NUMBER CRUNCHING: TRANSFORMING HIGHER EDUCATION INTO 'PERFORMANCE DATA'

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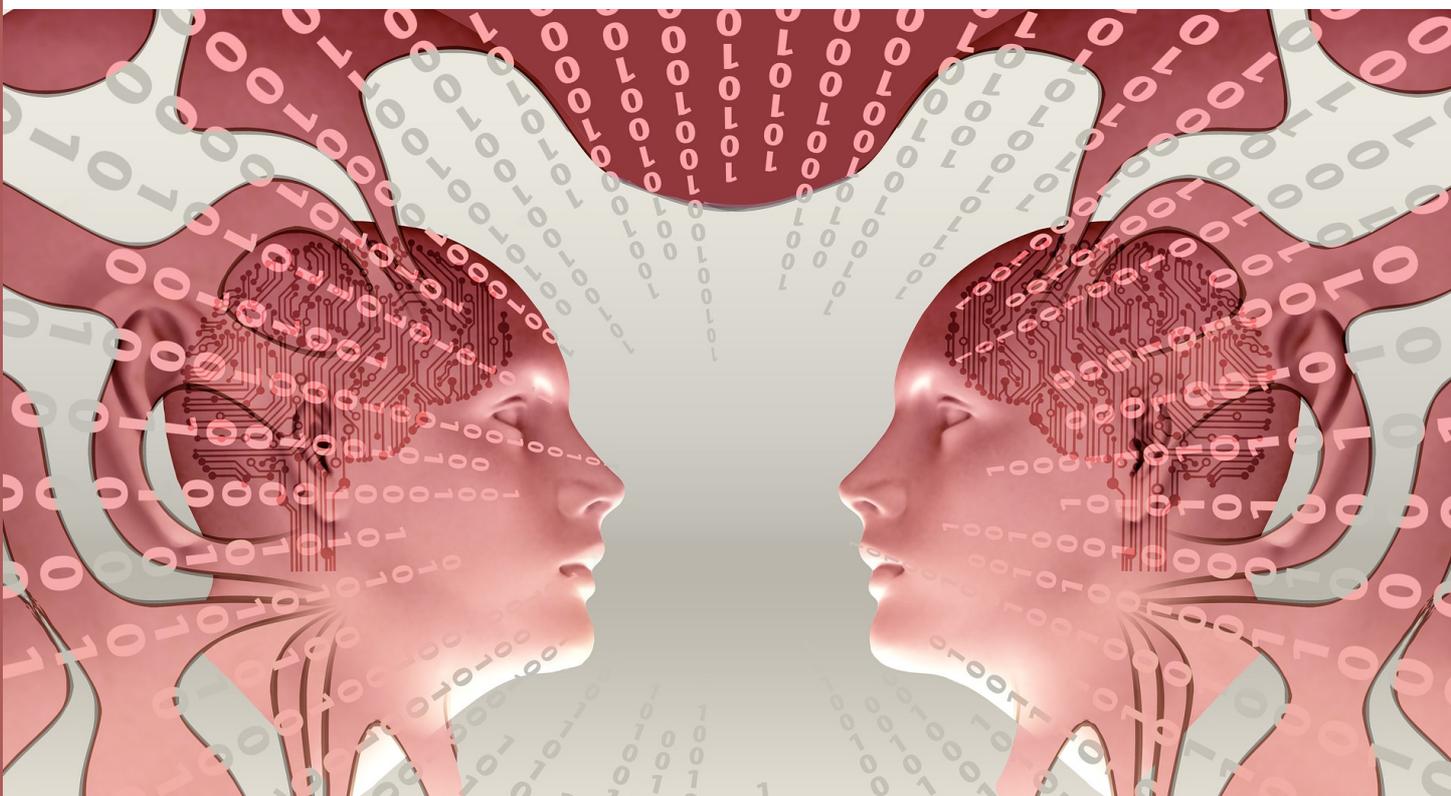
Number crunching: transforming higher education into 'performance data'

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Digital data are integral to measuring and managing the performance of higher education (HE) institutions. Under the Higher Education and Research Act (HERA) and the Office for Students (OfS), HE will be crunched down into easily comparable numbers, with universities assessed in terms of quantifiable performance indicators. Already, sector data contributes to a culture of performance management, auditing, competition and marketisation, as numbers become proxy measures of research quality, teaching effectiveness, student satisfaction, and institutional value-for-money.

Newer innovations in HE workflow systems, management dashboards, data-linking, business intelligence, and educational analytics platforms, however, are accelerating the pace and expanding the scope of data collection and consumption across the sector. The '**neoliberal takeover of higher education**', to use the subtitle of Lawrence Busch's book, means universities are increasingly focused on achieving market value through competition, performance metric ranking, consumer demand, and return on investment—with the collection and analysis of student data central to the economic restructuring of the academy.

This brief sets out some of the key developments in student data use that will impact UK HE in coming years. While marketisation of the sector is not a novel phenomenon, it is essential to understand how market reform is being operationalised through data—that is, to see how the politics of marketisation is put into practice through data processes and technical products.

Two key and interrelated developments are taking place: data are being 'made' to perform the political work of making the sector more market-focused, measurable, comparable and competitive; and software platforms are being programmed to enable the performance data to flow and enter into comparative performance metrics more easily and quickly, speeding up processes of audit, evaluation and judgment. As a result, markets are being created for new commercial vendors of data-processing services to do business within the sector, and for alternative for-profit providers to compete with universities, while institutions themselves are pushed ever-further into comparative competition for rankings and ratings. Any qualitative valuation of academic labour, institutions, and students' intellectual development is being rendered invisible by being un-countable in a marketised landscape dominated by student data and performance metrics. It is therefore crucially important to uncover the **hidden architecture of higher education** currently in construction and to anticipate the consequences of the HE data revolution still to come.

1. Data-making through policy networks

Why are student data, and the technologies for processing them, becoming so central to HE? A range of governmental actors, think tanks, consultancies, sector agencies and commercial businesses has formed into loose public-private policy networks and collectively built consensus that making HE into a perfectly functioning market requires the collection of measurable evidence of student performance that can be used as indicators of institutional performance.

The Department of Business, Innovation & Skills (BIS, now Business, Energy and Industrial Strategy) was a significant catalyst, notably in **_Students at the Heart of the System_** (2011) and **_Success as a Knowledge Economy_** (2016), with student data highlighted as part of a huge reformatory package including the Teaching Excellence Framework (TEF) and student fees. These reforms have created a marketised system (**#USSbriefs3**) of performance-driven and outcomes-focused mass higher education.

Projects led by think tanks, consultancies, companies and arm's-length agencies have actively influenced and shaped the case for student data systems as core parts of the market reform project. The Higher Education Commission and think tank Policy Connect produced **_From Bricks to Clicks: The potential of data and analytics in Higher Education_** in 2016 to focus on the use of 'fluid data' that are 'generated through the increasingly digital way a student interacts with their university'. Likewise, Universities UK (UUK) partnered with the US-based company Civitas Learning and Jisc (the not-for-profit organisation for HE digital services) to produce **_Analytics in Higher Education_** later the same year. **Civitas Learning** describes itself as 'the Student Success Platform for higher education', utilising its 'Student Insights Engine' and in-house data science 'talent' to generate 'insights, action and continuous learning' from student data analytics. Its report with UUK highlighted the limitations of TEF as an external performance assessment of teaching and learning quality, and instead endorsed 'predictive learning analytics' to 'inform impact evaluations, via outcomes data as performance metrics'.

2. Data-led regulation in the Data Futures programme and the Office for Students

Significant groundwork has already been undertaken to embed student analytics sector-wide. The Higher Education Statistics Agency (HESA) (the body tasked with maintaining the UK's HE data) is leading the most advanced project. HESA's **Data Futures** programme will deliver a transformed national data infrastructure for the collection, analysis and dissemination of student data. Piloted in 2018–2019 at over **100 providers**, Data Futures is due for national rollout to all UK HE institutions in 2019–2020, requiring universities to carry out 'in-year' reporting of student data using a bespoke data platform. Ultimately, Data Futures is delivering the **data infrastructure for market reform** in HE.

International consultancy firms initially shaped the Data Futures project — part of the growing influence of consultants in HE (**#USSbriefs5**). **Deloitte** first produced 'a proposal

for a coherent set of arrangements for the collection, sharing and dissemination of data for the higher education data and information landscape', with **KPMG** then outlining a 'blueprint' for a 'New Data Landscape' that 'promotes data standards, rationalises data flows and maximises the value of technology and enables improved data capability'.

Data Futures is intended to promote 'student choice', 'competition' between providers, 'efficiency' and 'value for money'. It also anticipates longer-term ambitions to make HE more 'big data'-led, 'smarter' and 'connected', as HESA's **Chief Executive** has argued:

> Further developments can build out from this—providing enhanced analytical tools for users and providers, opening up larger stores of data for analysis and innovation, linking datasets across government departments and policy areas to improve decision-making.

Over the next two years, Data Futures will make HE more data-analytic and data-scientific, with institutions using student data to evaluate performance, prospective students accessing data to inform choices, and policy-makers gaining access to linked data for enhanced performance evaluation and comparative analysis of sector competition.

HESA became the 'designated data body' to work with the Office for Students (OfS), the incoming HE regulator (working under the **guidance** of the Department for Education), in 2018. Under the OfS **regulatory framework**, HESA is accountable for collecting, making available, and publishing appropriate information on behalf of the OfS. According to HESA's **Director of Data Policy**, it represents a shift from 'data informed to data led' regulation, with data analysts playing an increasingly influential role in HE policy. As a **data-scientific regulator**, the OfS will make use of longitudinal, comparative, and predictive data, using 'lead indicators', 'reportable events', 'early warning systems' and other 'intelligence' for 'close-to-real-time' performance monitoring.

As such, Data Futures provides the infrastructure for making the data that the OfS requires to fulfil its regulatory functions, and more broadly for the enactment of the Higher Education and Research Act. More than merely a large-scale statistical project, Data Futures is fused to the political project of monitoring the sector as a whole, understanding trends and emerging risks, making judgements about individual providers, and targeting providers for improvement or other intervention. This monitoring is essential for any system of marketised choice, within which the student—framed as a rational consumer—has to make their best 'HE purchase' decision based on the numbers crunched and presented to them.

3. Platforming, ranking, and the MoneySupermarketisation of HE

The software platforms produced to enact Data Futures will encode government objectives into the core operating system of HE. As researchers of infrastructures, sociotechnical systems and software platforms know, technologies always bear the imprint

of their producers and are designed to habituate users to their demands and requirements. Large-scale technical systems are also notoriously difficult to change. As such, the expansion of data-making in HE relies to a significant extent on the software that sorts the numbers — and the new 'business intelligence' and 'data dashboard' platforms currently being wired into university control rooms have origins in the commercial environment that will help reshape HE itself to be more business-like. Student data and the software it relies on are therefore fused both to political imperatives and the operating logics of performance-measuring business systems.

Data Futures has involved the construction of a new 'data platform' for data collection, and new 'data visualisation dashboards' to analyse the data and communicate results. The data platform supplier is the 'technology-based outsourcing' company **Civica**, whose aim is supporting 'organisations to improve and automate the provision of efficient, high quality services'. HESA said Civica would deliver an 'improved data model and extended capabilities' to 'offer users of HESA data a regular flow of accessible information through an enhanced user interface and visualisation tools'.

Data dashboard development is being undertaken through HESA collaboration with Jisc on its '**business intelligence shared service**', using the **Heidi Plus** software platform from commercial software company Tableau. HESA has partnered with both *The Guardian* and *The Times* newspapers to use Heidi Plus to produce **interactive HE dashboards** of rankings and measures, claiming it would 'enable universities to accurately and rapidly compare and analyse competitor information at provider and subject level, changes in rank year on year,' and 'the highest climbers and the biggest "fallers"'. The combination of HESA's vast HE databanks with business intelligence analytics and dashboard platforms is making it easier than ever to compare institutional performances, to publish those comparisons as spectacular visualisations for public consumption, and to shape public opinion about different providers.

Student-facing apps have also been proposed as a way of shaping student choice. Focusing on 'delivering value-for-money in the age of the student', in 2018 Universities Minister Sam Gyimah announced a '**Higher Education Open Data Competition**' to award contracts to software developers to build 'innovative and accessible digital tools to make use of public data on student outcomes'. The competition aim is to build software platforms 'to ensure prospective students have access to data about the outcomes of subjects and Higher Education providers' in order 'to help them make informed decisions about where and what to study'.

Controversially, the competition will give software companies access to the Longitudinal Educational Outcomes (LEO) dataset, along with other available sector data — just the kind of information collected by HESA and the OfS. LEO consists of experimental statistics on employment and earnings of higher education graduates using matched data from different government departments, leading Gyimah to suggest students could choose courses based on future earnings potential. On its launch, Gyimah **tweeted**: 'We want students to be better informed about degree choices and the returns — today, we're

officially launching a competition for tech companies to take graduate data and create a MoneySuperMarket for students, giving them real power to make the right choice'. Linking LEO to software development makes price-comparison-style consumer apps for degree course comparison possible — and ushers in the MoneySupermarketisation of HE.

The OfS is already planning to open up student data to other third party developers of educational software platforms too. A May 2018 **statutory instrument** on information sharing granted the OfS powers to share data with 'relevant' third parties for their own functions. One of the named organisations was Pearson, the global education business where Sir Michael Barber, current Chair of the OfS, was formerly Chief Education Adviser from 2012–2017. This change in the law grants Pearson seemingly unlimited access to student data which, as a multi-billion dollar market actor with a growing business in HE services and products, it may use to further advance its business into UK HE.

4. Pearson and 'the revolution ahead'

Pearson has already established **Pearson College London** as an alternative HE provider — making it the only FTSE 100 company in the UK to design and deliver degrees — with a specific focus on industry-based education. Pearson also offers online degree programs, with several UK universities entering into long-term 10-year deals with the company to deliver courses. Through its 'full-service approach to creating online degree programs or individual learning solutions', Pearson's **online learning services** are presented as streamlined technical systems, logistical infrastructures and standardised program management packages for universities to purchase in order to 'help you expand access, reach each student, and improve achievement'.

Online higher education is Pearson's fastest-growing area of business, as it seeks to extend its **edu-business influence** globally. But Pearson has further ambitions to market product to students in an emerging direct-to-consumer model of HE. Its **CEO John Fallon** has referred to 'the Spotify generation' of students, who may themselves 'pay for use. They don't want to buy to own, and they only want to pay to use things that are directly relevant to their course and their outcomes'. While Pearson is involved in the marketisation of HE through institutional partnerships, then, it is also seeking additional market opportunities by producing technical products inspired by the business model of social media content streaming. Pearson has advanced itself as a major competitive provider of technical platforms and logistical infrastructure for the delivery of courses and for the capture of student data.

Besides its direct software-vendor business, Pearson is also seeking to refocus HE on educating for marketable skills. Its 2018 report *Demand Driven Education: Merging work and learning to develop the human skills that matter* predicted a shift in 'future skills' requirements for students. Its authors concluded a transformation in HE would be needed to achieve these future skills. If earlier HE reforms had focused on widening access and improving academic success, 'demand driven education' would 'focus more

strongly than ever on ensuring graduates are job-ready and have access to rewarding careers over the course of their lifetime'.

The report reflects the argument made by Barber in a 2013 report on '**the revolution ahead**' for HE, which called for 'massive diversification in the range of providers, methods and technologies delivering tertiary education worldwide'. It emphasised competition between universities and online providers, ensuring education for employment, supporting alternative providers and the future of work, and recognition that the 'new student consumer is king'. Universities not adapting to these challenges and opportunities risked being swept away in the 'revolution' brought by technology, globalising economics and international competition — or, in other terms, market failure. Five years on, the report reads like a template for HE market reform under the Higher Education and Research Act and the regulatory strategy of the OfS under Barber.

The 'platforming' of HE is fully underway with the development of advanced analytics, dashboards, comparison apps and online learning platforms — all of which are written not just in computer code, but coded with political objectives to make HE into a market. Software that can capture and process student data is now at the centre of political efforts to monitor, compare and evaluate the sector at great speed and scope, and makes it possible for commercial entities to deliver alternative HE provision, shape public opinion about providers, and aid students' choices about how best to invest in their future marketable skills. The politics of HE marketisation and commercialisation are inseparable from software platforms.

5. Market-making

The use of digital data is set to escalate and accelerate across higher education in the UK in coming years, opening up the sector to a range of market-making activities. This is being driven by consultancies and think tanks, commercial platform providers and data analysis experts working in new kinds of contractual and partnership arrangements with government departments and their agencies. A kind of market has opened up for expert agencies to compete for government contracts and draw up reformatory blueprints. The technologies developed by software vendors to realise these blueprints will speed up the temporality of student data collection and use, and pave the way for increasingly data-intensive, near-real-time, predictive analysis of the sector.

Digital data technologies will intensify comparison, benchmarking and competition, and make universities appear through their numerical representation even more like market competitors. Marketisation is not new to HE, but through the OfS and other data-led bodies it is being hard-coded into the core operating systems of the sector. As a HE market regulator, the OfS is developing predictive powers to anticipate market fluctuations and risks, and has governmental authority to intervene in the event of falling market share or market failure.

New markets are also being made, with businesses such as Pearson seeking competitive advantage for its learning analytics products, Civica and others tendering for contracts, and new competitions launched for software developers to create services using HE datasets. Marketisation in HE, as **Janja Komljenovic and Susan Robertson** argue, involves 'not just people, but technologies such as software, algorithms, computers, procedures and so on, in a rich collage of people, technology and programmes … that align the work of the university with the logics of capitalist markets.' As such, contemporary HE is not just being marketised as a competitive sector, but is being opened up as a range of potentially lucrative markets for data-led companies and the platforms they produce for insertion into the sector.

In short:

- Through data-making, platforming and market-making activities, **universities are reshaping themselves to behave as competitive businesses** with consumers to attract, investment opportunities to explore, and appealing results to report.

- **Students are being reframed as rational consumers** with HE purchases to make, aided by apps and online comparison services that can nudge them to make the best choices as a form of self-investment which will affect their future prospects and value in labour markets.

- **Academic work is becoming increasingly subject to performance measurement** based on analyses of student data, and institutions are becoming subject to 'close-to-real-time' monitoring through indicator data.

- **Business is being done by commercial vendors of the data analytics, dashboard programs and online learning platforms** that enable the data to be collected, processed, visualised and inspected.

Marketisation may be a well-worn concept, but the practical data processes and technological products to crunch the numbers it requires are accelerating into the core systems of HE with a host of consequences for students, staff, institutions and the sector as a whole.

6. So what is to be done? Forms of resistance

Forms of resistance may be possible, such as refusal at departmental or faculty level to engage with data analytics demands or institutional dashboard rollout. Software may be designed to habituate users to its requirements, but there is never anything inevitable about its use or non-use. Institutional dialogue with academic and administrative workers — as well as with students themselves — may reveal alternative and inventive uses of student data that challenge the market-based priorities coded in to the management

systems and data infrastructure that currently inhabit HE institutions. It is always worth remembering that numbers are an artificial reality constructed through technologies of measurement and calculation. Other qualities may be hidden behind the quantities of data produced by universities, but those qualitative aspects of academic labour, institutional inventiveness and student intellectual endeavour may be made visible by other means yet to be fully realised.

As a counter to the '**neoliberal takeover of higher education**' in the US context, Lawrence Busch argues for a more sustained and collective response that resists market priorities. To do so, he suggests academics need to document the failures of market-based reforms, show the public their inadequacies, form alliances to debate, refashion, abandon or derail market policies, and come up with new collective imaginaries for the future for HE. Busch provocatively proposes the use of marketing strategies to propose and enact alternatives to neoliberal policy — using market methods themselves to produce counter-campaigns promoting HE as a public good. This is clearly a challenging invitation for long-term debate and action. Developing a fuller understanding of how market forces are being deployed in practical terms through student data-making and software platforms — and anticipating what is still to come — may offer a grounding from which to reimagine other HE futures.

Acknowledgements