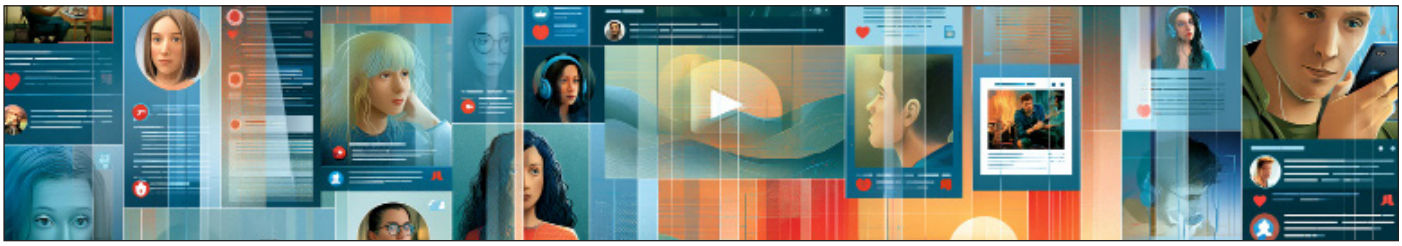
Studies in Technology Enhanced Learning

Journal homepage: **ojs.library.lancs.ac.uk/stel**

Article type
Commentary, review by editors.

Publication history
Submitted: 20 March 2026 Revised: 14 July 2026
Accepted: 22 July 2026. Online: 12 November 2026.

Cover image
Badly Disguised Bligh via flickr.



Special issue Social media for learning and teaching in higher education | **More at** https://doi.org/10.82168/9x699x67

Teaching in the age of algorithms: Rethinking pedagogy for a social media generation

Emily Conyard

Faculty of Business and Law, Manchester Metropolitan University, Manchester, United Kingdom

Keywords
commentary; digital pedgagogy; digital literacy; social media

Citation
Conyard, E. (in press). Teaching in the age of algorithms: Rethinking pedagogy for a social media generation. *Studies in Technology Enhanced Learning, 5*(1), 1-7.

https://doi.org/10.82168/hbk23r53

1. Introduction

As of 2025, 63.9% of the global population maintain social media profiles, with users aged sixteen plus spending an average of 2 hours and 21 minutes daily on these platforms (We Are Social, 2025). Social media use is particularly high among 18- to 24-year-olds, where engagement is driven by habit, downtime, and the seamless integration of such platforms into daily life (Sprout Social, 2025). This intensified use has contributed to what commentators describe as “digital saturation” and “mindless scrolling,” a behaviour pattern reinforced by algorithms designed to provoke emotional responses and encourage ongoing engagement (Social Media Today, 2025). Concerns regarding digital saturation have been accompanied by broader debates about attention in contemporary digital environments. While evidence remains contested, some reports have suggested that individuals switch attention approximately every 47 seconds when engaging with digital technologies (Coffey, 2025), reflecting the rapid and fragmented nature of information consumption often associated with social media platforms.

https://doi.org/10.82168/hbk23r53

The higher education sector faces a range of interconnected challenges, including the changing expectations regarding the skills graduates will require in increasingly digital workplaces and diversification of the student population. As part of the industrial strategy of the current government (UK Government, 2025), the UK economy will need 1.7 million more workers in occupations associated with graduate skills such as critical judgement, digital literacy and responsible technological engagement (Office for Students, 2025; Universities UK, 2025), resulting in pressure on universities to deliver this.

Yet pedagogical structures are still rooted in traditional formats, such as lectures, which researchers have suggested reinforces passive listening (Biggs, 2003, p. 2). As higher education continues to rely on such traditional formats, important questions arise about whether this model is suitable for a generation that has never known a world without digital technologies.

This commentary argues that higher education must critically rethink pedagogy for students who have grown up in algorithmically mediated environments. Drawing on sociomaterial perspectives, it positions learning as emerging *through* the interaction of students, technologies, platforms and educational practices. That, rather than replicating social media environments, core pedagogy should focus on developing students' critical digital literacy.

2. Students, Platforms and the Sociomaterial Learning Environment

In this commentary, digital saturation refers to the pervasive presence of digital technologies, platforms and information streams within everyday life. Where learning, communication and information seeking are increasingly funnelled through digital environments. Algorithmic influence refers to the capacity of algorithmically driven systems that shape what information individuals encounter such as ranking, recommendation and personalisation, influencing patterns of attention, engagement and knowledge discovery.

Sociomaterialism suggests that learning practices emerge through the ongoing interaction of people, technologies and social contexts. From this perspective, students, social media algorithms and educational institutions are not separate influences but are collectively involved in creating learning experiences and opportunities (Orlikowski, 2007). This highlights how knowledge, learning experiences and educational structures are continuously shaped, reassembled and transformed through these interconnected relationships (Fenwick, Edwards & Sawchuk, 2015). The rapid pace of digital platforms means that these relationships are constantly evolving as consumerism and online behaviour changes.

Research has shown that impactful teaching integrates student knowledge with lived experiences (Barkley & Major, 2018). Through the lens of sociomaterialism, classrooms are not neutral spaces; they are shaped by the assemblage of tools, practices, expectations, and identities students bring with them. Effective pedagogy recognises the spaces students inhabit, responsively adapting what is taught in response to student needs (Bovill, 2020). Viewed through a sociomaterial lens, learning cannot be separated from the digital practices that increasingly shape students' everyday experiences. Understanding these relationships provides an important foundation for considering whether contemporary pedagogical approaches remain aligned with how students encounter, evaluate and engage with information beyond the classroom.

However, not all students use social media channels. 87% of 16– to 24-year-olds reported social media had negatively affected their mental health (The Cybersmile Foundation, 2025) and 1.6 million adults don't have a smartphone, tablet or laptop, reflecting the digital divide (Good Things Foundation, 2025). Likewise, a growing body of research suggests that social media engagement is shifting from participation to consumption, with less posting due to the long-term impact (Ofcom, 2026). This discussion does not assume that all students engage with social media in the same way. Rather, it acknowledges the differences in access, participation and digital confidence. These variations further reinforce the need for pedagogical approaches that are both critically informed and inclusive.

It is important, however, not to portray students as passive recipients of algorithmic influence. Many students develop sophisticated digital practices through their engagement with online platforms and are capable of navigating, questioning and adapting to algorithmically curated environments. The challenge for higher education is therefore not to compensate for a deficit, but to build upon existing capabilities while supporting all students to engage more critically within digital systems.

If these sociomaterial relationships increasingly shape how students encounter information and construct knowledge, it becomes necessary to consider whether the skills traditionally prioritised within higher education remain sufficient for preparing graduates to participate effectively in digitally mediated societies and workplaces.

3. Graduate Skills in an Algorithmic Society

A central purpose of higher education is to develop graduates capable of contributing meaningfully to society, the workforce and the economy. University UK graduate attribute frameworks emphasise critical thinking, communication, problem solving, digital literacy and independent learning as key skills. However, as workplaces become increasingly shaped by digitally mediated decision-making, there is growing recognition that graduates require additional capabilities that enable them to critically navigate these environments rather than simply operate within them.

Critical thinking and human agency are essential if learners are to interpret, challenge, and sometimes resist algorithmic influence and personalisation (Open University, 2026). A recent audit by Skills England (2026) emphasised a focus on cross-cutting skills including communication, critical thinking and analysis showing that, in this context, graduates require not only technical competence but also the ability to question, interpret and evaluate digitally mediated knowledge.

Digital literacy is the ability to search for, verify, evaluate, and gather credible information. For students, this means that they are able to incorporate information, media and technological literacy competencies by critically evaluating the content (Kendrick & Fullerton, 2019). Some studies indicate that digital literacy is often overlooked in higher education curricula due to a focus on traditionally celebrated skills such as communication, problem-solving, and teamwork (Fowler, Thomas & Saenger, 2019). However, while digital literacy is increasingly recognised as a core graduate capability, it should not be assumed that all students enter higher education with equivalent levels of digital competence. Students' digital experiences are shaped by diverse social, cultural, economic and educational backgrounds, resulting in significant variation in confidence, access and critical engagement with technology.

At the core of this discussion is the importance of critical digital analysis, graduates should not only be able to confidentially access information but to interrogate the systems, platforms and algorithmic processes through which information is produced, prioritised and encountered.

4. Pedagogical implications and redesign

Given the pervasive role of algorithms in shaping student behaviour, pedagogical redesign must begin by acknowledging our algorithmic society (Schuilenburg & Peeters, 2021). Algorithms construct forms of knowledge, producing outcomes that "do not 'argue'" and do not reveal their sources or assumptions (Schuilenburg & Peeters, 2021, p. 5). This opacity underscores the need for higher education to explicitly teach algorithmic awareness as part of critical digital literacy. Developing algorithmic awareness also aligns with contemporary graduate outcome agendas as highlighted above. Preparing graduates for an increasingly algorithmic society therefore requires more than technical proficiency; it requires the capacity to understand and evaluate the systems that influence everyday knowledge encounters.

One approach involves scaffolding digital literacy across entire programmes rather than confining it to isolated modules. Embedding tasks that require verification, search strategy development, and critical evaluation of online information can help disrupt passive consumption habits. Classroom activities that simulate digital ecosystems such as content analysis tasks, algorithmic audits, or multimodal creation projects can further support this shift. Some studies indicate that TikTok has been used in the form of educational videos to spark as in-class interaction with educator-designed, formative video assessments, and independent video-based learning (Yang et al., 2026), tapping into a familiar environment for students (Selwyn, 2012).

The value of such approaches lies not in reproducing the engagement mechanisms of commercial platforms, but in creating opportunities for students to critically examine them. Universities have traditionally acted as spaces that broaden perspectives and introduce alternative ways of thinking (Galea, 2023). Therefore, rather than adapting to the students existing digital behaviours, pedagogy should seek to challenge them. Activities should therefore encourage students to analyse why content is presented to them, how recommendations are generated and what assumptions underpin algorithmic decision-making.

Edutainment, which focuses on fusing educational content with entertainment elements (Yadav, 2023), provides another avenue. Gamification, simulation, and interactive learning can bridge traditional educational approaches with contemporary learner behaviours. There is further opportunity to extend edutainment principles beyond the classroom into virtual learning environments (VLEs) ensuring they are

open, active and collaborative (Khlaisang & Songkram, 2019). While these approaches may increase engagement, they should function as vehicles for deeper learning rather than as ends in themselves. Educational value must remain centred on critical inquiry, knowledge construction and intellectual development rather than entertainment alone. Furthermore, institutions must remain mindful of digital inequalities, recognising that students vary in both technological access and confidence.

Another route is involving assessment redesign to expand beyond traditional formats to multimodal, inquiry-led and creation-based approaches where appropriate. Nevertheless, moving away from traditional assessments should not imply that long-form academic writing is obsolete. Essays continue to play an important role in developing synthesis, argumentation, critical evaluation and sustained analysis. Rather than focusing solely on alternative outputs, educators may need to reconsider how assessment captures the learning process itself, ensuring alignment between assessment design, intended learning outcomes and the critical capabilities required within contemporary workplaces. Consequently, redesigning pedagogy involves reshaping the relationships between these sociomaterial elements rather than simply introducing new technologies into existing educational structures.

5. Limitations

There are several limitations to these pedagogical approaches. First, underpinning such research with sociomaterialism makes it difficult to operationalise; by treating technology and social practices as inseparable, it becomes challenging to isolate the specific contributions of each. Current research on algorithmic behaviour primarily captures contemporary patterns rather than long-term cognitive effects.

Students are not a homogeneous group. Algorithmic influence varies across socio-economic background, discipline, personality, and prior education. Digital inequality is still a real and pressing issue, with 2.8 million people in the UK (around 5% of the population) lacking internet access altogether (Ofcom, 2025). This variation must be considered if further research is to be completed, considering the background and experience of the learner at the forefront.

While correlations between social media use and digital literacy are discussed, direct links between the two remain limited. The complexity and ever-changing nature of socio-technical environments make it difficult to draw definitive comparisons between digital behaviours and academic outcomes. Educators must be mindful that excessive reliance on familiar platform-inspired approaches may inadvertently reproduce the attention economy. If pedagogy becomes too focused on capturing attention, opportunities for sustained concentration, deep reading and critical reflection may be diminished.

Finally, it must be noted that the evolving policy landscape complicates efforts to understand future student digital experiences. Recent decisions on restricting social media for under 16's may significantly alter the digital environments that future cohorts encounter. From a sociomaterial perspective, the changes to these platforms may influence how knowledge practices develop, making it difficult to predict the longer-term implications for pedagogy.

6. Recommendations

There are several opportunities for future research within this area. Empirical studies are needed to examine how algorithm-conditioned behaviours shape academic learning. For example, do students with higher TikTok usage navigate academic databases differently from their lower-use peers? How does mirroring social media environments within classrooms affect engagement and academic results? Intervention studies could also assess the impact of scaffolded digital literacy curricula delivered across all programme levels, as well as comparing traditional assessment formats with multimodal alternatives for algorithm influence.

There is also the area of exploring our current student profile against future cohorts, adopting a cross-generational comparative study to explore how digital literacy evolves. Examining the digital behaviours and cognitive patterns in Gen Z and Gen Alpha would deepen our understanding of how emerging platform habits influence learning and what the next generation university student responds to.

Finally, research should investigate how pedagogical design can respond to algorithmic attention. Whether it is the approaches outlined in this discussion (such as edutainment or simulation, for example) or wider, this paper argues that it is increasingly important that we examine how higher education can critically respond to the digital environments students inhabit while maintaining its role in fostering critical inquiry, independent thought and intellectual development. Such work will be essential for understanding how higher education can critically respond to, rather than simply replicate, algorithmic environments. The goal is not to mirror social media platforms, but to design learning

experiences that equip students with the critical awareness, digital capabilities and intellectual independence required to navigate and challenge them.

7. Conclusion

Higher education is increasingly operating within a society shaped by digitally mediated information environments. While traditional pedagogical approaches continue to offer significant value, questions remain regarding whether they fully address the realities of learning, information consumption and participation within algorithmic influence.

Drawing on sociomaterial perspectives, this commentary has argued that students, technologies, platforms and educational practices are mutually constituted and therefore cannot be considered in isolation. From this standpoint, rethinking pedagogy is not about replicating social media environments within higher education, but about recognising how these environments shape students' experiences and responding through the development of critical digital literacy, algorithmic awareness, critical thinking and human agency.

The discussion has highlighted implications for curriculum design, digital literacy development, assessment practice and pedagogical innovation, while acknowledging the limitations associated with rapidly changing technologies, diverse student experiences and ongoing digital inequalities. As patterns of platform use continue to evolve, further empirical research is needed to better understand the relationship between algorithmic environments, learning behaviours and educational outcomes.

Ultimately, rethinking pedagogy in the age of algorithms means ensuring that graduates are not merely capable of participating in digital environments, but are equipped to critically understand, evaluate and shape them.

References

Barkley, E. F., & Major, C. H. (2018). *Interactive lecturing: A handbook for college faculty*. Hoboken, NJ: Jossey-Bass.

Biggs, J. (2003). *Aligning teaching for constructing learning.* York, England: Higher Education Academy.

Bovill, C. (2020). *Co-creating learning and teaching: towards relational pedagogy in higher education. St Albans: Critical Publishing.* Retrieved July 2, 2026, from https://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=2477463

Coffey, H. (2025). *Our attention spans really are getting shorter – here's how you can fix yours*. The Independent. Retrieved February 27, 2026, from https://www.independent.co.uk/life-style/attention-spans-shorter-concentration-reading-b2882563.html

Fenwick, T., Edwards, R., & Sawchuk, P. (2015). *Emerging approaches to educational research: Tracing the socio-material*. London, England: Routledge.

Fowler, K., Thomas, V. L., & Saenger, C. (2019). Enhancing students' marketing information literacy. *Marketing Education Review*, 29(1), 52–64.

Galea, S. (2023). On the diversity of ideas in academic spaces. *Frontiers in Public Health*, *11*, 1301730.

Good Things Foundation. (2025). Our digital nation. Retrieved July 2, 2026, from https://www.goodthingsfoundation.org/policy-and-research/research-and-evidence/research-2024/digital-nation

Kendrick, A., & Fullerton, J. A. (2019). Dimensions of news media literacy among U.S. advertising students. *Journal of Advertising Education*, 23(1), 7–21.

Khlaisang, J., & Songkram, N. (2019). Designing a virtual learning environment system for teaching twenty-first century skills to higher education students in ASEAN. *Technology, Knowledge and Learning*, 24(1), 41–63.

Ofcom. (2025). *Exploring how people in the UK are affected by digital disadvantage*. Retrieved February 13, 2026, from https://www.ofcom.org.uk/internet-based-services/technology/exploring-how-people-in-the-uk-are-affected-by-digital-disadvantage

Ofcom. (2026). *Adults' Media Use and Attitudes Report.* Retrieved July 2, 2026, from https://www.ofcom.org.uk/siteassets/resources/documents/research-and-data/media-literacy-research/adults/adults-media-use-and-attitudes-2026/adults-media-use-and-attitudes-2026-report.pdf?v=415430

Office for Students. (2025). *The OfS strategy roadmap: 2025 to 2030*. Retrieved July 2, 2026, from https://www.officeforstudents.org.uk/about/how-we-are-run/the-ofs-strategy-2025-to-2030/the-ofs-strategy-roadmap/

Open University. (2026). *The Open University's Future of Learning report sets vision for learning in a changing world*. Retrieved July 2, 2026, from The Open University's Future of Learning report sets vision for learning in a changing world | OU News | Open University

Orlikowski, W. J. (2007). Sociomaterial practices: Exploring technology at work. *Organization Studies*, 28(9), 1435–1448.

Schuilenburg, M., & Peeters, R. (2021). *The algorithmic society*. London, England: Routledge.

Selwyn, N. (2012). Social media in higher education. *The Europa world of learning*, *1*(3), 1-10.

Social Media Today (2025) *Engagement-based algorithms are causing social division. But is there an alternative?* Retrieved November 14, 2025, from https://www.socialmediatoday.com/news/social-media-algorithms-drive-division-angst-algorithmic-oversight/761323/

Sprout Social. (2025). *Social media statistics in the UK: What businesses need to know in 2025.* Retrieved November 14, 2026, from https://sproutsocial.com/insights/social-media-statistics-uk/

Skills England. (2026). *Skills England annual skills report 2026.* Retrieved July 2, 2026, from https://www.gov.uk/government/publications/skills-england-annual-skills-report-and-sectoral-skills-needs-assessments-2026

The Cybersmile Foundation (2025). *Digital wellbeing*. Retrieved July 2, 2026, from Digital Wellbeing Report (2025)

UK Government (2025). *The UK's modern industrial strategy*. Retrieved July 2, 2026, from https://assets.publishing.service.gov.uk/media/69256e16367485ea116a56de/industrial_strategy_policy_paper.pdf

Universities UK. (2025). *Graduate employment, productivity and economic growth*. Retrieved July 2, 2026, from https://www.universitiesuk.ac.uk/sites/default/files/field/downloads/2025-03/uuk-analysis-graduate-employment-productivity-growth.pdf

We Are Social. (2025). *Digital 2025: Your ultimate guide to the evolving digital world.* Retrieved February 13, 2026, from https://wearesocial.com/uk/blog/2025/10/digital-2026-global-overview-report/

Yadav, P. (2023). Edutainment in higher education and its impact on students' learning and development. *The Online Journal of Distance Education and e-Learning*, *11*(2), 2112-2119.

Yang, Y., Zhang, C., Zhang, S., & Shen, J. (2026). TikTok in higher education: a systematic review of disciplinary applications, learning outcomes, and implementation factors. *Interactive Learning Environments*, *34*(5), 3197–3217. https://doi.org/10.1080/10494820.2025.2564736



About the author

Emily Conyard is a Lecturer in Digital Marketing and Faculty Digital Education adn AI Lead with expertise in digital pedagogy, AI in education, and technology-enhanced learning. She is passionate about creating cultures of innovation and experimentation that empower colleagues to integrate digital tools into teaching and assessment. Emily's professional expertise is recognised through national judging roles for the DMA and BIMA Awards, alongside presentations at academic and industry conferences on digital education, social media, and emerging technologies. Emily also sits on BIMA North Council and as a global Adobe HED Faculty Leader.

e.conyard@mmu.ac.uk

0009-0007-3225-6552

linkedin.com/in/emily-conyard/

Open Access (CC BY 4.0)

© 2026 The Authors. This article is distributed under Creative Commons Attribution 4.0 International licence.

You are free to

- Share — copy and redistribute the material in any medium or format
- Adapt — remix, transform, and build upon the material for any purpose, even commercially.

Under the following terms:

- Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.
- No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.

The full licence conditions are available at: **https://creativecommons.org/licenses/by/4.0/**