capitalism (Srnicek and De Sutter, 2016).

This ability to collect quantitative data on everything from steps, heart rate, calories consumed, and much more has resulted in the QS movement in which researchers have critically analysed the impact of collecting data in sport, exercise and health and beyond with regard to the individual and the practice of ‘life tracking’

(Lupton, 2016). The relationship between the technological artefact, the data produced and the social context all form complex assemblages. Two opposing discourses have emerged which can be described as technologies being part of the social in design, implementation and ‘use’. This contrasts with a deterministic discourse which is led by technological development to determine behaviour, potentially resulting in control and surveillance. These two discourses I will describe using social constructivism and technological determinism before exploring some of the middle ground through the postdigital, postphenomenology and ANT.

6.1.4 Deterministic positions – the social and the technological

In popular discourse the argument which exemplifies our two deterministic positions of social constructivism and technological determinism is that of pro and anti-gun crime groups with the common parlance of ‘guns don’t kill people, people do’ (Slack and Wise, 2005). The gun makes the killing possible but the trigger is pulled by an individual, Slack and Wise term the former as technology as a cause (technological determinism) and the latter technology as an effect (social constructivism). With respect to wearable self-tracking technologies, we can use technology as a cause in being able to track myriad data points of the body and technology as an effect in that ‘users’ decide what and how to track. The latter then could use a humanistic strapline in countering common marketing discourse with ‘apps and devices don’t get fit – people do’. These two divides are common in everyday discourse around technology which can be similarly divided by perspectives of dystopian pessimism and utopian optimism. These binary discourses have entered public discourse with technological development resulting in utopian liberation or dystopian take over by the machine as articulated by boyd and Crawford:

Will large-scale search data help us create better tools, services, and public goods? Or will it usher in a new wave of privacy incursions and invasive marketing? Will data analytics help us understand online communities and political movements? Or will it be used to track protesters and suppress speech? Will it transform how we study human communication and culture, or narrow the palette of research options and alter what 'research' means? Given the rise of Big Data as a socio-technical phenomenon, we argue that it is necessary to critically interrogate its assumptions and biases. (boyd and Crawford, 2012, p. 662)

Such optimism and pessimism were reviewed by Casey, Goodyear and Armour (2017) with regard to the relationship between pedagogy, technology and education in health and physical education. Casey et al. review recent pessimism in that digital technologies could increase performativity measures (e.g. a standard set of behaviours to be replicated in everyone), standardisation (e.g. removal of teachers subjective ability), data-led surveillance (e.g. data is used to control behaviour rather than a gift to aid learning) and commercial interests (e.g. pedagogical and educational values are replaced by profit). An optimistic response from Casey et al (2017) calls for new ways of thinking which offer critical and constructive dialogue to imagine new futures and technologies shaped by learners and learning, teachers and teaching and knowledge in context.

These two extremes can be encapsulated by the polar opposites of social constructivism and technological determinism. The concept of social constructivism was brought about by the coming together of both science and social science disciplines. The social construction of artefacts was conceptualised by Pinch and Bijker (1984) as 'social group', 'interpretative flexibility', and 'closure mechanism'. They asked why some artefacts thrive and become everyday pieces of technology. Pinch and Bijker's (1984) social groups refer to institutions and organisations, small or large, formal or informal which influence the success of the artefact and how it is used, if it is

used at all. For example, Esmonde's Runners as users of tracking devices influence which devices and apps are used. The group also used the technology in different ways, in that they 'accommodate' some practices and they also 'reject' others. With these different uses, we can see Pinch and Bijker's interpretative flexibility, interpretative and flexible in that individuals, influenced by social forces will use digital technologies in many different ways and not just those imagined by the designer or marketer.

Following and in conjunction with social group and interpretative flexibility, closure mechanisms refer to the acceptance and reification of a technology in that technologies become accepted as a problem that has been solved and thus often re-enforced through advertising discourse and peers as a social group. The closure mechanism results in this becoming a habituated norm. These are not permanent however and these black boxes can be re-opened within the social group's interpretative flexibility. Esmonde's Runners may disrupt and open this closure mechanism in many ways, a new product may enter the market or a data breach could result in negative media attention resulting in influences from the social group to start the whole cycle again.

In a similar fashion Grint and Woolgar (1997) use the metaphor of technology as text to describe the design, development, production and marketing of an artefact. Technologies as texts are written and then 'read' by the user of that artefact, and like any text, they can be interpreted in many different ways. This results in a feedback loop which causes a change to the artefact in a loop back to the design.

Technology is created by engineers working alone or in groups, marketing people who make the world aware of new products and processes, and consumers who decide to buy or not to buy and who modify what they have bought in directions no engineer had imagined. Technology is thus shaped not only by societal structures and power relations, but also by the ingenuity and emotional commitment of individuals. Values, skills, and goals are formed in local cultures, and we can

therefore understand technological creativity by linking it to historical and sociological stories. (Bijker, 1999, p. 3)

This passage from the introduction to *Of bicycles, bakelites, and bulbs: towards a theory of sociotechnical change* encapsulates the essence of social constructivism through case studies of the safety bicycle, Bakelite and fluorescent lighting. Social constructivism here is concerned with the people involved in the commissioning, designing and use of artefacts and the cultural, historical, sociological, political and legal aspects of technologies. This interpretative flexibility can be seen in the way that young people use and engage with wearable devices and apps. Goodyear and Armour (2018) report a variety of uses and approaches by young people when tracking health and fitness data. This complexity and context-specific aspect of use (for example, young people in a specific context) is the space for qualitative researchers to reveal just how these technologies are being used and what influences such use has, as well as wider societal effects.

In the case of Esmonde's Runners, we can ask how the devices and apps are designed, marketed and then used in context. Esmonde identified runners' strategies used: selecting what to track, not tracking every day, acknowledgement that they cannot be perfect and valuing feelings over data. As well as use, we may also trace the histories of the artefacts as commercial products which may take different routes or diverge in a fork-like manner producing different artefacts for different social groups, for example, many fitness trackers are aimed at certain groups such as elite athletes but may then be used by amateur sports clubs in different ways. On a larger scale, we can look to the development of the Internet which grew out of complex developments in computer science and technically is a web of connected computers and has developed with many potentials. Two conceptions or affordances of the Internet can be described as a

consumption model or a community model – consumption sees commodities bought and sold as products and services (for example, apps such as MyFitness Pal as paid for in the traditional sense or in exchange for access to users’ data) in a one to many model as producer and consumer, conversely the community model democratises each node of the web for access to information, global communication and shared commons (Matthews, 2020b). In a simpler more traditional sense we may see a chair used for sitting but a variety of uses maybe creatively conceived – a ladder to retrieve something at height, an artefact for hanging clothes, keeping a door open, etc. We may only be part of the way in the development of personal trackers and a social constructivist perspective looks at how designs come to be and how those artefacts are used. Social constructivism of technology is a non-linear path shaped socially. In stark contrast to this approach is technological determinism whereby society is perceived to be shaped and formed by linear technological progress, moving forward on a single track trajectory.

Technological determinism is the view that the properties of technology and material forces shape and determine social events (Sismondo, 2010). Many technological determinists came to think that technology determines behaviour and society around the time of the industrial revolution and the rapidly expanding technologies that powered factories and mass production. Ellul (2011) and others in the mid 20th century were observing a rapid increase in technological development. Ellul (2011) saw technology as a driving force of everyday and occupational ways of doing things in the push for efficiency whereby any progressive answers to problems become technological rather than social. Similarly, Heidegger wrote in the 1950s in the essay, *The Question Concerning Technology* that:

Everywhere we remain unfree and chained to technology, whether we passionately affirm or deny it. But we are delivered over to it in the worst possible way when we regard it as something neutral; for this conception of it, to which today we particularly like to do homage, makes us utterly blind to the essence of technology. (Heidegger, 1977, p. 3)

Heidegger's essay argues that technology is not a neutral instrument which we use but a way of understanding the world. Heidegger denies that technology is a human activity but develops beyond human control and that technology is a risk and dangerous with the potential to result in only seeing the world through efficient technological thinking. Later, work by Ellul (1990) talks of public reason and technological determinism in a similar way, terming the idea that people unquestionably accept technology as progressive, problem-solving and advantageous even though it could go against values and ethics (Selwyn, 2019a). Ellul (1990) concluded that people are either 'fascinated' or 'diverted by technology'.

Philosophers and STS scholars have in the main rejected these extreme views of technology exclusively determining the social (Coeckelbergh, 2017). Whilst intellectually, the notion of technological determinism has been dismissed and refuted, the idea of technology having inherent attributes with cause and effect is alive and well in popular discourse. For example, common discourse often states: the internet 'shrinks' the world, text messaging has a negative effect on vocabulary, video games cause violence and self-tracking in sport and exercise results in obsessive and addictive behaviour, body dissatisfaction, negative mood states and extreme weight loss (Selwyn, 2012; Goodyear, Kerner and Quennerstedt, 2019). *Technological Determinism Is Dead; Long Live Technological Determinism* (Wyatt, 2008) characterises the potential return of technological determinism as a viable concept to describe technological development determining the social. Wyatt (2008) in this work and others such as Smith and Marx

(1994) argue that the idea of technology driving the social has culturally come to be seen as ‘common sense’ mainstream discourse, as described above. Technology and new inventions are seen as efficient and progressive forces that we all adapt to and use. Wyatt (2008) highlights this issue of individual responsibility, whereby blaming technology may seem to absolve individuals of their actions. Wyatt (2008) identifies four types of technological determinism – justificatory, descriptive, methodological and normative. Justificatory technological determinism is characterised by justifying an action based on a technological device, for example, only consuming a certain number of calories or justifying a run to complete a certain number of running miles in a week and/or not taking part in other aspects of social life because of this. Descriptive technological determinism describes a situation and attributes cause and effect to the technology, i.e. fitness tracking devices result in greater fitness and weight loss or they control everything that an individual does with potential adverse effects. Methodological technological determinism seeks to look at technologies available to society and that technology in use determines society – if there is a technology there, it will be used by individuals – e.g. runners run more if they have the tracking technology. Normative technological determinism is characterised by tracking becoming an everyday norm, characterised by technological rationality which is not questioned and decoupled from any political or individual accountability – runners habitually and normatively track without a second thought.

Deterministic positions can be compelling in that they simplify and essentialise a technology. In the case of fitness tracking, they could be described deterministically and reductively as the cause of anxiety or the enhancement and improvement of an individual’s health (Goodyear, Kerner, and Quennerstedt 2019). Having explored two

extremes of technology – the social construction and technologically determined – I now move on to explore some theoretical positions between these two points.

5.1.5 Blurring boundaries – postdigital, postphenomenology and ANT

Having explored the polar opposites of social constructivism and technological determinism above, Figure 2 demonstrates these two opposites not as binaries but as a continuum.

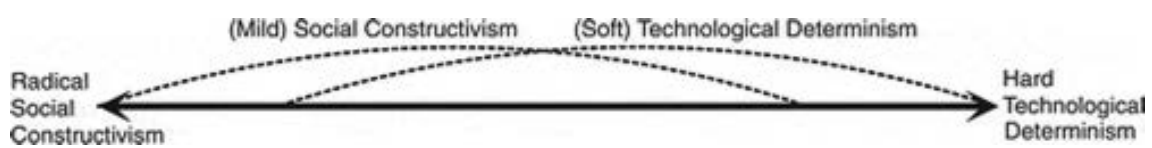


Figure 2. Taken from Dafoe (2015): ‘A continuum of scholarship, from social constructivism to technological determinism.’ (1050).

Along this continuum, I will use postdigital, postphenomenology and ANT which take into account both human and technological agency in the context of self-tracking. Dafoe (2015) describes this continuum as:

The question should not be a dichotomous one of whether technological determinism is right or wrong, but a set of questions of degree, scope, and context: to what extent, in what ways, and under what scope conditions are particular kinds of technology more autonomous and powerful in shaping society? The complement of this framing also clarifies questions about human agency: to what extent, in what ways, and under what scope conditions are particular groups of people able to shape their sociotechnical systems? (Dafoe, 2015, p. 1049)

The idea of a continuum of agency moves us away from committing to a binary determinism in which the social determines technology or symmetrically that technology determines the social. This was apparent in Esmonde’s Runners in that there

isn't a clear dualistic divide as the runners both accommodate some and resist other running and fitness tracking practices. Rather, there is a complex relationship between the social and the technological in a variety of contexts. These positions now give us a starting point to explore some theoretical perspectives for a qualitative research toolbox in exploring the middle ground between social constructivism and technological determinism when researching digital technologies in sport, exercise and health.

Postdigital

Plotted along the midpoint of the continuum above is the postdigital (Jandrić, Knox, *et al.*, 2018) which looks to move beyond a digital divide of 'online' and 'offline' and thus is an important perspective to explore as part of this article which explores the blurring boundaries between the social and technological. The postdigital is a critical perspective allowing us to look at a range of phenomena without such techno-optimistic positions that have entered into general discourse of the digital having an inherent, uncritical good. The postdigital has been characterised in several ways:

- We are now beyond digital, the digital revolution is over and now this technology is taken for granted.
- The digital is something that has happened – not an innovation but something to be reconfigured.
- The merging of old and new media into complex assemblages.
- Rejecting the binary 'digital revolution' of being on/off.
- Relationships between technology and human agency.
- Relationships between technology and space.

(developed from Taffel (Taffel, 2016; Jandrić, Knox, *et al.*, 2018))

The postdigital brings the digital into everyday interactions and acknowledges both its advantages, disadvantages and all points in between as well as interactions with the social and non-digital. The postdigital is positioned within everyday practices to look beyond the novel and new and into the real effects and influence of digital technologies in use.

Therefore, the postdigital is about dragging digitalisation and the digital – kicking and screaming – down from its discursive celestial, ethereal home and into the mud. It is about rubbing its nose in the complexities of everyday practice, such as managing a class of 7-year-olds working on tablets (half of them not charged and the other half with links to dubious sites); the realities of gender or racial bias of algorithms or how notions of imagined efficiency gains brought about by ‘the digital’ impact on work-life balance in organisations. (Jandrić, Ryberg, *et al.*, 2018, p. 4)

The postdigital perspective allows for us to be removed from thinking of the digital as something which is dropped into social realities to change and revolutionise. Moreover, the ubiquity of such digital technologies for the postdigital perspective is now seen as the everyday, embedded in everyday practices.

The term ‘Postdigital’ is intended to acknowledge the current state of technology whilst rejecting the implied conceptual shift of the ‘digital revolution’ – a shift apparently as abrupt as the ‘on/off’, ‘zero/one’ logic of the machines now pervading our daily lives. New conceptual models are required to describe the continuity between art, computing, philosophy and science that avoid binarism, determinism or reductionism. (Pepperell and Punt, 2000, p. 2)

Looking towards Esmonde’s Runners and their digital tracking devices, postdigital scholars shine a light upon digital devices and the data that they collect and the resulting impact upon social lives in the context of the embeddedness of devices and data. For example, for Esmonde’s Runners, the digital is used in everyday routines and by focusing on the digital technology, a run can potentially be turned into just a

quantifiable act measured in data as bits and bytes. Just because a host of data points about our lives can be tracked, the postdigital raises questions of neutrality, positivism, and uncritical good in the use and embeddedness of such technologies. The binary nature of digital technologies is quantitative, the postdigital perspectives warns of this discourse entering into social practices based on the technical architecture of the digital. Esmonde (2020) uses the concept of dataism in that quantifiable numbers are seen as the ultimate measure of most aspects of life which create data doubles to be shared and to be proud of or hidden and in shame. Health and fitness tracking cannot be purely seen as a technological practice but a social one where discourse around body image and healthy practices are controlled by dominant discourses.

Lupton's (2016) work on the QS movement highlights the new digital and automated possibilities of tracking behaviours. The digital nature of this data collection contrasts with what may have previously been written down using pen and paper. Although a personal activity, users do hand over data as currency for services which can collate centrally to be compared. This quantifiable positivism can also be found in public health messaging whereby daily health and exercise guidance can be wrapped up in a series of numbers, for example, five portions of fruit and vegetables a day, 10,000 steps and 30 minutes of exercise etc.

Qualitative research in sport, exercise and health can use the postdigital as a perspective to research qualitative experiences of the digital and the quantified in everyday practice and experience. The postdigital looks to bring this technology into real life and ask how it is part of everyday practices and politics and not to be seen as 'shiny and new' but how can it be reconfigured. Postphenomenology and ANT take us further into the agency and roles afforded to the material, digital and non-human artefacts.

Postphenomenology

Postphenomenology takes an ‘empirical turn’ in looking at material artefacts. Phenomenology is a vital epistemological methodology in the toolbox of qualitative researchers in sport, exercise, health and beyond, capturing the individual experience of the human lifeworld (Embree and Mohanty, 1997; Allen-Collinson, 2009). Broadly speaking phenomenological approaches are concerned with individual’s perception of the world, interpretation of symbols and text used by individuals and body and consciousness intertwined. The latter is an important strand for qualitative researchers in sport, exercise and health due to the essential mind and body connection (Clegg and Butryn, 2012; Purser, 2018). In the 1980s and 1990s philosophers of technology began to focus much more on objects themselves and the technological artefact, this began the empirical turn of philosophy of technology (Achterhuis, 2001). Objects themselves were brought into the forefront of analysis, including the embodiment of technological artefacts as an extension of the body. This analysis also included their design and place in society (Coeckelbergh, 2020). New materialist approaches are looking beyond anthropocentric agency to non-human actors having an impact on the social (Fullagar, 2017; Monforte, 2018).

Critiques of phenomenology and more broadly the linguistic turn to discourse have identified the lack of materialism and the role of the artefact. The term, postphenomenology was introduced by philosopher Don Ihde (1995) in reaction to this critique that phenomenology didn’t incorporate the material, in particular technology and the way it mediated between human perception and reality and the reciprocal human–technology interrelationship. Postphenomenology sits in between the extremes of social constructivism and technological determinism, building on classic philosophy of technology from Heidegger (1977) and rejecting the reification of technology as a monolithic deterministic, dystopian, grand narrative which controls humans and restricts

agency. Ihde (1995) used examples of microscopes, telescopes and X-ray imaging as technologies which mediate relationships with the world and ‘reality’. One could say here that technological artefacts have a voice. The voice is quite literal when an app provides written and spoken feedback based on one’s data double to motivate or feedback using algorithms. Ihde (2012) describes technological artefacts as having multistability in that their designs are not essentialised to be used as one thing:

. . . a hammer may be a murder weapon, a paperweight, an art object, and so on; cell phones have been used as detonators and as devices to help victim hunters find people after earthquakes or may, as in the hacking incidents of summer 2011, be used to snoop, deceive, and even bring down politicians . . . (Ihde, 2012, p. 138)

Verbeek (2005) builds on and develops the concept of the postphenomenological empirical turn with his own mediation theory with the idea of artefacts having morality. Verbeek’s (2005) work looks at human-technology relations and the design of artefacts and how these artefacts mediate morality and shape the human, and what we do (Coeckelbergh 2020). This contrasts with technological determinism but does not afford society full agency as would the social constructivist perspective. Artefacts from this perspective have morality as they have the potential to improve lives when mediating our actions with the world (Verbeek 2005). Aagaard (2017) sketches out postphenomenology opportunities in qualitative research, identifying opportunities to explore in-depth analysis of a technology and its typical use and critical comparison of multiple versions of the same technology. Ihde’s (1990) postphenomenology states that technology mediates our experience through different relations: embodiment, hermeneutic, alterity and background. Embodiment relations with technology use examples such as communicating with someone through a telephone or viewing something through a microscope, consider a video analysis of a golf swing or a runner’s gait analysis. The individual in Ihde’s (1990) embodiment

relations is not necessarily concerned with the artefact but the artefact is mediating the experience. In the context of Esmonde's Runners, the embodiment of health and fitness trackers can be described as seeing an activity through the device in question – a run or eating something – embodiment of the tracker mediates this experience. Hermeneutic relations for health and fitness trackers can be described as seeing an activity, a run, for example, through the technological device, it is represented as numbers – distance, calories, pace etc. Alterity relations are the direct use of a machine, such as a cash machine, the design of the machine is important as the individual interacts directly with it. Evermore sophisticated 'virtual' experiences can take cyclists and runners in their home or gym to cycle a Tour De France route or run a marathon in any city in the world (Zwift, 2020). In the case of Esmonde's Runners interacting with watches and smartphone apps and the way these work such as navigation and use of language mediates the experience. For example, text or talk by the device might use motivational words or speech, this discourse again mediates the experience. Finally, Ihde's (1990) background mediation almost go unnoticed or part of the everyday experience. Fitness trackers make background noises, for example a beep to start a run or when a kilometre has been completed. In an organised race situation these background beeps are created by the technological devices but go unnoticed. Heating or air conditioning systems are often described as background relations as the technology regulates temperature which goes unnoticed other than through a background hum or buzz. The presence of background technology can often only be noticed when it is not there, for example when using a tracking device and it fails to work or is forgotten, potentially affecting the runner's experience and mood.

Actor-network theory

Actor-Network Theory (ANT) moves us further to the centre of a continuum from social constructivism to technological determinism, seeing humans, material objects, history, values, and ideas (and many more) as social assemblages that impact on each as co-constructing actants in a network, constantly evolving and changing (Latour, 2007). The important distinction between ANT and postphenomenology is the decentring of human agency over the material and the social. ANT radically involves not just the human and material divide but also includes abstract non-material network nodes such as culture and values. Material artefacts also have agency in the network and are in constant flux with varying degrees of influence for each node in the network. Esmonde (2019) describes the agency of humans and non-humans in a running scenario whereby the environment and the body move through different spaces (gyms, parks, etc) along with tracking devices and data giving feedback on pace, time and distance, etc., influenced by algorithms. In ANT terms, these are sociotechnical entanglements which cannot be separated into the individual, the environment, the device, the data. These are all ordered as constantly changing and evolving networks. Tracing networks of the social, material and human is a sociology of associations. Networks are made and come together in a complex and messy manner with the material and the social working together. Law (1992) gives the example of a university lecture theatre, the physical tables and chairs, along with the acceptance of the normalisation of the lecture as someone standing in front of a group of people, usually along with an electronic visual aid – this all makes up a network and does not put the human at the centre.

A clear challenge in practical use of ANT is how to carry out research in practice. A key element of ANT is the idea of black boxes and whether to open them and which ones to open. Callon (1984) looks at how networks are created and how they are in constant flux. When stability is applied to an actor-network, Callon (1984)

describes this as a 'black box'. Within ANT black boxes are used as a framework to observe inputs and outputs. The researcher here, knows and analyses the inputs and outputs but sees the black box as taken for granted or unknown. Opening these black boxes can reveal how this normalisation has come to be. A highly cited example is the camera (Latour, 2003), you take a picture and a photograph is produced. The highly complex electronics and design decisions that came about to make the camera and the social acceptance of the artefact is a complex actor network with actants vying for power and influence. Once this has settled down and normalised the black box is closed, researchers can open these boxes to understand how material objects come to be in the social.

Fenwick and Edwards (2010) use ANT to consider a range of scenarios in education and map assemblages in standardisation of education and how the most powerful actors (human and non-human) dominate standards and ways of educating. Evermore sophisticated apps (such as Strava and MyFitness Pal) provide health and exercise advice and guidance based on collected data and qualitative researchers can explore the inputs and outputs, but opening the black box can allow for analysis of the social and technical networks, which have produced the app (such as algorithms and code). A similar methodology is used by Phoenix (2010) to analyse photographs and graphics by analysing what is constructed, how it is constructed and the ways of seeing the images in both production and reception to form a genealogy of the artefact.

Tanggaard, Laursen and Szulevicz (2016) looked at creativity in the sport of handball by tracing the materiality of the ball itself. A creative approach was used to 'interview the ball' through a series of interviews with the designers of the material object. Distributed creativity was termed to trace the development of the ball over 50 years, concluding that new developments have benefited attacking players. The ball,

resin and playing surface all play an important part in the game and experience of players. This is then important when looking at the development process and decisions that are made within this process. ANT is a radical departure from more traditional qualitative approaches such as phenomenology to capture the individual's perception of their experience of a situation. Esmonde's Runners resisted the technological determinism of their tracking devices by emphasising that their tracking activities did not always dominate their activities. ANT says that the human is not at the centre here and equal agency should be afforded to the device and the culture of fitness and health tracking practices. A black box in this instance is the device itself and how it has come to be – the commercial reasons, the technology available to designers, the marketing approach, the use of the device in social groups – here we have many nodes in the network to analyse and trace. The task for the qualitative researcher is to identify black boxes and then to use methods which track these networked assemblages and the actions which result from these.

6.1.6 Conclusion

This exploration of polar extremes of the social construction and technological determinism of digital technologies bridged with theoretical frameworks of the postdigital, postphenomenology and ANT offers theoretical and conceptual positions for qualitative research in sport, exercise and health involving digital technologies. New technologies are connecting physical artefacts to the internet and other devices for data collection and using artificial intelligence to aggregate and analyse this data to advise and make decisions impacting upon society. I have taken extremes of social constructivism and technological determination as starting points and then blurred boundaries and crossed these divides with the postdigital, postphenomenology and ANT. For qualitative researchers in sport, exercise and health this allows for the digital,

the material and the social to be theorised holistically and not treating digital technologies as something siloed, rather they are embedded and part of everyday practices. Among the many potential uses for such theory is the QS movement (Lupton, 2016) in which I have taken a case example of Esmonde (2020) to contextualise and give examples of potential use of these frameworks when researching digital devices in sport, exercise and health. Here, digital technologies are capturing data of the individual from calorie counting to exercise and sporting performance.

In common discourse, technologies are often heralded as utopian or dystopian in that that techno-optimism can solve a raft of societal issues through to technology controlling and infantilising society. The frameworks covered here add complexity and nuance as to how digital technologies are conceived, used and the effects they have on individuals and society. Esmonde's (2020) work highlights the agency of participants as they described how in control they are of their tracking and quantifying of exercise and calorie consumption. Using a phenomenological approach here, individual's perception of tracking practices is one of control and moderation.

Postdigital, postphenomenology and ANT are theoretical frameworks which specifically look to technologies and the objects used as well as human experience and agency to offer theory and concepts for qualitative research. The postdigital offers perspectives which look at the digital as not something new but part of everyday lives, the digital does not have an on/off switch and this critical approach rejects the often common discourse of digital 'solutions' having an inherent good. The postdigital warns against the binary technical nature of the digital to be imposed upon the social, quantitatively. Postphenomenology and its empirical turn is concerned with material objects and their use and how they mediate our experiences of the world – seeing a run, a meal and weight as a set of numbers on screen. Using ANT we can open black boxes

to understand the culture that has enabled digital technology to flourish, the design decisions made by companies and designers and in use, a whole range of human and non-human assemblages in the network of actants. These approaches do not sit in their own siloed ‘toolboxes’, for example, ANT and postdigital can work together to bring about thinking in a range of environments, for example, teaching and learning in higher education (Matthews, 2019a).

This article has not attempted to pit existing qualitative research paradigms as superior in ‘protectionist paradigmatic behaviour’ as described by Weed (2009). Rather, they offer different perspectives to be used and adapted to work alongside and complement existing qualitative methods in sport, exercise and health. The challenge is to frame particular questions in amongst the noise and messiness of the digital and the social and blurring boundaries and crossing divides, identifying, opening and closing black boxes in creative and non-monolithic ways. Postdigital, postphenomenology and ANT have many commonalities and cross over in approach. The postdigital continues to develop and is the broadest of frameworks offering criticality and resistance to the ‘digital revolution’ and quantification. Postphenomenology allows us to focus on the ‘thing’ – the smartphone app and running watch to analyse how the artefact mediates individual’s experiences in context. ANT goes further by decentring human agency in complex networks of artefacts and culture which co-construct actions.

The advantage of removing these binaries can also be a disadvantage and a criticism of such frameworks and philosophies. Drawing boundaries maybe needed to frame a question or focus on a ring-fenced environment. This has always been the challenge as well as the advantage of qualitative methods – the knotty issues of complexity and messiness to analyse and form knowledge about rich human experiences. The perspectives outlined in this article can be used by qualitative

researchers in diverse fields, including, sport, exercise and health when analysing sociotechnical assemblages to blur the line between humans and technology in design, use and impact of digital technologies.

6.2 Design as a Discipline for Postdigital Learning and Teaching: Bricolage and Actor-Network Theory

6.2.0 Abstract

Digital technologies for learning and teaching have promised much in higher education (HE). There has become, however, a dualism between digital and non-digital and a technological determinism which in some cases promotes digital technologies as being innately superior to the non-digital. There is pressure on universities to provide learning and teaching in new ways in the face of regulation, as well as increased numbers and diversity of students. The postdigital perspective allows for the appropriate approaches and tools to be used. Design for learning and teaching in HE has developed interventions which promote use of digital resources, but for some have not yet met the promise of ‘enhancing’ learning. Moving outside of education, approaches from design as a discipline are sketched out, including design thinking and the epistemology of design. All of these show how designers (in general) go about their work. How designs come about can be analysed by using the framework of people (epistemology), processes (praxeology) and products (phenomenology) in design. Actor-network theory is used as an approach across each stage of this framework, and those designing in HE are encouraged to be bricoleurs, using a variety of tools for the job at hand and to think of the designs as assemblages. The ideas described here are useful for the practices of those involved in the design of learning and teaching.

6.2.1 Introduction

Educators frequently use the word design in their practice: designing a module, a curriculum, a lesson, and online content. Design as a linguistic expression has become so broad that one could argue that it has become too broad to mean anything. Many in

education may go about their design work in an explicit, structured manner. Others may have implicit ways of working with tacit knowledge that is ‘automatic’ and ‘second nature’. This paper will begin by looking at the concept of the postdigital and how it may be of use to embed the use of digital technologies into everyday teaching and learning practices, where needed. The paper looks at the current higher education (HE) landscape and some of the approaches being taken. This is followed up by sketching out some of the criticisms of technology for learning in higher education. The article then goes on to examine how the postdigital offers new opportunities to think about the design of learning and teaching activities and resources in a new more considered, non-technologically determined manner, drawing upon academic work in design as an independent discipline. This provides an established framework and analysis of how designers go about their work for consideration in design for learning and teaching. This perspective is of use for those who make design decisions for learning, those involved in the design or carrying out of teaching, those involved in educating teachers, and those who support design for learning. The metaphor of bricolage is put forward as a way of working for educators and design teams to evaluate the tools which they have at hand and to use them in a considered, non-determinist or dualistic manner with a focus on learning. Finally, actor-network theory (ANT) is presented as a valuable theoretical perspective to analyse how designs come about and how they can be created and re-created using bricolage. This is with the aim of providing higher education with new postdigital paradigms of thinking in approaches to design for learning and teaching in practice and for inclusion in education programmes.

6.2.2 The Postdigital

A meme went viral in 2013 of a man in a park using a typewriter rather than a computer with the words mockingly: ‘You’re not a real hipster – until you take your

typewriter to the park' (Cramer, 2015, p. 12). It turned out to be a writer, running a business providing authentic typewriter-written stories. This encapsulates the postdigital choice: the right tool for the right job and not defaulting to the latest digital device without evaluation. Postdigital is in no way a rejection of the digital but a move towards a mature, evolutionary approach to everyday practices including a rejection of the use of digital in some ways to mean better or improved (Cramer, 2015). Fawns describes postdigital education:

All teaching should take account of digital and non-digital, material and social. Ideas like digital education are useful insofar as they encourage people to look closer at what is happening, but become problematic when used to close down ideas or attribute instrumental or essential properties to technology. (Fawns, 2018, p. 11)

While removing the digital and non-digital dualisms may be a way to push forward with how society uses technologies that already exist, Taffel (2016) raises the point that if digital technologies are taken for granted then how can we take a critical view and analyse what they are for. Here, by using theory and practice from design and ANT, we can see how digital technologies co-exist in a network with the social, material and natural.

Defining the postdigital is not a straightforward task with many aspects and uses being offered. It is messy and unpredictable, and this in many ways should be embraced as it rejects the binary dualism of the digital and non-digital. The postdigital is a new way of thinking but also a continuation of what has gone before (Jandrić, Knox, *et al.*, 2018). Postdigital rejects the idea of old and new media as existing together by blurring of the binary dualistic lines (Jandrić, Ryberg, *et al.*, 2018). Cramer (2015) offers a list of perspectives which is more of a rejection of the digital, citing disenchantment and rejection of the sterility of digital and the universal machine in a corporate

implementation of digital. Peters and Besley (2019) also stress that it is not a chronological term which moves us on from one set of technologies to the next but a critical attitude and philosophy which questions and brings to the surface issues and questions which go beyond accepting new technologies as progressive and inevitable. Taffel (2016) describes the variety of fields in which postdigital perspectives are being used, amongst these are architecture, art, film, advertising, photography, e-learning and design. A rejection of the binary for Taffel will enable us to find a discourse in which we can produce designs which are conducive to human and non-human ecologies and their flourishing.

6.2.3 Design for Learning and Teaching in Higher Education

There is currently a spotlight on teaching and learning in higher education. The current UK higher education sector is under a new regulatory measurement environment which puts a new focus on teaching (and learning). In the UK, the Teaching Excellence Framework (TEF) measures teaching quality, learning environment and student outcomes, and learning gain. The evaluation tool piloted in 2017 is designed to assess quality and to provide market information to students as consumers (Gunn, 2018). This approach can also be seen internationally (Gourlay and Stevenson, 2017). The manner in which learning and teaching is taking place in the academy is diversifying. As higher education becomes more ‘massified’, learners are becoming significantly more diverse in a host of characteristics. Demands for more flexible options are needed to meet the diverse needs of students; this includes the internationalisation and transnationalisation of aspects of higher education that are changing learning and teaching.

Many have laid out learning theories which underpin an educator’s knowledge and practice. This present work will not take the epistemology of the educationalist in terms of learning theory and practice into consideration but will explore how learning

and teaching interventions are designed. One aspect of learning and teaching that is relevant for the following review is that of critical pedagogy. A critical approach to pedagogy is in line with much postdigital thinking which looks to reject technological determinism and to achieve greater agency for learners and those involved in teaching and supporting teaching.

Along with academic teaching staff are a group of professionals working to support learning and teaching, including the use of and promotion of technologies. This group can broadly be described as the academic development community. Sugrue *et al* (2017) conducted a systematic review of the literature on academic development. A category within this review included the responsibility of implementing technological solutions. The review found that pressure to use technology comes from a range of sources and can often be perceived as being progressive and improving teaching and that one should be using all of the latest technology to be seen as relevant and up to date. Academic developers are described here as key leaders of implementing technology into learning and teaching and providing leadership into the new ways of using such technologies. Many other job roles can also be seen within HE, such as instructional designer, learning designer, e-learning designer, learning technologist and many more. There can often be resistance and tensions across this requirement for multidisciplinary teams, many teachers see themselves as the individual designer and identities of teaching can vary and resist future development (Deaker, Stein and Spiller, 2016). There are requirements for diverse backgrounds in this area to collaborate, and those from IT, educational technology and academic practice are being asked to collaborate with each other and with teaching staff. This collaboration is vital to bringing together specialist skillsets to create new learning and teaching environments. Much work from all parties is needed to foster such working relationships and the

communication of roles and responsibilities and trusting partnerships is required in this (for many) new way of working (Budge and Clarke, 2012; Bayerlein and McGrath, 2018). Learning technologists as a sub-group of academic practice are an important group when looking from a postdigital perspective. It is clear that specialists with expertise are required and exist in many organisations, but how these groups work together is still far from clear (Fox and Sumner, 2014; Gurbutt and Williams, 2018).

6.2.4 Technology for Learning and Teaching

For many, the promise of technology to ‘enhance’ learning has not delivered. Kirkwood and Price (2014) conducted a critical literature review of the enhancements of learning technology:

When reviewing the documents identified in the searches, we discovered that many interventions were technology- led (e.g., ‘how can we use podcasts/ wikis...?’), rather than being derived from an identified educational need or aspiration. While in some cases this technology-led approach was undoubtedly a response to larger or more diverse classes and encouragement to make greater use of institutional ‘learning environments’, there seemed to be many cases of deterministic expectations that introducing technology would, by itself, bring about changes in teaching/learning practices. This might contribute to the lack of an explicit educational rationale for many interventions. (Kirkwood and Price, 2014, p. 25)

Henderson, Selwyn and Aston (2017) explored the experiences of 1658 students using technology for learning concluding that technologies are being used by students but not transforming or enhancing learning. Technology is being used to be able to access resources, submit work online and communicate with others. The study states that this works well and provides many efficiencies. The issue could here then be the promise of enhancement and disruption of education rather than support and administration. Goodchild and Speed (2018) explore the hegemonic discourse of technology enhanced learning stating:

the idea that technology enhances learning is an accepted orthodoxy, a common sense view of teaching and learning, and to resist this view seems to fly in the face of rationality. (Goodchild and Speed, 2018, p. 3)

Goodchild and Speed's discourse analysis confirms that technology in teaching and learning is seen as inevitable and almost separate to learning and teaching. They comment that systems and platforms which provide such technology play a part in a market in which companies are competing for market share which can add to the hegemonic discourse of enhancement through marketing initiatives. This separation of technology from learning characterises the dualism of digital technologies and a determinism which sees technological practices as inherently good and not embedded into the learning experience whole.

Outside of education, Morozov (2013) critiques solutionism which offers technological solutions to many social issues without identifying underlying political and ethical considerations. Much of the critical research on digital learning technologies does not dismiss them as ineffective but asks teachers and implementers to be critical and not become technologically deterministic and part of the hegemonic discourse. Technological determinism and agency are key themes in the postdigital literature. The early utopian idea of the internet being a network of democratic sharing has been subsumed by huge corporations and political interference (Jandrić, Knox, *et al.*, 2018). The hegemonic discourse of digital technology having an inherent good has been dismissed as having a lack of criticality, and there are many reminders in a range of discourses that technology and not people achieves and enhances learning (Hayes, 2015). A postdigital perspective then looks at the agency of a variety of actors in the face of technological determinism and the dualism of digital and non-digital.

Many institutions have designed workshops and frameworks which look to design 'blended', 'technology-rich', 'technology-enhanced', and 'digital' learning.

University College London (UCL) have developed a 90 minute workshop format called ABC to support teachers to storyboard modules. Young and Perović (2016) describe how improving courses by using technology and changing modes of study are supported by the UCL Digital Education team alongside the Centre for Advancing Learning and Teaching. The ABC workshop involves teachers bringing with them their module specification, including learning outcomes, and the aim of the workshop is to create a storyboard of learner activity which then meets the learning outcomes using Laurillard's (2012) Conversational Framework using six learning types. There is a task to differentiate where the 'face to face' and 'online learning' occurs. With a focus on 'future-orientated, digital, student-centered learning' Pathfinder: Carpe Diem (Salmon and Wright, 2014) again offers development opportunities for academic teaching staff. Participants are guided through a rapid prototype process to produce online learning, 'they are constantly, but not too overtly, invited to think differently, to incorporate available technology into their learning design'. The 2-day workshop puts educators in touch with educational developers for future developments. Laurillard (2012) sketches out how teaching is and should become a design science—technology is again called upon, in this case, 'the hero of the story' to play a key part in new ways of working.

Luckin (2010) looks at re-designing learning contexts. Contexts in this case are individual to the learner and their experience of the world. Luckin calls for 'technology rich learning' to form an ecology of resources. Technology for Luckin plays a vital part in learning experiences and references the work as educational technology. The ecology of resources model then takes into consideration the complexity of each learner's context and asks those who design learning experiences to consider knowledge and skills, tools, people and the environment with the learner at the centre. Technology is treated as a stand-alone independent entity; for example, a learner's ecology of

resources includes MAPS (more able partners); these are presented as parent, friend, teacher and technology.

Much of the work reviewed here treats digital and technology as separate entities to be added to non-digital activities as enhancements or improvements. I am not proposing that this work is counter-intuitive to good learning design but it can be questioned as to whether the discourse in such work perpetuates the hegemonic view that technology is inherently good and that designs should aim to include digital over the non digital regardless of need or separate the two with terms such as ‘online learning’ and ‘face to face learning’. There does also appear to be a lack of analysis of the epistemological aspect of design in many cases. Questions over how designs come about and the strategies used are not overtly explored. I aim to offer some options when looking at the wider field of design below.

Goodyear (2015) looks at teaching as design, drawing upon ideas of design from wider design disciplines. Here, teaching as design is challenging universities to think like designers for economies of scale when time and resources are limited. Design epistemology, design phenomenology and design praxeology—the knowledge of designers of education, what the designers produce and how designers go about this—are used as a conceptual model by Goodyear to think about how those in HE can become more like designers. Goodyear calls for whole institutions to become ‘more hospitable environments for design’ (Goodyear, 2015, p. 28); this includes faculty structure, programme design, module design, down to individual learning tasks. This is what Goodyear terms ‘actionable knowledge for design’. The current design for learning literature sketched here does not appear to have any explicit epistemic approaches. Using the work of design as a discipline, I will offer some possible options for use in design for teaching and learning below. Goodyear’s work fits closest with the

discipline of design. This present work will now move away from design in the confines of education to look at how thinking from the discipline of design can inform new ways of working as design as a discipline in its own right.

6.2.5 Design as a Discipline

The ubiquitous and varied use of the word design causes ambiguity when it comes to defining and agreeing what design is. Great buildings and technological innovations are designed, or everyone could be described as a designer:

Designed things are the means by which we achieve desired ends. (Petroski, 2008, p. 48)

All men are designers. All that we do, almost all of the time, is design. (Papanek, 1985, p. 23)

Engineers are not the only professional designers. Everyone designs who devises courses of action aimed at changing existing situations into preferred. (Simon, 1988, p. 67)

If anyone can design then, how can we come to an agreed definition without attributing design to all of humankind. Parsons (2016) offers a philosophy of design definition: ‘Design is the intentional solution of a problem, by the creation of plans for a new sort of thing, where the plans would not be immediately seen, by a reasonable person, as an inadequate solution’ (Parsons, 2016, p. 11).

Looking outside of education can give us the opportunity to ask how do educators design and how do they learn how to design? Cross (1982) called for education to rethink the divide of science and humanities and to consider a third aspect of human knowledge—design and ‘designerly ways of knowing’. This includes calling for design to be part of everyone’s education and not just professions who design. Cross argued that the sciences and the humanities study what already exists and not what is to

be made, in other words designed. Cross (1999) re-iterated that thinking of design as a discipline in its own right can attempt to study people (epistemology), processes (praxeology) and products (phenomenology) in design (a model adopted by Goodyear in education, see above). Cross goes as far as saying that a large area of cognitive development as constructive ways of thinking has been missed by not including design in general education. Here, we can see the beginning of design being thought of as a discipline in its own right, 'design in general' which is not concerned with what is designed but some of the principles, approaches, knowledge and skills which a designer deploys. Dorst (2011) looks at how some of the approaches designers take are different to the traditions of other fields. Dorst states that traditional deduction and induction is not the way that a designer approaches a task. A more productive task to create something new uses an abductive approach where the 'what' and the 'how' are in the hands of the designer to meet a specific outcome. Dorst suggests the ways that designers achieve this is dictated by frames. Frames are the cultural and normative ways of designing in different fields. Breaking out of a particular field's normative practice frame is where innovation can occur according to Dorst. In the first issue of the Design Studies journal, articles were requested that explored design as a discipline in itself, aside from applied practice such as an architect or interaction design (Archer, 1979).

The idea of thinking and working like a designer has gained popularity in a wide range of industries. Similar to the ideas that I have explored about design as a discipline, design thinking takes ways that designers go about their work to translate this to almost any situation. These ways of going about solving problems have made their way out of traditional design professions and into designs in business and social policy (amongst others). This can be characterised by the international design agencies such as IDEO who have brought design to the forefront of technology, working with engineers to

analyse how users actually go about using products. These design agencies can now be seen to use their approach to design schools, healthcare systems, businesses and social policy (Katz, Maeda and Antonelli, 2015).

Owen (2006) describes the potential of design thinking for those working in social policy. Owen asks how design approaches can be included in the education of non designers, in this case policy makers. The issue to be tackled was how to provide the policy makers with enough skills and knowledge to have conditioned inventiveness, human-centred focus, environment-centred concern, ability to visualise, tempered optimism, bias for adaptivity, predisposition towards multifunctionality, systemic vision, view of the generalist, ability to use language as a tool, affinity for teamwork, facility for avoiding the necessity of choice, self-governing practicality and ability to work systematically with qualitative information (Owen, 2006, p. 25). Kimbell (2011) traces some of the ideas in designing thinking from the 1980s to the present day. Kimbell categorises design thinking as a cognitive style, a general theory of design which is decoupled from any specific discipline and design thinking as an organisational resource for any organisational innovation, be that in business or public policy. Kimbell (2012) also proposes two alternative ways to look at design— design as practice and designs in practice. The former observes the activities in which designers undertake to analyse how a designer goes about their work. The latter tracks a product or service beyond the designers' work, beyond engineers and technologists and beyond marketing and how designs are used and re-imagined in practice. This approach gives us the opportunity to see how designs come to be created but also how they are used in real-world practice. The broadening of design thinking beyond traditional design professions then is one that educators could make use of as well considering inclusion in the syllabus of education for those teaching or supporting learning.

6.2.6 *The Epistemology of Design*

To ask those in education to then think like designers, we might want to ask what knowledge and approach designers have—the epistemology of design. Simon (1996) called for a science of design which used positivist methods to measure designs quantitatively and use such approaches in the new design of the new artefact. The rigorous science of design approach would collect data to optimise designs. This movement was prevalent in the 1960s but may now be making a return as design thinking is being used in business and management fields. The field of learning analytics in HE represents Simon's work in the quantitative measure of behaviours and computation to look for data which can statistically show patterns of activity for learning (Martin and Sherin, 2013).

Rittel and Webber (1973) contrast this view in their highly cited work *Dilemmas in a general theory of planning*. Here, wicked problems are introduced to describe how issues are tackled in areas such as social policy and wider social sciences. This work says that the natural sciences and positivist approach are 'tame' problems, in contrast to those social issues to be tackled which are 'wicked'. Tame problems are measurable with clear outcomes; wicked problems have many consequences and can often be termed good or bad, rather than true or false. Moreover, wicked problems can be designed to be resolved but the complexity of the social issue may have unforeseen effects on another area which has not or could not possibly be considered. A tame problem can be studied in a controlled environment, but a wicked problem is in the real, messy unstructured environment of the 'real' world. Schön (1983) looks at design professionals in practice and how they go about their work. In contrast to the technocratic, objective and positivist approach described previously, Schön was interested in the implicit knowledge of practitioners who used their experience and

know how to solve problems in a much more idiosyncratic, interpretivist and constructive manner.

Krippendorff (2006) boldly claimed that ‘Design is making sense of things’ and that design has to undergo a ‘semantic turn’. This turn, Krippendorff stated, should not merely be interested in how mechanical products look and to turn away from a technology-centred approach to a human-centred design. Here, meaning is giving significant importance to whatever is being designed and that meaning matters more than function. A designer’s role according to Krippendorff is to take on second-order understanding to interpret and design for technological, social and cultural consequences for stakeholders. Stakeholders here are anyone involved in the designed artefacts and the ecology of artefacts. The three cornerstone pieces of work from Simon, Schön and Krippendorff have their similarities and obvious differences: Simon’s positivist, computational approach; Schön’s human interpretivist element and Krippendorff’s ecology of designed artefacts and stakeholders (Galle, 2011).

6.2.7 Bricolage and Actor-Network Theory for Postdigital Design for Learning

Postdigital design for learning needs a set of new ways of going about design that do not draw upon the divide between digital and non-digital and that does not slip into previous frames of thinking, dualisms or technological determinism. Here, I would like to introduce the ideas of bricolage and actor-network theory (ANT). Claude Levi Strauss used the idea of bricolage in the *The Savage Mind* to describe untamed human thought. There is no direct translation to English (from French) of bricolage/bricoleur (the closest being a higher status ‘odd-job man’), but a bricoleur is someone that comes up with solutions using what is at hand and to pull these things together to make something new (Lévi-Strauss, 2000). Levi-Strauss compares the engineer with the bricoleur. The engineer asks scientific questions and creates optimal solutions. The

bricoleur in contrast pulls together what is at hand, ready or half made to make something new, regardless of what it is.

Such elements are specialized up to a point, sufficiently for the ‘bricoleur’ not to need the equipment and knowledge of all trades and professions, but not enough for each of them to have only one definite and determinate use. They each represent a set of actual and possible relations; they are ‘operators’ but they can be used for any operations of the same type. (Lévi-Strauss, 2000, p. 11)

This quote shows how those involved in design for learning do not need to be specialists in all fields but to have an appreciation and ability to evaluate if it is the right tool for the job in line with the context of postdigital design for learning. Bricolage is used as a metaphor for the design process which aims to give structure to events (Louridas, 1999).

ANT moves away from traditional epistemological and ontological boundaries. Founded in the discipline of science and technology studies, ANT removes barriers by talking about human and non-human entities as equals acting upon each other in a constructing and deconstructing manner, these can be humans, objects, ideas, social norms, nature, cultural histories, symbolic values and many more, all in a relativist manner to trace connections. All of these entities form nodes in a network and negotiate with one another to create actions; this is in contrast to qualitative approaches which may ask what they mean (Fenwick and Edwards, 2010). Actions are produced when a variety of entities (human and non-human) come together, and this may be coincidentally or in a designed manner; ANT refers to this collection of things as assemblages (Müller and Schurr, 2016). Agency of these actors then is not something which comes under full consciousness but a coming together of each of the nodes in the network. ANT is a tool which enables one to untangle these knots and nodes in the network to analyse the action of entities (Latour, 2007). Neyland (2006) characterises

ANT as getting to grips with the mundane, assemblages, materiality, heterogeneity and flows/fluidity. This summary shows how ANT looks at the everyday actions which are brought about by the assembly of things which shows how they come together in a diverse fashion in a non-stable manner, they are constantly made, become stable but often remade.

Latour (2007) describes what makes up ANT analysis through five uncertainties. Groups do not just exist, they are formed, and this is how we can best analyse them through their formations. Action is important and how actors act based on other actors form part of the ANT analysis and these are constantly debated. Objects have agency and can be seen as determining action or simply used for a social action; Latour says that objects can permit, suggest, influence, block etc. ANT's epistemology is constructed much like a building in that different elements are brought together in the network and the associations with nodes in the network. This is problematic for Latour as other social sciences use his selected term 'social constructivism' in very different ways, often ways which dismiss scientific objectivity. Social constructivism within ANT looks at knowledge as bringing together both the social, natural and technical. ANT is reported simply as 'an account which traces a network' (Latour 2007). This looks at the network which actions of actors make other actors do unexpected things. A challenge for those using ANT is how far the network should spread and when to stop analysing connections. All of this makes up a sociology of associations.

Two examples are provided by Latour. The size of a hotel room key influences and changes the actions of the hotel guest. A small key fob which fits into the pocket of the guest encourages their action to place the key in the pocket and not hand it in to reception. A larger key which cannot be placed easily in a pocket influences the guest to act and hand the key in at reception and potentially mitigates the risk of losing the key

(Latour 2007). Tracing associations and actions is also termed as the black box. This is where an entity is taken for granted, in this particular example, a camera. There are many parts that go into making a camera and many design decisions. What is included and excluded and who makes those decisions are all actors in ANT. The camera is taken for granted, but when opening up the black box, ANT allows one to explore how it is come to be and how it becomes stable and taken for granted (Latour, 2003).

Latour (1996) points out two common misunderstandings: (1) The word network can be misleading and make people think of technical similarities to physical networks which are stable and fixed. (2) A researcher may look just at the social and ignores artefacts, ideas and technologies. To use ANT effectively, all should be given equal standing and have an influence on each other.

Taking Latour's metaphor of construction, of elements being brought together the social, natural and technical in a sociology of associations, we can look towards a hypothetical example in HE. Consider an undergraduate module which makes up a degree programme. A designer (whoever that may be) has the task of bringing together an assemblage of resources. The assemblage could include weekly lectures, followed up by small seminar group teaching; the lectures may be recorded; online activities or content may be shared with students and activities may be set for before or after the lecture or seminar online. There may be an element of open networked learning (Hodgson and McConnell, 2019) and open resources such as blogs, news articles and YouTube videos used by students independently or provided for them. These elements described all have influence upon each other. Each interaction with an element of the assemblage will change and reshape the other. Each student and teacher will bring their own past experiences and knowledge to bear on the network. The institutional norms and technical systems will play a part in what can be done and how it is done. This

signifies the messy real world which Latour embraces and says cannot be avoided. Where should the sociology of associations begin and end and which black boxes should be opened and which left unopened? This is a decision for designers, researchers and stakeholders and will always be a pragmatic one. Pragmatism can be offered by the bricoleur who has to use the tools at hand; what is available, who is available to help and what works are the pragmatic questions of our bricoleur in the design of learning and teaching. This signifies the postdigital in that we cannot and are making a mistake to differentiate and separate the digital from the non-digital. As Cramer (2015) points out, the postdigital is DIY in contrast to a corporatized approach. The postdigital drags the smooth standardised digital down into the mud (Jandrić, Ryberg, *et al.*, 2018) to work with all actors in the assemblages.

6.2.8 Towards a Postigital Actor-Network Theory Bricolage of Design for Learning

We have seen in HE learning and teaching, in some cases, somewhat of a dualism between the digital and non-digital and in some cases a technological determinism. This paper has illuminated some of the thinking in the field of design that may enable postdigital practices to be adopted in HE and for those designers to join the wider design as a discipline community. I have attempted to do this to look at the field of design and what it means to be a designer and the epistemological variances within the field. The popular use of design thinking has permeated into different and diverse fields including public policy and business management. In a time when higher education is facing an increased focus on learning and teaching and the massification of the HE sector, the use of design methods and identifying roles in the design process can be of use to design new approaches which are needed in these new contexts.

Using the framework of people (epistemology), processes (praxeology) and products (phenomenology) (Cross, 1999; Goodyear, 2015), we can study the knowledge used by those involved in the design process or the knowledge required, the processes by which they work and the products which they provide for learning and teaching. By sketching ideas from design within HE and as design as a discipline in itself, this paper offers starting points for decisions and discussions in who is involved in design and what skills and knowledge they bring. How these individuals and teams go about design must also be of study and practical application in what goes into the design process (praxeology). Finally, the end product and how it is used by learners and educators (phenomenology) must be researched for effectiveness. Here, I propose a framework for analysing how designs come to be as well as enabling designs.

To achieve this in the postdigital epoch, ANT can play a part across all three aspects of the design framework. ANT, with no bias between the human and non-human, traces the sociology of associations in designs in practice. The designer then, whether looking to design anew or reconfigure an existing design can be seen as the bricoleur, always on the lookout for what is at hand, to use in a suitable way, in a critical, postdigital way for learning and teaching which can be re-used and re-assembled to meet the need of the situation at hand regardless of the digital/non-digital, aware of critical pedagogy, not to be seduced by the technological determinist discourse and to increase agency for all involved. This can then be described as a design for postdigital learning and teaching where the appropriate design assemblage is used for the appropriate situation.

CHAPTER 7 - DISCUSSION

7.1 Introduction

In carrying out the writing of this thesis, I have gone about answering the following question:

How do UK universities discursively construct the idea and purpose of undergraduate higher education and what part is technology playing in ‘disrupting’ this idea and purpose?

I have traced the genealogy of the idea of the contemporary university using the conceptual framework of the Mode 1, 2 and 3 university as ivory tower, factory and network (Chapter 3) as elite, mass and universal access. I have demonstrated how the idea of a university is embedded in the social fabric of its time and how the Mode 1, 2 and 3 university developed and changed in the context of the Enlightenment, neoliberal knowledge economy and how this development is continuing as the impact of the network society takes hold within higher education.

Following my genealogical analysis of the idea of the university, I analysed the discourse of the present through a corpus-assisted discourse analysis of UK university texts from the perspective of human-higher education relations (Chapter 4) and higher education-technology relations (Chapter 5). In Chapter 6 I explored more theoretical human-technology relations to try and understand technological and social change. In this final chapter I draw together education, technology, humans and society, not as separate entities, but in what An and Oliver (2020) describe as relational thinking. In practice this means considering how the social and technical co-exist and inform designs and implementations. As described in the introduction, there are emerging fields looking at technology and education incorporating both the social and technological in

more sociomaterial and embedded ways (Facer and Selwyn, 2013; Hamilton and Friesen, 2013; Selwyn and Facer, 2014; Bayne, 2020; Gourlay, 2020). Davis *et al* (2014) have called for sociotechnical system thinking to be used in many contexts where change is occurring involving the social and the technological. As analysed in this thesis, the modern university has been in constant change and I hold that by incorporating humans, technology and higher education both socially and technologically can help to understand the current landscape but also to develop the future university. This I will term the Mode 3 sociotechnical networked university.

7.2 Chapter Overviews

As we saw in 3.2, 3.3 and 3.4, the Mode 1 University as the ivory tower, set its own research agenda and pursued knowledge for knowledge's sake in the time of the Enlightenment when 'daring to know' ushered in a humanism which rejected religion as a guide and turned instead to science and research. The Enlightenment ideal disrupted the university in that knowledge and teaching was no longer based on tradition and religious writings but research and discovery asking teachers and students to 'dare to know'. The Mode 2 University (3.5 and 3.6) as a factory produced and disseminated knowledge and trained workers for the neoliberal market economy in partnership with industry and government. As Mode 2 institutions, universities became a key part of the economy and government investment in universities began to be justified in the context of industrial and economic growth. How this government interest in teaching and research in universities manifests itself can be seen in the UK context of the regulatory TEF and REF frameworks analysed in Chapter 4. The emerging Mode 3 University is characterised by an opening up of the university to more students, specialist professional roles, private companies and society more generally, fuelled by the adoption of new technologies. Integrating the university with the social (Nørgård and

Bengtsen, 2016) is a two way dialogue between the university and wider society. The Mode 3 Networked University has the potential to redefine time and space with digital network technologies as the divide between society and university blurs further.⁴⁰

I conclude, using the genealogical perspective of Foucault (Chapter 2) that the idea of a university in each three modes should not be looked at in isolation but as developing and layering the idea from each mode and epoch, embedded with wider social discourse of the Enlightenment period, neoliberal knowledge economy and network society. Kerr termed these the strands of history (3.5). I have traced these strands of history by sketching a picture of the dominant historical ideas of the modern university and its evolution (Chapter 3) and the discourse of the present (chapters 4, 5 and 6).

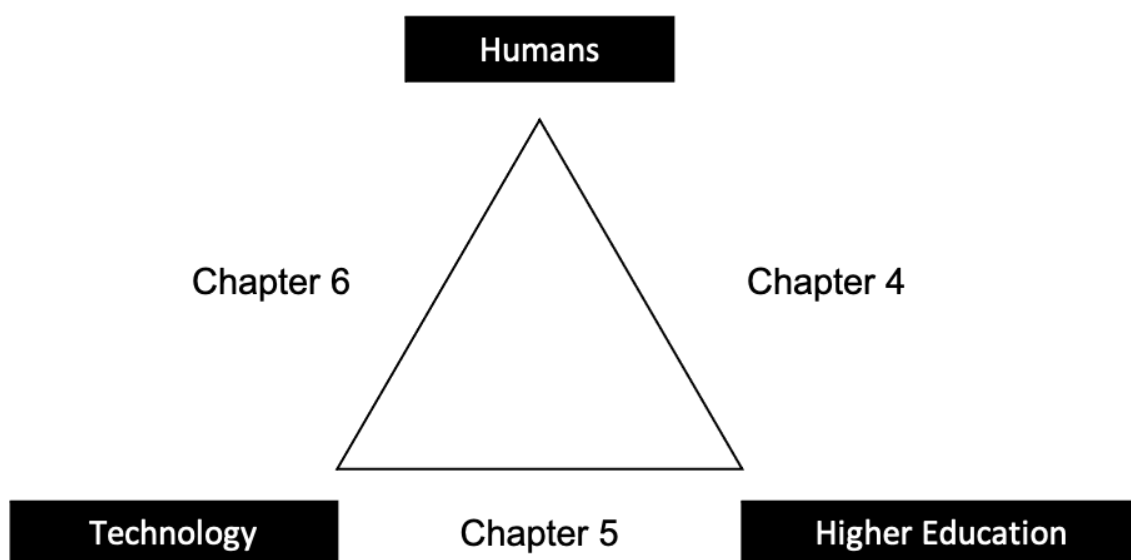


Figure 1 – Humans, technology and higher education. Based on (An and Oliver, 2020)

In drawing together the sociotechnical university as depicted in Figure 1, I analysed the discourse of contemporary universities in the context of responses to the

⁴⁰ This has similarities with broader social life where the lines between work and home life are becoming more blurred but also the positions of producers and consumers. In the case of many digital platforms these lines between producer and consumer have been termed ‘prosumer’.

regulatory frameworks of TEF and REF (Chapter 4). I analysed the discourse of technology in teaching and learning in UK universities and the affordances of such technology for democratic and flexible access to an undergraduate degree (Chapter 5). Finally in Chapter 6 I outlined theoretical and applied positions and design approaches to bridge the gap of the social (social constructivism) and the technical (technological determinism) to provide concepts for the sociotechnical university. I found in Chapter 4 that the most successful TEF statements described the relationship between humans and higher education centring around outcomes, employment and the research reputation of the university (4.1). Secondly (4.2), I found that the relationship between research and teaching (a key Mode 1 and 2 feature of the university) is potentially being unbundled. For instance, I found that, in university texts research was promoted as a positive in the context of teaching, however teaching in the context of research was described as a burden in many cases. In Chapter 5, I found that broadly technology is talked about uncritically as enhancing education, as an end in itself and a fix for a particular issue. These ‘fixes’ were modest, and universities described instrumental ‘use’ of a technology for a particular end or an end in itself. This discourse read as technology to support the social endeavours of teaching and learning in the university (for example Chapter 4’s employment focus). However, as I have outlined and argued in Chapter 5, 6 and 3.7 – 3.10 technologies are not benign artefacts to be used as tools but have their own agency in both how they act, and in the interests and ideologies of those in which fund, design, develop and use them. An example of the absence of serious structural technological disruption to the undergraduate degree in the UK is seen in my analysis of part-time higher education in 5.2. The three-year undergraduate degree at the age of 18 remains the norm despite flexible options afforded by technology; this was particularly striking in elite research-intensive Russell Group universities. In contrast, discourse

from new commercial digital platforms signalled more flexibility than more established research-orientated campus-based universities. As a whole the evidence in Chapter 5 shows little structural disruption to the idea of a university from a purely technological perspective – this is in contrast to much of the current and past hype about technology in education. Chapter 6 looked more broadly and more theoretically at the relationship between humans and technology, firstly focusing on how society determines technology (social constructivism) and secondly on how technology determines society (technological determinism). These two broad extremes allowed for balanced and mediating theories (postdigital, postphenomenology and ANT) to be used which embody the relational approach of humans, higher education and technology and thus bringing together the idea of the sociotechnical university. A postdigital perspective does not reject the digital, but digital technologies are embedded socially, not as something new and different, but part of society. Postphenomenology sees technology as mediating experiences of the human in society. ANT distributes agency in networks of humans and non-humans, affording influence over a network equally to technology, the social and the human. Secondly in Chapter 6, I looked at some examples in higher education where technology is portrayed as determining higher education practice. I apply some of the more mediating theoretical positions of postdigital and ANT in the context of design theory to provide new ways of thinking to guide practice in the relations between humans and non-humans with distributed agency in the university. Agency here is extended to the designer(s), teachers, learners and the non-human in a co-constructing network of the sociotechnical learning environment.

Table 1 provides an overview of the two conceptual frameworks used in this thesis: human, higher education and technology relations across university modes 1, 2

and 3 and a brief overview of the intersections between these two frameworks to make up the sociotechnical university.

Table 1: An overview of the two conceptual frameworks used to trace the idea of a university and ‘disrupting’ technologies			
	Humans-higher education	Technology-Higher Education	Humans-technology
Mode 1 University	Enlightenment Mode 1 Ivory Tower Elite access		
	Developing out of the Enlightenment period moving from education as static knowledge transmission to research setting its own agenda as knowledge as end in itself. This position is grounded in humanism as a rejection of religious dogma. Higher education shifts to research and teaching as bundled.	Universities developed campuses with infrastructure such as libraries and sites of study along with the printing press which enable distribution of books and other publications.	Writing of texts became more widespread which gave the opportunity to record and document ideas and communications. Electricity, steam and transport links developed through road, rail and air for greater communication and collaboration in and between cultures.
Mode 2 University	Neoliberal knowledge economy Mode 2 Factory Mass access		
	Increasing access and widening participation as education and research becomes a commodity in the knowledge economy. Demand for knowledge and its uses is set by government and industry in new and more applied ways. Universities grow exponentially globally influenced by the Mode 1 University but developed in new ways.	Many areas of the university become digitized, distance learning becomes more viable, increased by market demands for increasing student numbers. Efficiencies and cost savings are envisaged to adopt technologies used in industry and media.	Rapid technological developments in the 20 th century gives greater access to radio and TV. These media networks impact society as computers and networks are introduced to the home and the workplace. Access to knowledge increases and communications become faster and easier redefining space and time.

	Network society Mode 3 Factory Universal access		
Mode 3 University	<p>Mass and potential universal access to universities has seen increasing costs and students themselves are asked to burden debt for access to higher education. This has resulted in instrumental employment focused outcomes rather than broader engagement with bodies of existing and emerging knowledge. Mode 3 can offer new models of higher education beyond the three-year campus-based degree at the age of 18 and other public engagement with research and teaching but this has not yet been realised. External influences are brought within the university as the university grows with specialist pedagogy and technology roles with commercial companies and specialist roles in the university.</p>	<p>Mass and universal access to the university afforded by new technologies as part of a wider network society. Digital technologies can be designed and implemented with the aim of collaboration and knowledge production or conversely as in broadcast mode for knowledge transmission and exchange. Universal access to higher education has the potential to be more flexible and embedded within society in networks inside and outside of the university. The university however is no longer the sole knowledge producer and disseminator. There is much hype around technology disrupting and innovating higher education. Much of this hype comes from media and technology companies with EdTech becoming a lucrative economic venture. Many of these cultures have developed from the technology industry of Silicon Valley.</p>	<p>The 21st century has seen all aspects of life changed by new technologies. More critical perspectives are beginning to be adopted beyond technologies as mere tools but the social and political impacts being analysed more critically. This has many similarities with the industrial revolution of the 19th and 20th centuries. The Mode 3 Network University has a role to play in the predicted oncoming fourth industrial age which sees humans, technologies and artefacts blurred and networked together. This includes biology, information and society. Artificial intelligence fuelled by increasing data collection have the potential to determine human behaviour. Real social issues include citizens living longer and jobs being automated. The university as networked in society has an important role to play in this future.</p>

Table 1 summarises how the relationships between humans, higher education and technology changes as the university itself develops over time from a mode 1, to a mode 2 and, ultimately to a mode 3 institution. The picture in table 1 is descriptive - it describes what changes we are seeing in the university landscape. However, the question must be asked: ‘what is driving these changes?’ and ‘how are these changes being brought about?’ In sections 7.3 and 7.4, I will review two forces that shape these changes: development of a neoliberal knowledge economy (section 7.3) and technological disruption (section 7.4).

7.3 The neoliberal university in the knowledge economy

In section 3.6 I reviewed the societal move to a neoliberal knowledge economy which has built on the Mode 1 University to create the Mode 2 Factory University. The university as an institution in Mode 1 and Mode 2 has benefited from being part of a knowledge economy and has grown exponentially. I argue that this environment is a reality for students and the university rather than something to purely decry or dismiss. In Chapter 3 I explored how the Mode 2 Factory University grew significantly in part due to the social shift to a neoliberal knowledge economy. Universities as the producers of knowledge grew thanks to knowledge consumption by students, industry and government. Discourse analysis in Chapter 4 shows that UK university texts which were rewarded with an upgrade in the 2017 TEF, featured discourse most frequently about employment, employability, outcomes and research. Here we can see evidence of the Mode 2 Factory in seeing knowledge as a personal economic end and also as the research institution as a marker of prestige. I concluded that the discourse of the present UK university system influenced by government policy positions a university undergraduate degree as training for employment and universities with research prestige

are rewarded as sites of excellent teaching. A second discourse analysis of REF and TEF texts found that when talking of teaching excellence, a research culture and community was promoted as beneficial to student learning whilst research excellence texts afforded time off from teaching for those researchers discovering new knowledge. Findings in section 4.2 show in many instances an unbundling of teaching and research, potentially reversing the innovation of bundling the two in the Mode 1 University. This potentially damages a research-orientated student experience. Moreover, discourse around teaching and research found that universities wrote about the prestige of the research institution - the corporate university as 'research-intensive', students accessing knowledge - the curriculum as 'research-led', 'research-based' and 'research-informed' and a knowledge bearing faculty staff as 'research-active'. Here we can see further divisions of labour and unbundling. I hold that both a move towards employment outcomes and the unbundling of the university are born out of the broader social neoliberal knowledge economy (3.6), resulting in the Mode 2 University (3.5 and 3.6). Knowledge as a commodity in society and increased expansion has seen business strategies such as unbundling adopted as universities have grown and gained influence as well as being influenced by government policy.

If research and education links are severed, then the ideals of the Enlightenment Mode 1 University will be eroded *but* remain a marker of elite institutions and degrees. This will destroy the idea of the enquiring university (Rowland, 2006) either all together or see teaching in research mode the privilege of the most socially and economically well-off students at elite universities such as those in the Russell Group in the UK (see Chapter 4). The enquiry-led research and teaching ideal, for many is the very soul of the university community, the Humboldtian ideal (Chapter 3) and the foundations of the

modern university which recent strike action has been described as ‘a battle for the soul of the campus’ (Guardian Editorial, 2019)⁴¹.

Those advocating for a return to the elite Mode 1 University with elite access are calling for a roll-back on social progress. Dismissing employment as instrumental runs the risk of being equally elitist but I hold that if the university becomes a training ground solely for employment outcomes, we run the risk of a return to a pre-Enlightenment position of encyclopaedic education, passing static knowledge from generation to generation. This also has practical implications as many are signalling the end of many jobs due to the ‘fourth industrial age’ with automation and artificial intelligence. These issues are outlined in Matthews et al (2021). If many jobs are to no longer exist then society needs to be thought of in new ways and training in jobs of the present and past will not meet these needs. Barnett (2012) defines the task at hand for universities and students in that they are learning for unknown futures and Illich (2000) called for education as hope of different futures rather than expected ones.

If as a university you are rewarded with badges of excellence for employment outcomes, it follows that you train students to secure a job and not as enquiring citizens. The argument may be made that the university can be both but in material terms, if you have a set period of time and credits and university administrators have the choice of research focused enquiry and critical thinking about future worlds or CV writing, interview skills and *current* job requirements it follows that the latter modules will be produced and replace the former. The social aspect then of the university based on empirical analysis in Chapter 4 sees the idea of a university as training for employment

⁴¹ Matthews and Kotzee (2019) analysis (4.1) of TEF2 statements was referenced in the Guardian Editorial article during university staff strikes of 2019 *The Guardian view on university strikes: a battle for the soul of the campus* (Guardian Editorial 2019).

with research as a marker of institutional prestige but potentially not education in research mode as the whole university community as enquiring researchers. I hold that the Enlightenment and neoliberal knowledge economy have been the biggest social disruptors of the university. In the context of the sociotechnical university, having reviewed the discourse of the present of the social neoliberal knowledge economy disruption aspect of the university I now move to the technological.

7.4 Disrupting the idea of a university

Ramiel (2021) describes a disruption and innovation logic that has come to dominate not only Silicon Valley techno-business discourse but also society and education in the rapidly growing EdTech sector⁴². For Leary (2019) keywords such as data, design, disruption, excellence, human capital and innovation are part of the new language of capitalism (neoliberal knowledge economy – 3.6) just as much as they are about technology. Digital technologies however do hold promise to widen access to the Mode 3 university as networked within and part of society.

Empirical discourse analysis in Chapter 5 found that UK universities talk mostly about technology in education in how they ‘use’ such technologies. This was technology use as an end in itself as well as more specific ends. In context, such use was for specific instrumental purposes which is quite natural, however these were fairly modest ‘innovations’ in that they looked to support feedback and assessment, provide lecture capture video etc. In 5.2, I analysed discourse of part-time higher education in the context of access and social/epistemic justice involving taking advantage of digital technologies for flexibility and access. I found that broadly UK universities treat such

⁴² Many of the same Silicon Valley companies and entrepreneurs are turning their attention to Education as well as health, finance etc.

options as either in some way different or second best in comparison with the elite three-year campus-based degree at the age of 18. This phenomenon was more pronounced in the elite group of Russell Group universities.

Based on these findings, technology and associated affordances have not alone yet had a material effect on higher education from a structural teaching and learning perspective. And opening up of the Mode 1 and Mode 2 university into the Mode 3 Network University has not yet fully been realised.

Reich (2020) argues that there has been a failure to ‘disrupt’ education and technology alone cannot achieve educational transformation, concluding that:

If you are hoping that new technologies will be able to radically accelerate human development, the conclusion that change happens incrementally is probably a disappointment. But if you think that global human development is a game of inches – a slow, complex, maddening, plodding process with two steps back for every three steps forward – then Wikipedia is about as good as it gets. New technologies get introduced into complex learning ecologies, and those complex learning ecologies, require multiple changes at multiple levels to take advantage of new technologies. (Reich, 2020, p. 245)

In a similar vein, Friesen (2017) agrees that change and disruption in education is not driven purely by technology and media innovations but closely linked with societal shifts in religion, politics and culture. Friesen details the changes that have occurred with the lecture and the textbook which have endured over time and the changes that do occur are described as the ‘longue durée’ – seeing change over a much longer time span than the hope of short policy changes, technology buzzwords or waves of new technology functionality. Jones (2019b) describes a long history of digital technologies at the Open University (OU) in the UK (see 5.2 for more) enabling access to higher education. However, technology alone, Jones argues did not achieve the OU’s

success but was also underpinned by state support for education and equitable access – the social and the technical. This is an example of the need to look at both the social and technological – the sociotechnical university.

Selwyn (2016a) asks *Is Technology Good for Education?* And does this by positioning critical perspectives around four possibilities on what technology and its adoption is having on education. These positions look at making education more democratic, personalized, calculable and commercial.

Selwyn argues that technologies do have the potential to enable democratic access to education, but this often results in a meritocratic equality of access rather than equitable education outcomes. In many cases MOOCs and similar projects are not achieving the social justice and widening participation that has been envisioned by the open learning movement (Sumner, 2000; Bayne, Knox and Ross, 2015) or the mainstream enthusiasm for MOOCs to provide democratic access to education aided by digital technologies at the beginning of the 21st century. This mirrors the analysis of part-time flexible access in 5.2.

Secondly, a personalised approach to a university degree promises to provide the learner with content which is ‘right’ for their individual needs aided by algorithms and close tracking of student data. This for many is not particularly technology focused but geared towards the neoliberal knowledge economy (Hayes and Jandrić, 2014) and thus can result in a knowledge transmission and behaviourist, datafied and quantifiable view of higher education (Knox, Williamson and Bayne, 2020; Williamson, Bayne and Shay, 2020). Thirdly, any use of digital technologies has the capacity to capture data associated with any learning environment (physical or digital). For Selwyn, what can often be seen as objective and neutral here is anything but, as groups and individuals are constantly making decisions on what data to capture and how to use it – these decisions

involve deciding what ‘counts’ in education and what does not. For example, quantifying employment outcomes in terms of salaries is used as a measure which valorises the purpose of higher education as training for a job and ‘teaching excellence’ (see 4.1). Moreover, it is often algorithms⁴³ which are created which then go on to ‘act’ and make decisions about education. Selwyn warns against an exclusively quantified approach:

The danger of course, lies in seeing data and coding as an absolute rather than relative source of guidance and support. Education is far too complex to be reduced solely to data analyses and algorithms. As with digital technologies in general, digital data do not offer a neat technical fix to education dilemmas – no matter how compelling the output might be. (Selwyn, 2016a, p. 106)

Fourthly, Selwyn asks whether technology is making education more commercial. As we have seen in Chapters 4 and 5, a university education has become to be seen as more of a commodity in the light of a changing economic and political environment of the knowledge economy and neoliberal policy as well as greater government interest in university education and mass participation. Increased specialisation of roles beyond the sole academic in the unbundled university involve expert and policy networks which exert power and influence on the university, i.e. commercial interest from the commercial technology sector (Williamson, 2019a). As more influences are introduced to the Mode 3 Network University aligned to technology

⁴³ In the summer of 2020 during the Covid-19 pandemic previous data was used to calculate and predict grades for secondary children. After much discussion and protest these decisions were abandoned as the decisions were discriminatory to a data-driven profiling of schools in less affluent areas

the more potential for clashing political, pedagogical and ideological perspectives on the idea of a university.

The genesis of such digital platforms and disruption in wider society can be traced to Silicon Valley. See Network Society in Chapter 3.

Networked digital information technology looms ever larger in all of our lives. It shapes our perceptions, conditions the choices available to us, and remakes our experience of space and time. (Greenfield, 2018, p. 8)

A small group of ‘Big Tech’ companies grew in Silicon Valley, California at the start of the 21st century as small start-ups with a ‘hacking’ mentality of ‘disruption’ and ‘failing fast’. These start-ups have rapidly grown into mass advertising and media companies with enormous power to shape society. Bartlett (2018) describes how ‘the Stacks’ of Google, Amazon, Facebook etc are built upon a data-driven ideology of the Behaviourist school of psychology, popularised by Skinner (1978). Behaviourism is based on data collected on human behaviour. In media and advertising this is often used to manipulate and control the decision making of the public (traditionally shopping but more recently politics). Behaviourism fell out of favour in many areas of psychology and education in the mid 20th century but such approaches influenced by technology are re-emerging alongside a rich history of mechanical approaches to teaching and learning (Watters, 2021). Such criticism of the behaviourist movement in the second half of the 21st century came from Illich (2000) who described technologies and technologists in the industrial revolution as impacting upon education as a measurable ‘product’ rather than the activity of education and learning. Illich however, didn’t reject technology all together and in follow up work described technologies as tools for conviviality which help to enable action, self-reflection and social engagement (Illich, 2009). Behaviourism is highly compatible with the dataism described in Chapter 6. Such influence has spread

into many aspects of society as individuals, groups and organisations are able to quantify everything in a metric culture (Lupton, 2016; Ajana, 2020). Metrics are not inherently wholly good or bad but the question that should be asked is what is being measured and why with greater attention on the statistical methods adopted (Hayes and Cheng, 2020).

Perrotta *et al* (2020) analysed Google Classroom – a Silicon Valley advertising and media power who are setting the rules of pedagogies which shows the network of influences outside of the university and schools in such an unbundled network of education actors. Kruka, Smits and Willhelm (2021) conducted a technoethical audit of Google services and their application in schools highlighting their potential influence as an advertising company introducing techno-corporate ideals of personalization, efficiency and profits. Such algorithmic ways of being influence the wider human-technology relations stemming from the Silicon Valley stacks of isomorphism through algorithms as big data practices shape an organisation such as a school or university (Caplan and boyd, 2018).

Despite much hype about the possibilities of technology to be deployed to solve some of the most pressing issues of the 21st century, there is a growing number of critical perspectives on the social outcomes of technical fixes and development. Critical perspectives of such technological fixes question the seemingly neutral and apolitical ‘solutions’ as purely technical. For example artificial intelligence and the development of algorithms have been shown to reinforce racial (Noble, 2018), gender (Wachter-Boettcher, 2017) and economic (Eubanks, 2017) inequalities as well as undermining democracy (O’Neil, 2016). Clearly such technologies act and have an influence on the social world despite the objective and technical discourse which often cited as innovation and a linear technological progress.

Morozov (2013) terms a wholly technological fix to a social issue as ‘solutionism’ in which technologists apply technical fixes which are presented as apolitical and engineered fixes. By not considering or seeing technology as neutral and apolitical, Stilgoe (2020) describes how innovators and entrepreneurs can, if the conversation becomes too one sided, be the actors identifying both social needs and the technological possibilities, solutions and fixes for those needs. These can then be identified and ‘fixed’ without wider and more democratic public participation. Williamson (2019b, 2019a) terms this ‘fast policy’ in education contexts whereby products, platforms and apps are embedded in institutions and ‘doing policy work’ in setting pedagogical and technology practices. In practice this means that technology experts are defining and shaping many aspects of society, including education. A Silicon Valley approach to social and political issues such as education is criticised by authors such as Morozov who argue that the issues are not just technical to be fixed but social and political.

In sections 7.3 and 7.4, I have surveyed two forces responsible for the changes that we are seeing to the human, higher education, technology relationship: neoliberalism and technological disruption. I conclude that these two forces are not separate, but interrelate. To understand the changes that we are witnessing in how universities are organised and run today, one needs to understand both of these forces together. Taking this perspective allows me to further fuse together the idea of the social and technical in the Mode 3 Sociotechnical Networked University incorporating relationally humans, higher education and technology.

7.5 The sociotechnical Mode 3 University

I have concluded that the biggest disruption to the modern university have been the social movements of the Enlightenment in Mode 1 and the neoliberal knowledge

economy in Mode 2. The discourse of the present university in the 2017 TEF show these strands of history – research as a key marker of prestige (Enlightenment) along with employment outcomes (neoliberal knowledge economy) as markers of excellence. If we take a purely technological disruption discourse which is prevalent in contemporary society, we will miss a complex coming together of the social and technical. The Mode 3 networked sociotechnical university is not exclusively determined by the social, nor the technological. I base the idea of the sociotechnical university on the groundwork of Chapter 3 in outlining the Mode 3 university as an expanding network of actors which are both human and non-human and growing and developing and building from the genesis of the Mode 1 Ivory Tower and Mode 2 Factory. This development is layered and genealogical (see Chapter 3) in that the idea of a university is layered and influenced by its genealogy and contested alternatives. Further theoretical work in Chapter 6 allows me to bridge the gap between wholly social constructivist and technologically determinist views of the idea of a university and its disruption. A social constructivist approach sees the social shaping technologies which are then adopted and normalised. Such an approach based on findings in Chapter 4 then would see technologies adopted and used which are designed in the spirit of higher education as a quantifiable endeavour with measurable outcomes such as employment with a fixed view of the undergraduate degree as a campus-based three-year endeavour at the age of 18 (Chapter 5) – in this view the social Discourse shapes the idea of a university and thus its technologies. A technological determinist approach adopts new waves of technology as they enter society into the university uncritically or as essentialised ‘fixes’ and ‘disruptions’ – technology uncritically shapes the idea of a university. I have used a more distributed agency perspective with which to frame human and non-human technology relations in between the social and the technological

– postdigital, actor-network theory and postphenomenology (Chapter 6) as well as the wider perspective of posthumanism (Chapter 3). These approaches reject wholly social and technical perspectives to conceptualise the Mode 3 Sociotechnical University as networked system. Challenger and Clegg (2011) map a sociotechnical system as a network of goals, people, buildings/infrastructure, technology, culture and processes and procedures and hold that the system should be looked at holistically. This builds upon relational thinking of humans, higher education and technology and the development of the Mode 3 Network University.

This perspective affords human and non-human agency and allow for a more critical analysis of the social and the technical. Feenberg (2017; Matthews, 2020b) describes modernity as a ‘technosystem’ which is dominated by both the rational and technological. Modernity for Feenberg however, is not purely technological and rational but his technosystem is made up of administrations (government and institutional policy) and markets alongside technology. The technosystem can describe the wider argument of this thesis in that technology should not be seen as a black box or instrumental tool - it shapes and is shaped by the social which includes government and university administrations (policy) and markets (the neoliberal knowledge economy above) – the sociotechnical.

Although modernity will always depend on instrumental rationality, this need not lead to dystopian conclusions. The instrumentalization theory reveals progressive possibilities underestimated by both Critical Theory and conformist opinion. Those possibilities depend on effective communication between lay and expert actors – between in other words, public protest and technical implementation. (Feenberg, 2017, p. 114)

Feenberg describes how a more democratic future for technological progress should include experts, public and lay ‘users’ of such technological systems – in the

case of higher education – teachers, researchers, students, policy makers, technologists etc. Feenberg stresses that the internet and associated communication technologies is not one dimensional but has many potentials and future trajectories, much like the genealogical approach adopted in Chapter 3 but looking to the future:

Serious study of the Internet, Feenberg says, must take into account its technical evolution which is not complete, while purely political analysis often results in utopia or dystopia—a universal mind or corporate matrix. The constructivist approach allows for complexity and multiple ‘intentionalities’ and functions of the Internet. Feenberg identifies two broad categories of the Internet in question: (1) consumption model, including entertainment, commercial transactions and advertising, characterised by market freedom and (2) community model, including new forms of sociability, communication and appropriation of alienated aspects of life, characterised by freedom of expression, role of community and personal growth. Neither category has ‘won’ dominance of the Internet and these two models coexist. (Matthews, 2020b, p. 6)

Here we can see two possibilities for the Mode 3 sociotechnical Network University (1) higher education as consumption of knowledge for a degree and employment outcomes in a commodity model of markets disaggregated from research activity. This has the potential to dismiss altogether the Mode 1 University for a consumption model aligned to a neoliberal knowledge economy and training for a job. (2) Adoption of new technologies as a community of scholars in an enquiring Humboldtian university which develops the person for the wider world and not just employment. Taking the view of Newman (3.4) an enquiring graduate can go on and make their way in the world without direct training for a job in the university. Posthuman perspectives outlined in Chapter 3 mirror such plurality of possibilities for the Mode 3 Networked Sociotechnical university.

I conclude, based on empirical corpus-assisted discourse analysis in Chapters 4 and 5 in comparison with the three modes of university in Chapter 3 that broadly the

UK higher education system still resembles the Mode 2 Factory University and signs are beginning to emerge of the Mode 3 Network. This is not a wholesale transition however, and using the words of Kerr, 'strands of history' remain of mode 1 and mode 2 as mode 3 emerges. As this new mode of university emerges it is important for researchers, policy makers and leaders in higher education to be aware and reflective about the potential ruptures and future genealogy of the idea of a university. I hold that the social aspect of the university has had the biggest disruption through the Enlightenment (Mode 1) and neoliberal knowledge economy (Mode 2). By conceptualising the university as a sociotechnical system (Challenger and Clegg, 2011; Davis *et al.*, 2014) allows for acknowledgement of both the social and technological aspects of the emerging Mode 3 university. This builds upon modes 1 and 2 but emerges into a network society which resembles a network both socially and technologically.

The challenge for the Mode 3 Network University as a network of networks of the human and non-human with public and private interest of students, academics, administrators, management, specialists in pedagogy, media and technology, technologies themselves, policies and the strands of history of the Mode 1 and Mode 2 University. These are all nodes in this posthuman network which are unbundled and bundled and then productive in creating the discourse and practice of the idea of a university.

The UK university landscape of today I conclude is one of employment and quantitative outcome focus within high prestige research institutions in Mode 2 Factory mode. In line with such a factory in the neoliberal knowledge economy, business models are adopted to ensure efficient quantitative outcomes for producers and consumers of knowledge. Unbundling is a business model which sees efficiencies and

technologies implemented for quantitative ends. From this perspective, it makes sense to divide and unbundle the labour of teaching and research and other functions and rebundle them as a product much like a mobile phone contract or package holiday with the help of new technologies. However, I argue that severing the link between research and teaching and focusing on the undergraduate degree as training for employment recasts the university as a different institution and one more like the pre-Enlightenment university as one of static knowledge transmission and not as a connected network of scholars creating and disseminating new knowledge with students and publics. The Mode 3 University as a network integrated with the wider world allows for a much greater collaboration, aided by new technologies but such an institution requires a collaborative and outward looking academic community and leadership which not only looks at quantitative economic outcomes but the university as a social good. Such public engagement should be wider than providing undergraduate and postgraduate degrees. Knowledge production and dissemination should be in collaboration with the network society in a two way engagement.

7.6 Concluding summary

Before moving on to my conclusion, here I reflect upon the study as whole and its limitations and strengths. The approach taken is broad and can be described as a macro analysis and system view of the university using texts from the UK Higher Education sector including wider historical and social contexts. By adopting a mixed methods quantitative and qualitative study of UK university texts – a corpus-assisted discourse analysis – I am adopting a system view and identifying the most dominant discourses from a diverse group of universities that illustrate how universities describe themselves. This is at a time when government policy is advocating for universities to compete with each other to sell their educational wares to students and communicating

‘unique selling points’ as well as meeting regulatory needs such as TEF and REF. Such a broad analysis may miss much nuance of universities taking different perspectives and approaches. However, I argue that such a system level macro approach is required to lay the foundations for further and more focused research at a more meso and micro level.

I have conceptualised the emerging Mode 3 University as a network of the human and non-human, an assemblage of the social and the technical. Each university is its own complex network within a wider network of the fabric of society. One idealised image of the university is for Bacevic (2019) often conceived by researchers with ontological bias treating the university as a fixed and durable object social object – as we have seen through the lens of three modes of the university, the idea has developed and taken different ruptures in direction. The ecological and posthuman perspective could be argued throws up more complexity. Each actor (student, researcher, teacher, administrator, technology) brings their own network of experiences, values and indeed genealogies to the network. I argue that such complexity should be embraced and in line with a Foucauldian discourse and genealogical analysis to question and critique the very concepts that appear to be ‘normal’ and ‘just the way things are’.

I would like to explore further this network approach to education and society in further research from a sociotechnical perspective. Both sociology and technical fields are interested in networks (i.e. (Eisenberg and Houser, 2007; Pescosolido, 2007; Borgatti *et al.*, 2009; Borgatti, Everett and Johnson, 2018; Dijk, 2020). Interdisciplinary work with non-social scientists bringing their different perspectives to ideas of the network both socially and technically provide a potential future research agenda (i.e. Parvin and Pollock, 2020; Selwyn and Gašević, 2020).

As stated in the introduction, in asking what the purpose of a university is in the 21st century is important as social and technological change has emerged. I have

focused on texts produced by universities themselves. Further work, I would like to engage with is policy and media texts as well as perspectives of staff, students and public – all part of a network in mode 3.

Analysis of the idea of a university is timely and important as universities grow but also taken on greater social responsibilities. Barnett (2019) describes this as a *University Challenge* with regard to division (who goes to university and who doesn't), democracy (a public that can engage with ever growing knowledge and supercomplexity) and discourse (how the many understandings of a modern contemporary university are articulated and understood by all of a population). Barnett concludes:

... it is evident that universities are faced with this triple challenge of social division, multiple discourses and an impaired democracy. It is evident, too, surely, that the university has both responsibilities and possibilities in playing its part in addressing these challenges which, after all, confront the whole of society. (p286)

A mass higher education system of 50% participation divides a population between the educated and non-educated (Savage, 2015). This for many is playing out in the 21st century with the rise of political populism dividing Western countries with the UK referendum to leave the European Union and the rise of Donald Trump as US president and subsequently a voice for rising anti-democratic extreme voices (Goodhart, 2017; Barnett, 2019). The Brexit campaign famously claimed that "people in this country have had enough of experts" (Katz, 2017) and those with specialist knowledge are the university educated 'elites', who are out of touch with the people (Glaser, 2020; Telling, 2020). A universal public engagement with the Mode 3 university in and part of society should aim to remove such division of graduate and non-graduate to open access to knowledge for all. This universal access to the Mode 3 University should aim to engage active citizens from all communities in more democratic two-way engagement.

By achieving universal access to the university is not just about completing a degree but for all to engage with the Mode 3 University in new and diverse ways as enquiring pursuers of knowledge. Digital technologies and campuses here form the sociotechnical university for universal engagement.

In discursive terms, technology has not yet had a significant material and structural impact upon the UK undergraduate degree (Chapter 5). A bigger impact has been felt by the wider social and economic era of Enlightenment in Mode 1 and neoliberalism and the knowledge economy in Mode 2 (Chapter 4). This has allowed universities to grow but they have also been asked to evidence ‘value’ to students and society. Innovation and disruption in modern discourse is usually attributed to the introduction of new digital technologies. I hold that, based on the discourse analysis carried out here, the biggest innovations in higher education have been 1) the bundling of teaching and research in the Mode 1 Enlightenment University and 2) growth aligned to the neoliberal knowledge economy in the Mode 2 Factory University.

Over the years, many hyped promises have been made about new technologies innovating and disrupting the university, but as I have shown through university discourse, large scale disruption has not yet materialised. This is in stark contrast to wider society. For example, social media platforms have on one hand contributed to political polarization and echo chambers of divided opinions and voices contributing to social divides (Barberá, 2020) and on the other hand played a significant part in enabling a post-truth era which has democratised access and production of knowledge (Fuller, 2018). As the Mode 3 Network university emerges, universities should pay attention to new technologies and their affordances and to dismiss them as tools to be used for their own end or as essentialised fixes is to ignore a growing area of critical research on ‘big tech’ with which EdTech is now part of. Such critical perspectives do

need to acknowledge the place of technology in the wider Network Society and the opportunities as well as issues that these present. As reviewed in 5.1 and 6.2 dealing with the hype and discursive promise of digital technologies is as much a challenge as that of implementation and adoption.

As I have concluded in this thesis, technology does not act alone to independently, automatically and uncritically ‘enhance’ education but mediates and changes educational and social worlds. As Feenberg (2017) argues, a rational, technology dominated society may come to see the social world as quantifiable and dominated by scientific reason, alongside markets and governance. Moreover, such reason and quantification afforded by data and digital technologies works in perfect harmony with a neoliberal marketized quantifiable education exclusively for outcomes of paid employment and other quantifiable behaviours. Such quantification further adds to a discourse of transmission, both in terms of student learning gain and knowledge transmission as a service and product which is then cashed in for future employment prospects. The very real threat for a university education is to return to the era before the Mode 1 Enlightenment university to a passive transmission of static knowledge. Data, digital technologies and economic efficiencies are very well suited to such an approach. The banking and transmission approach has been famously critiqued by those in the field of critical pedagogy (hooks, 1994; Freire, 1996; Giroux, 2018; Nussbaum, 2018).

Trow (1973) described a move from elite higher education as a privilege for the educated ruling classes (Mode 1) to mass higher education as a right to prepare a workforce with professional and technical skills (Mode 2) to potential universal higher education which is an obligation for the whole population for adaptability in the face of social and technological change and access to growing bodies of knowledge (Mode 3).

Trow in 1973 identified one issue which would impact upon all aspects of the university – growth and expansion. Trow, although not using these terms was writing about the move from Mode 1 University Ivory Tower to the Mode 2 Mass University Factory and future universal Mode 3 Network.

As we might guess from the foregoing, elite institutions are marked off from the surrounding society very sharply by clear and relatively impermeable boundaries, in the extreme case by physical walls. In mass institutions there are still boundaries, but they are more fuzzy and more permeable; there is relatively easy movement in and out of mass institutions, and a much less clear concept of “membership,” though there are still formal definitions of membership that are relevant for a variety of academic and non-academic purposes. In institutions of universal access, boundaries are very weak, shading off to none at all. At some point anyone who may switch on a televised broadcast of a lecture maybe thought of for that moment as being part of an “extended university,” and the question of whether he is submitting work regularly or has “matriculated” is of only marginal significance. (Trow, 1973, p. 11)

Trow’s 1973 work is concerned with the transition between these phases and argues that each phase doesn’t happen in a transactional manner removing all that went before but leaves behind many aspects of the previous phase – what Clark Kerr called ‘strands of history’. These strands of history I have traced as a genealogy and history of the present in Chapter 3 building on the findings of UK institutional discourse analysis in Chapters 4 and 5.

Based on the analysis in this thesis I conclude that the discourse of the present can broadly be described as still embodying the Mode 2 University Factory with emerging development of the Mode 3 Network. Discourse in Chapter 4 shows a focus on employment outcomes and the potential unbundling of teaching and research. Chapter 5 shows that technology has not yet had a significant structural impact upon the

undergraduate degree. Challenges and opportunities face the idea of a university in transition to Mode 3 University embedded and part of a Network Society.

Fuller (2016) calls for universities to have an Academic Caesar who is a champion of the Humboldtian university but to pragmatically see through the eyes of the neoliberal university administrator to be able to lead and communicate pragmatic, desirable, feasible and viable visions of the university of the present and future within the boundaries and parameters of social and political contexts. These contexts for the Mode 3 Universal University include government regulation at national level (in the UK the, REF and TEF as analysed in Chapter 4), a consumer outlook of students burdened with tuition fees, providing universal access in diverse ways as a distinct university education in competition with alternative providers of education and training, the university as a social good, attitudes of academic staff and development of the academic role and technology adoption to meet the needs of growth and expansion.

The Mode 1 University has seen exponential growth. In the words of Kerr, a huge dinosaur with a small brain that doesn't evolve will become extinct. Such critical responses to the contemporary university are required to avoid such extinction and reverse in the growth and development that we have seen in the past 200 years. The Mode 3 networked and unbundled university has many competing influences and clashes of ideology which when 'networked' will be productive in enacting the future idea of a university. Futures are plural and as traced in Chapter 3 there have been ruptures and new directions pursued which have reshaped and reconfigured the dominant discourse of the idea of a university – this will continue but with an increased number of actors in the Mode 3 Networked University. Such expansion and opening of borders between the university, technology, society and corporate business operations such as unbundling of the degree and academic roles and other business-orientated

models could lose the identity of the university all together and the university as we know it (McCowan, 2017).

I argue that if a university education is training for employment, unbundled and disconnected from a research ethos or as Kant put it a ‘dare to know’ attitude then in an open market of ‘providers’ the university may not be best placed to compete with other organisations who provide instructional training for employment. Such an organisation is different to the Enlightenment research-teaching university. Further, I hold that daring to know and teaching in research mode is in market language ‘the brand’ and ‘unique selling point’ for the university in transitioning to Mode 3 Universal Network University. Should this Humboldtian vision of the university as a site of enquiry and critical thinking be lost, not only will other ‘providers’ respond to demand for employment focused training (employers themselves for example) but also, society will lose a critical perspective on possible futures, and knowledge production and dissemination as a public good. This is vitally important as new global challenges arise which are as yet, unknown.

A transmission of static knowledge isomorphic with data packets in a network is a return to a pre-Enlightenment encyclopaedic university education. Moreover, artificial intelligence, one of the newly cited disruptors of the university, relies upon past data to make decisions and influence the future which many have claimed simply reproduces the past. A further charge that can be directed at a computational turn in society is a return to a behaviourist surveillance approach fuelled by analytics. Looking at past behavioural data to inform the future, I argue has potential but also risks reproducing what has gone before in new dynamic contexts creating a static status quo. The challenge for the future university is to embrace a critical perspective to new digital technologies to transition into the Networked Mode 3 universal access University. A

forward-looking universal university that inducts undergraduates and the wider public into existing and emerging bodies of knowledge which enables them to go and develop their own life in a critical and research-orientated manner as both workers and responsible citizens is the challenge of the Mode 3 University.

The networked and networking entanglement needs to be formed and upheld through a bond of mutual commitment. The university should not try to be of value to society through meeting its demands as it does in the mode 2-configuration. Rather, it is an insistence on the inherent worth and value of the university in itself; of *academic* professional development, and of *academic* citizenship. But that does not entail a university that can take the power back and retreat to the ivory tower as a backlash against the factory. To become a networking university, it must be open and networking, and at the same time, it must be open for being networked in return – to keep ontology and geography open. (Nørgård, Mor and Bengtsen, 2019, p. 75)

The ideals of the Mode 1 University need not be dismissed as elitist. The realities and growth of the Mode 2 University in the neoliberal knowledge economy need not be dismissed as instrumental and process driven but realities to be faced head on with the ideals of Mode 1, growth of Mode 2 and opportunities of the Mode 3 Network. In tracing the discourse of the present and writing its cultural and social genealogy I have aimed to open up pragmatic and realistic opportunities for the idea of a future university and the relationship between humans, education and technology.

If technology is not making such structural change to open the university network to society in more equitable and democratic fashion, there is a danger that technology will only embed the neoliberal employment focus of the university – the social aspect of the university analysed in Chapter 4. A transition from Mode 2 to Mode 3 university then will remain focused on employment outcomes. Moreover, the Enlightenment ideal of enquiry and research will be further unbundled from education

for rational quantified economic outcomes with technology enabling such quantification and transmission.

A posthuman perspective on design at an institutional level in which agency is acknowledged and afforded to multiple actors in the Mode 3 Network University is one way of achieving university growth in an equitable and democratic way (Forlano, 2017; Wakkary, 2020). This is not to deny employment outcomes but to add a pluralism of perspectives. Moreover, posthuman futures offer diverse possibilities and not one singular idealised and privileged vision. The idea of a university is an essentially contested concept of which there are many if not infinite potentials. Kerr stated that the university is so many things to so many different people then the university must constantly be at war with itself. Kant encouraged a healthy debate and conflict between the higher and lower faculties. Humboldt bundled teaching and research to create and share knowledge. Newman advocated education in interdisciplinary ways to go out and influence the world as citizens.

A key social question here is who has access to knowledge and what is the nature of that knowledge in the neoliberal knowledge economy – a case of social epistemology and epistemic justice (Fuller, 2002; Fricker, 2009; Kotzee, 2018). I hold, with others that useful knowledge secures a job and really useful knowledge has the potential for emancipation, social justice with agency to envisage alternative futures (Johnson, 1981; Nussbaum, 2018; Ralston, 2020; Jandrić, 2021). Digital technologies and a clear vision of the idea of a university as a social good fused together as the Mode 3 Sociotechnical University can achieve this.

Posthuman affirmative politics (Braidotti, 2013) and a proactionary attitude (Fuller, 2016, p. 206) is required to continue the development of the idea of a university

building upon Kant, Humboldt, Newman and Kerr in new and creative ways with many competing and diverse priorities.

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