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Pearson 2025

Transforming teaching and privatising education data

Sam Sellar and Anna Hogan

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Summary

Pearson aims to lead the 'next generation' of teaching and learning by developing digital learning platforms, including Artificial Intelligence in education (AIEd). It is piloting new AI technologies that it hopes will enable virtual tutors to provide personalised learning to students, much like Siri or Alexa. This technology will be integrated into a single platform—Pearson Realize™—that has now been integrated with Google Classroom. It seeks to develop direct and lifelong relationships with customers to whom it will provide virtual schooling, professional certifications, assessments, and other services.

Pearson's vision for education in 2025 laudably promotes the benefits of technological developments and their combination with new kinds of teacher professionalism. However, its corporate strategy is premised upon creating disruptive changes to (a) the teaching profession, (b) the delivery of curriculum and assessment and (c) the function of schools, particularly public schooling. These disruptions do not follow a coherent set of educational principles, but capriciously serve the interests of the company's shareholders.

Pearson does not call for replacing teachers, but it does promote the view that the introduction of new technologies will require new kinds of professional expertise. Teachers must become professionals whose non-routine skills complement digital platforms and AIEd. However, Pearson also endorses the routinisation of teaching in 'low-fee' private schools in sub-Saharan Africa, India and parts of South-East Asia. The routinisation of teachers work increases its susceptibility to automation, rather than promoting complementarity that delivers on the benefits of technological change.

Pearson collects a range of data from customers, including assignments, student coursework, responses to interactive exercises, scores, grades and instructor comments, details of the books the customer has read or activities the customer has completed. Consent to collect and use the various kinds of data outlined above is not always explicitly sought. Much of the data that Pearson generates from its services do not appear to be openly available, even though the company has been a strong proponent of open education data in the past. If these data remain locked up in private corporate silos, then their potential benefit for all learners, and for society more broadly, cannot be realised.

Pearson's vision raises two main causes for concern in relation to the integrity and sustainability of public schooling globally:

1. the privatisation of data infrastructure and data, which encloses innovation and new knowledge about how we learn, turning public goods into private assets; and
2. the transformation and potential reduction of the teaching profession, diminishing the broader purposes and outcomes of public schooling in favour of personalised learning that focuses on individual knowledge and skills.

Introduction

Where does Pearson want to be in 2025? And what are the potential implications of this vision for public education? Pearson currently has a presence in nearly 60 countries and characterises itself as the 'world's learning company'. Pearson is a new type of edu-business that operates across multiple education sectors and industries with a more ambitious global corporate vision than many of its competitors. The company has undergone significant restructuring over recent years, moving from an Anglo-American media holding company to a globally integrated education services company. Pearson envisions having direct and lifelong relationship with customers to whom it will provide virtual schooling, professional certifications, assessments, and other services.

Pearson aims to lead the 'next generation' of teaching and learning through the development and provision of digital learning platforms, including the development of Artificial Intelligence in education (AIEd) (Luckin, Holmes, Griffiths & Forcier 2016). The company is also piloting deep learning AI technologies that it hopes will provide automated, real-time feedback to students in the form of a virtual tutor, much like Siri or Alexa. This technology will be integrated into a single platform—Pearson Realize™—that will deliver its digital services in an individually personalised way.[1] The potential impacts of these developments on public education include:

1. changes to funding and resource distribution;
2. reductions in the need for, and benefits of, teachers; and
3. and the private accumulation of large volumes of student data, which creates a range of new risks.

Pearson has shifted away from selling textbooks towards an assessment-driven digital learning model and providing more direct-to-client services, but this shift has not been a profitable one so far. During 2017, after a series of profit warnings, the loss of a number of substantial standardised testing contracts, and the downturn of higher education enrollments and textbook sales, the company recorded its biggest ever annual loss of £2.5 billion. John Fallon, CEO of Pearson, described the transition from analogue to digital as being a painful period for Pearson, but promised that in the race to provide next generation digital learning services

1 https://www.forbes.com/sites/parmyolson/2018/08/29/pearson-education-ai/#4568c2821833

'there is going to be a big winner and we are absolutely determined that Pearson is that winner' (Bond, 2017). At the 2018 AGM, Pearson announced a £750 million investment in new technologies and platforms to provide new digital services, which it claims will provide educators with real-time data and "smart" assessments for their students, blended learning models that partner with existing educational institutions, and new kinds of educational programming.

Pearson is not alone it its ambitions to expand its education business. There has been an explosion of edu-businesses seeking to capitalise on the burgeoning Global Education Industry (GEI) over the past two decades. According to Verger, Lubienski and Steiner-Khamsi (2016), spending on education is currently estimated to total trillions of dollars annually and the GEI is 'exploding through rapid influx of capital investments and public education revenue' (Burch, 2009, p. 23). Private sector organisations, ranging from huge multinational corporations through to (sub-)national companies and individual entrepreneurs, are beginning to diversify their businesses to take advantage of this rapidly growing and increasingly lucrative market. Pearson has declared to shareholders that 'education will be the biggest growth industry of the 21st century' (Pearson plc, 2012, p.8) and that an 'investment in education' will 'pay the best interest' (Pearson plc, 2012, p.8).

Pearson presents itself as an alternative to government-sponsored public education through its support of 'low-fee' for-profit private schools, particularly in developing economies in Sub-Saharan Africa, India and parts of Asia (Srivastava, 2016). This strategy is justified in terms of providing a private service where public alternatives are not available, although this has been shown not to be the case (Riep 2019). Moreover, the Bridge International Academies model entails a de-professionalisation of teachers through support for the employment of unqualified instructors in such schools (Riep, 2017b).

Pearson is also collecting, analysing and using a wide range of educational and personal data to develop its products and services, and is developing data infrastructures and new learning platforms.These developments raise ethical concerns. Data is central to the company's evidence-based approach to education, which follows the example of the pharmaceutical industry's strategies for promoting the efficacy of their drugs (Hogan et al., 2015; Riep, 2017a), and potentially undermines the legitimacy of the humanities and social sciences as disciplines that can contribute to understanding and improving learning (Williamson, 2016).

Studies of the development of Pearson's education business have been critical of its prioritising of shareholder profit over the interests of

students, teachers, schools and communities (see for example, Ball, 2012; Ball, Junemann & Santori, 2017; Hogan, Sellar and Lingard, 2015; 2016; Hogan, 2018; Hursh, 2015; Junemann, Ball & Diego, 2016; Riep, 2017a; 2017b; Srivastava, 2016; Willamson, 2016). Of course, companies must prioritise shareholder interests, and Pearson has also actively pursued its corporate social responsibility, but its ambitions and growing influence in education risk creating an imbalance between the private value and public benefits of education.

Concern has been expressed about the business strategies that Pearson has used to increase its share of the education market and its promotion of the global standardisation of education, which has potentially reductive effects on curriculum and the social purposes of schools (e.g. creating opportunities for all and developing democratic citizens) (Hogan et al., 2016). Pearson has also received public critique from concerned stakeholders, particularly teachers and parents, who have sought to hold the company to account for its potentially damaging effects on the provision of public education (Hogan, 2018).

Pearson's vision for the transformation of education

Pearson has called for an 'educational revolution' that 'will shake the very foundations of the current paradigm of school education' (Hill & Barber, 2014, p. 3). This vision for learning includes disruptive changes to (a) the teaching profession, (b) the delivery of curriculum and assessment and (c) the organisation and function of schools. While many have called for reform of schooling to modernise this nineteenth century institution, particularly in regards to the provision of homogeneous curriculum, age-based learning and traditional models of teacher-led instruction, Pearson is betting strongly that such reforms, coupled with cutting-edge digital approaches, including the development of AIEd, will offer strong prospects for its business. New computational technologies and data analytics will very likely transform education and it is important to carefully consider:

1. what aspects of education Pearson is actively working to disrupt; and
2. how Pearson is positioning itself to profit from this disruption.

Disrupting teaching

Pearson very publicly promotes its support for teachers in its marketing and a range of programmes and awards. However, its corporate vision, and the implications it may have for teachers, presents a more ambivalent picture. Writing for Pearson, Peter Hill and Michael Barber have argued that teacher quality is the key to improved student outcomes and teaching needs to be transformed

> ***from a largely under-qualified and trained, heavily unionised, bureaucratically controlled 'semi-profession' into a true profession with a distinctive knowledge base, a framework for teaching, well defined common terms for describing and analysing teaching at a level of specificity and strict control, by the profession itself, on entry into the profession. (Hill & Barber, 2014, p.20)***

Teaching is an 'imprecise and idiosyncratic process that is too dependent on the personal intuition and competence of individual teachers' (p.38), write Hill and Barber, implying that teachers cannot be trusted, despite university education, professional registration and accreditation, continuous professional learning and professional standards of practice. This 'problem' can be fixed by 'overthrowing' and 'repudiating' the 'classroom teacher as the imparter of knowledge' and replacing them with 'increasing reliance on sophisticated tutor/online instruction' (p.23). Computer-based personalised learning of this kind is likely to be the most significant new development in education over the coming years.

While Pearson does not call for replacing teachers, they have aligned the company with the view that teaching will be transformed by AI-enhanced learning platforms and this will require new kinds of professional expertise (Luckin et al. 2016). For example, Hill and Barber envision teachers as professionals who complement personalised learning software by providing guidance, coaching, motivation and management of students.

However, Pearson also endorses the deprofessionalisation of teaching that has become popular in 'low-fee' private schools in sub-Saharan Africa, India and parts of South-East Asia. For example, Bridge International Academies is supported by Pearson and requires staff to read prefabricated lessons word-for-word from a tablet device. Staff in these schools must not deviate from the script and must implement learning activities in a step-by-step fashion (Riep, 2017; Renshaw, 2017).

Research suggests that teachers who are forced to be 'robotic' have limited motivation or hopes for a fulfilling professional life (Renshaw, 2017). Moreover, the routinisation of teachers work increases its susceptibility to automation, rather than promoting complementarity and new kinds of professionalism, clearly departing from the aims expressed in the tech-focused aspects of Pearson's marketing and corporate strategy. While arguing that the company is supporting the provision of education in contexts where it would not be available otherwise, Pearson is forced to produce highly contradictory messages about the kinds of teacher professionalism it seeks to promote.

Disrupting curriculum and instruction

Replacing teachers as the central agents of learning will supposedly enable "truly personalised instruction" to be delivered (Hill & Barber, 2014, p.21), which is

instruction that is adjusted on a daily basis to the readiness of each student and that adapts to each student's specific learning needs, interests and aspirations. The fundamental premises of personalised learning have been a part of the writings of educators for decades but have, in recent years, become a realisable dream, thanks to the advent of new digital technologies (p.56).

Pearson's vision for 'next-generation learning' is based on this digital management of curriculum, learning resources, assessment, data and analysis. Pearson Realize™—a single sign-on platform for accessing resources, assessment, student data and management tools—will make decisions about what students need to learn through the continual monitoring and assessment of data generated by their engagement with learning and assessment tasks. Learning resources will be provided based on searches for materials "that most closely match students' learning needs, accessing both purpose-built, commercially available materials and the rapidly expanding collections of public-domain and creative-commons resources" (p.54).

In early 2019, Pearson announced a partnership between its Realize platform and Google Classroom—a platform created by Google that aims to streamline the process of sharing files between students and the teacher and to simplify marking and grading. Google Classroom brings together Gmail, Google Drive, Google Docs, Sheets, Slides and Forms, Google Calendar, Google Hangouts, Google+, Google Keep, Google Vault, Jamboard and G Suite Marketplace.[2] Schools and teachers using Google Classroom can assign their students content and assessment tasks from Pearson Realize, with scores and student data flowing back to both platforms.

These next-generation learning systems, Pearson argues, will "create an explosion in data" from the continuous tracking of individual students (Hill & Barber, 2014, p.55). Information generated through these learning systems, through the application of data mining and data analytics, will be used to 'revolutionise' educational research and generate evidenced-based strategies for teaching and learning (Hill & Barber, 2014). Such partnerships potentially increase the market share for both companies, as well as the number of users integrated into both platforms, which in turn increases the amount of data that can be generated and joined up.

2 https://www.prnewswire.com/news-releases/pearson-realize-selected-as-google-for-education-premier-partner-300782149.html

Disrupting schools

The changes described above suggest that students will increasingly sit at computers for personalised instruction, reducing the need for brick-and-mortar institutions. In fact, Hill and Barber (2014) argue that schools reflect the demands of an outdated agrarian society, where the short hours of the school day and long periods of school holidays are not aligned with the needs of parents and guardians. Pearson's Connections Academy, for example, already offers tuition-free virtual schools for K-12 students. The website for Connections Academy states that "in this virtual classroom, students can spend the school year reaching their highest potential through a uniquely individualized learning program" (Connections Academy , 2019). While it is free for students to attend these public charter schools, in some Connections Academies there are costs for field trips—which offer important social opportunities for students and teachers to meet face-to-face—as well as school supplies, including computers and their maintenance. These schools are rapidly expanding in the US, serving more than 70,000 students across 27 states in 2017/18.

Pearson also offers a fully accredited US education to any student in the world via its International Connections Academy. Pearson's 2017 annual report noted that the company is currently the second largest provider of virtual schools in the US and there is a need to capitalise further on the fact that virtual schools are permitted in 34 states, covering 80% of the K-12 population, including the 'big three': California, Texas and Florida. Currently, virtual schools only make up 6% of Pearson's total sales (£274m), but it estimates that the current market is worth $1.5 billion and is growing rapidly.

Pearson's new business strategy aims to accelerate the shift towards reduced need for teachers and schools in order to grow the market for data-driven personalised learning that is provided direct to consumers across their life course. Pearson's vision for education is one in which the cost and contribution of teachers to public education is reduced, while the company plays a more central role in education provision globally through its new platforms and the data upon which they run.

Providing education services in a technology-based world

The new platforms and algorithms that Pearson is developing require large volumes of data to function effectively. As a report sponsored by Pearson highlights, 'the increasing use of AIEd systems will enable the collection of mass data about which teaching and learning practices work best' (Luckin et al. 2016, p.34). Pearson's now defunct independent think tank was a vocal proponent of open data. A discussion paper sponsored by Pearson makes clear that 'we know that the sharing of data is essential to the integration of AIEd systems, and that sharing of anonymised data has the potential to move the field forward by leaps and bounds by cutting back on wasteful duplicative efforts' (Luckin et al., 2016). This work is, however, oddly silent about Pearson's data and how it has been and will be made open.[3] Pearson initiatives such as The Learning Curve have sought to aggregate and make accessible education data, but these data were generated by sources external to the company.

There are a number of issues to consider in relation to Pearson's collection and use of digital data, including questions about privacy, consent, ownership, transparency, bias, as well as openness. Pearson has clear and detailed privacy notices specifying the data that it collects, how it is collected and how it is used. Pearson collects a range of data from customers, including names, phone numbers, addresses, birth dates, jobs, course information, personal interests, credit card and billing information, shopping selections and data about activity on their websites. Pearson also collects a range of educational data, including assignments, student coursework, responses to interactive exercises, scores, grades and instructor comments, details of the books the customer has read or activities the customer has completed. These data are de-identified and aggregated to audit and analyse how Pearson's services are used, to conduct educational research, and to support strategic develop its products and services. Pearson may also share data with institutions that purchase its services, with other companies in its group and with companies that purchase its business assets. As a joint report by the British Academy and Royal Society (2017) notes, '[t]he ability to protect personally identifiable information is an essential component of trustworthy organisations. However, this can be difficult,

3 https://www.slideshare.net/louiscrusoe/open-education-data

if not impossible to achieve, even with the help of advanced privacy preservation techniques' (p. 31). The risk of data breaches has become part of the lifecycle of large education technology companies.[4]

Consent to collect and use the various kinds of data outlined above is not always explicitly sought. Pearson's privacy notice specifies that consent will be sought (a) to share or use data in ways not covered by the notice or (b) to send marketing material to customers under 16 years of age. While users actively give consent to sharing their data when they enter it into online forms, for example, Pearson also collects other data about user interactions with its websites and platforms, and users may be less aware of this information collection or the consent that is given through use of the service. Moreover, the extent and nature of data collection by Pearson makes it difficult for users of its services to understand exactly what data is collected and for what purposes.

Pearson provides many of its services via institutional customers (e.g. schools and universities) and these institutions may be the data controllers for personal information that is collected during the provision of these services. That is, some data may be owned by institutional customers and is made available to Pearson as necessary to provide their services. Pearson's website explains that:

> ***Pearson's role is as a steward rather than the owner of student data, and therefore we are governed by and adhere to the terms and conditions of our contracts with states, institutions and learners themselves. Within the bounds set out by these arrangements, we are committed to using data to improve the quality and efficacy of our services for learners.[5]***

This relationship can complicate questions about data ownership and responsibility, as well as accountability for good management of data. Moreover, much of the data that Pearson generates from the use of its services, and thus has ownership of, does not appear to be openly available. If these data remain locked up in private corporate silos, then their potential benefit for all learners and society more broadly will not be realised. Pearson's development of digital education services is effectively privatising aspects of the emergent global data infrastructure of education, the social benefits of which would be greatly enhanced if it were open and shared.

Pearson uses data that they collect to develop new products and services, including those that involve training algorithms for the next

4 https://www.jisc.ac.uk/blog/cybersecurity-why-the-education-sector-cant-afford-not-to-invest-13-apr-2017
5 https://www.pearson.com/corporate/about-pearson/our-position-on/data-privacy.html

generation of AIEd. As Campolo et al. (2017) have argued, 'training data, algorithms, and other design choices that shape AI systems may reflect and amplify existing cultural assumptions and inequalities' (p. 4). The large data sets collected by Pearson may bias their digital learning services in unexpected ways and these services are often not transparent. For example, most users of Pearson products are unlikely to understand how their data is being collected, analysed and used to shape their learning experiences, raising questions about the accountability of Pearson to customers, families and communities. As Williamson (2016) has argued, in a blog post for Pearson's website, it is necessary

> ***to try to understand the 'who,' the 'how' and the 'why' of Pearson's current digital ambitions. Who at Pearson is collecting the data, designing the algorithms to analyse it, and checking the analytics for their accuracy—and according to whose policy ambitions, business plans and personal objectives?*** [6]

New York University's AI Now Institute (2018) has recommended that public agencies responsible for education do not use proprietary 'black box' AI and algorithmic systems because '[t]he use of such systems by public agencies raises serious due process concerns, and at a minimum they should be available for public auditing, testing, and review, and subject to accountability standards' (p. 1). Pearson's provision of services in conjunction with such agencies, and its aspiration to become the world's learning company, suggest that it should uphold similar principals of transparency and make clear how it trials and monitors its algorithmic systems to avoid bias and error.

There are also a number of other ethical questions that must be asked regarding Pearson's role in the future of education in a technology-based world. Pearson's focus on lifelong learning and digital services signals recognition that technology and time are accelerating. Education can longer be provided in the forms that emerged during the 19th and 20th centuries. Indeed, Yuval Noah Harari has argued that

> ***[w]e're in an unprecedented situation in history in the sense that nobody knows what the basics about how the world will look like in 20 or 30 years. Not just the basics of geopolitics but what the job market would look like, what kind of skills people will need, what family structures will look like, what gender relations will look like. This means that for the first time in history we have no idea what to teach in schools.***[7]

6 https://www.pearsoned.com/educational-data-pearson-theory-gap/
7 https://www.nytimes.com/2018/03/19/world/europe/yuval-noah-harari-future-tech.html

The most significant shift in education in this context will be the move toward 'personalised learning' provided by computer-based 'instructional systems that contain empirical models of the student to predict student behaviors and knowledge, and to act upon these predictions to make pedagogical moves as students progress towards gaining expertise and mastery of the target domain' (Arroyo et al., 2014, p. 388). Pearson's focus on providing personalised learning as a private service will answer the question of what we should teach today in narrow and partial ways that are shaped by its corporate interests and the demands of its customers. The expansion of the GEI potentially undermines the social purposes of public education (e.g. preparing national and global citizens) and the public transparency, consultation and accountability that should characterise debate about what is taught, how it is taught and for whom it is taught.

The automation of education through the kinds of platforms that Pearson is developing is just one aspect of a broader and very significant change in labour markets. Frey and Osborne (2017) have predicted that nearly 50% of US jobs are susceptible to automation and similar figures have been predicted in other countries and by other studies. Technological unemployment will be a major issue over the coming decade and it may have a dramatic impact on the provision and purposes of education. As Collins (2013) has argued, education provides a form of hidden Keynesianism as provision widens and credential inflation keeps more people in schools and colleges, reducing youth unemployment and creating large numbers of jobs for teachers and other education staff. The replacement of these jobs with automated education services will contribute to growing technological unemployment. Moreover, the tight link that has been established between education and employment, as part of the social contract made between governments and citizens, may be undone as technological unemployment grows. It is not clear how Pearson is preparing for the impact of its digital services on employment in the education sector or how it will adapt to support broader purposes of education in a world without work.

Pearson's corporate strategy also raises questions about how data will be used to make predictions in relation to people's capabilities and propensities. Pearson's Privacy Notice specifies that it uses personal information in analyses

> ***… of users' use and progress across a variety of Services so that we can help learners make progress with their learning - for instance to evaluate the educational efficacy and effectiveness of the Services and to make appropriate recommendations to users and institutional customers based on this evaluation.***

As Mayer-Schonberger and Cukier (2013) have shown, predictions made about people's future actions based on such analyses are correlational and may lead to erroneous assessments and decisions. If such predictions are used to steer customers through Pearson's digital services, then opportunities to learn may be shaped in opaque ways by the algorithms that are used to assess and predict customer's capabilities. More troublingly, such predictions could be used to grant or withhold access to opportunities offered by Pearson and its partners, such as allowing customers to progress to the next stage of their education or to access other services within its learning platform. The key issue here is the possibility of intervention on the basis of predicted actions, without letting fate play out and providing the opportunity for students to surprise us, as they so often do.

Potential implications of Pearson's strategy for public education

Personalised learning is at the heart of Pearson's corporate vision and there are many tensions and contradictions inherent in this approach. Most importantly, personalisation potentially undermines the social purposes of schooling, which extend beyond the formation of individual knowledge and skills to the development of healthy societies. Schools have always had a broader moral purpose to promote certain values, social and emotional skills and the health and wellbeing of communities. A student working individually on a computer (or worse, on their own as part of a virtual school) receives a very different kind of education to students working in schools that operate as real public spaces. This approach also raises an ethical question regarding emerging inequalities of access to digital services. It seems likely that that learners who come from disadvantaged backgrounds, or who have behavioural problems or special needs, will be increasingly encouraged towards personalised learning systems, ostensibly for their own benefit. This will leave the holistic cultivation of the next generation to more privileged groups who can afford to provide a wide range of opportunities for their children through more traditional forms of schooling that are enhanced with new digital platforms.

We argue that Pearson's vision encourages the broad privatisation of schooling. Its approach to individualising learning potentially locks customers into proprietary online services (e.g. as opposed to owning and having use of textbooks in perpetuity) and follows similar models used by other large digital services providers, which are based on subscriptions and retaining control over content. It is likely to provide off-the-shelf generic services that plug in to third party systems, encouraging the growth of a private digital education ecosystem.

Pearson is reducing the need for trained teachers, and consequently, the cost of teacher salaries for schools and school systems. Paying appropriate teacher salaries is a major obstacle for the profitability of 'low-fee' private schools in the Global South, and Pearson looks set to continue its support, explicitly or implicitly, for 'low-fee' schools provided by companies like Bridge International Academies.

While some countries and regions have increasingly strong data regulations that protect users, in other parts of the world, most notably

the Global South, Pearson's data collection and use may not be as closely regulated. There is also a possibility that routinised, private models of education, in the form of virtual schools, could become more prominent in the Global North. Data collected from students using some aspects of Pearson's services (e.g. Connections Academies) may be biased and unsuitable for training algorithms for use with other groups of students.

It is likely that key players in the GEI will continue to pursue mutually beneficial partnerships—for example, Pearson and Google—that increase the reach and influence of private actors in education. National governments will need to be mindful of how they work with these corporations in the delivery of public education, and carefully consider how personalised learning systems have impacts upon, and potentially negative outcomes for, how we understand and value the roles of our schools and teachers.

Conclusion

During the 19th and 20th century, governments and private companies built the infrastructure of modernity—roads and rails, pipes and wires. Building data infrastructure is a major project of the 21st century (Mayer-Schonberger & Cukier, 2013), and opening this infrastructure to a range of stakeholders will create opportunities for important advances in knowledge and the provision of public and private services.

There is clearly a place in the GEI for private providers of education services, and private companies are generally better placed to provide a range of technical services that will underpin the next generation of teaching and learning. Moreover, providing profitable services in the interests of its shareholders is a reasonable objective for any edu-business. However, Pearson's vision for the company that it wants to become in 2025 raises two major causes for concern in relation to the integrity and sustainability of public schooling:

1. the privatisation of data infrastructure and data, which encloses innovation and new knowledge about how we learn, turning public goods into private assets; and
2. the transformation and potential reduction of the teaching profession, diminishing the broader purposes and outcomes of public schooling in favour of personalised learning that focuses on individual knowledge and skills.

Both of these issues arise from a particular approach to profiting from education: what David Harvey (2004) has described as 'accumulation by dispossession'. Pearson is following the example of other technology companies by seeking to disrupt public schooling in order to privatise educational data infrastructures and profit from the data that it accumulates through the provision of its services. These data will be the 'lifeblood' of new education platforms and will be crucial for gaining new insights into how we learn. Pearson's corporate strategy exemplifies '[t]he corporatization and privatization of hitherto public assets (like universities)' and is part of 'a new wave of "enclosing the commons"' (Harvey 2004, p. 75).

Pearson's vision for education in 2025 laudably promotes the benefits of technological developments and their combination with new kinds of teacher professionalism and new insights produced by the learning

sciences. However, Pearson's efforts to contribute to the disruption of teaching and public schooling, including in the Global South, and its development of platforms that produce new volumes and varieties of education data, while raising new ethical concerns about openness, privacy, bias and transparency, will create significant risks for public education over the coming years.

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