Education Research Programme Project: Final report: Teaching for Digital Citizenship – Data Justice in the Classroom and Beyond

Executive Summary:

The Teaching for Digital Citizenship project set out to co-design and evaluate new resources to address young people's needs in a digitally connected world. Combining philosophical reflection, ethnography, and participatory action research in order to embed values-led pedagogy across the curriculum, we set out to:

- Understand the aims, challenges and practices of teaching for digital citizenship in secondary schools across the UK
- Develop a range of strategies, resources, and practices to help teachers, teacher educators, and students to shape ethical environments in the interfaces of the digital with personal, social, civic, and global citizenship
- Refurbish a workable and coherent moral education for the challenges of citizenship in the digital world.

Based on surveys and ethnography, we found that the aims and practices of teaching for digital citizenship are varied, with schools drawing on a variety of resources. While many excellent resources exist, the dominant sources of information tend to focus on protecting young people from a narrow range of 'bad actor' threats; we recommend a need to go further, to provide young people with tools of critical information literacy to understand how to make a positive contribution through their digital interactions.

According to teachers and young people, the key challenges faced by schools include challenges of inequality, procurement, lack of resources, and lack of agency over the choice of resources. Through our engagement in a range of policy initiatives, the project seeks to develop training materials for teachers, and support for the emerging range of para-professionals supporting digital provision in schools.

Together with our community of practice, we have developed a Self-Evaluation Framework for Schools, which enables schools to reflect on their progress and plan next steps against 8 key indicators of effective digital citizenship education.

Effective digital moral education requires an understanding that the information ecosystem we inhabit is not inevitable, it is the product of social, structural, and technological choices which are contingent, and of the ways it can be changed for the better through the actions and choices of young people at local, national, and global levels.

Background:

Young people in the UK today face numerous intersecting digital ethical challenges, many of which blur the boundaries between school and home, digital and analogue life. We theorise

the young people in our study as 'postdigital' (Jandric et al. 2025) – this does not mean that they have gone beyond the digital, but rather that the digital is no longer a separate category in their moral lives. Young people do not 'go online', rather, the digital permeates every aspect of their social, personal, moral, and educational lives. Young people are impacted by digital technologies, not necessarily in entirely novel ways, but rather through processes that replicate and intensify existing social divisions and inequalities. The necessary attention to the social, political, epistemic, moral, and historical conditions of possibility in postdigital education is frequently obscured by hype cycles of new technologies presented ahistorically as 'transformative' and 'disruptive'.

The ubiquitous collection and commercialisation of young people's private data (Ghosh 2021), including increasingly granular surveillance (Zuboff 2019), the proliferation of interactions with artificial information agents (Floridi 2014), exposure to polarising narratives (Broncano-Berrocal & Carter 2021) and algorithmic processing of all of the above contribute to reinforcing inequalities (Ensign et al. 2018). Young people are exposed to an array of digital technologies through which they re-ontologise and reconceptualise their formal and informal learning, as well as their capacity for personal reflection, social interaction, and political participation. While the COVID-19 pandemic foregrounded the unequal impacts of device poverty, attention also needs to be paid to a new digital divide between those whose digital social capital enables them to engage autonomously as producers, consumers, and editors (Guerrero-Pico et al. 2019) in the digital commons, and those for whom digital access offers only passive distractions (Boyd 2009). The framing of our project through a data justice approach articulates crucial issues of bias, discrimination, amplifying marginalisation, misrecognition, enabling an understanding of the ways in which the postdigital places some young people at liability precisely because of their access to the digital (Eubanks 2018; Dencik et al. 2018).

Since the original conceptualisation of this project, particular attention has been drawn to the role of artificial intelligence and its impact on the functioning of schools (Williamson 2017), automation of everyday life (Pink et al. 2023), thinking, writing (Chiu et al. 2023), and democratic participation (Redden 2018). Notwithstanding the desire to stand at a remove from technology hype cycles, this project has provided an unique moment to observe the impact of the first generation of publicly available generative A.I. and large language models on education.

Key Findings:

Work Package 1: Co-design & problem identification:

Drawing on a state-of-the-sector review of ethical approaches to the challenges of digital citizenship education, situating these as embedded in prior historical conditions, our critical analysis draws attention to the structural conditions of the responses of national governments (Davis, Conroy & Knox, *forthcoming*). In particular, we explore the tensions inherent in the

ideal of participative parity (Fraser 2008), increasingly suggested as a model for inclusive technology design (Perrotta 2023), excavating inequalities and status quo biases in citizenship responses to previous crisis moments in British civic life.

Key questions:

1.1: How do beginning teachers, teacher educators, and school leaders understand the aims, challenges and practices of teaching for digital citizenship?

A further challenge of teaching for digital citizenship is that the term does not feature explicitly in the curricula of the four UK nations. A number of piece-meal interventions seek to address a 'digital skills' gap, in ways that foreground economic productivity, while other initiatives address 'digital safeguarding'. Given the importance of making connections between the two, and engaging with the idea that data and systems are political, positing the student as an autonomous citizen exercising agency over the curation and production of their digital futures and the future of the digital polis, an aim of this project was to unite fragmentary approaches which currently reside in a number of disciplines. A survey of teachers (n=9,016) in England, conducted in partnership with TeacherTapp, sought to understand the locus of responsibility for digital citizenship education, as well as to understand the resources and sources of understanding for current pedagogy and practice. Six questions were asked of participants:

1. Imagine you're asked to teach 1 lesson about online risks, which of these would be most important to cover?
    a. Exposure or pressure to share inappropriate images and themes (49%)
    b. Misinformation from unreliable sources of information online (31%)
    c. Being drawn into extremism and radicalization e.g. by far right or misogynist groups (8%)
    d. Becoming a passive consumer rather than critically engaging online (8%)
    e. Artificial intelligence that talks, writes or performs tasks like a real person (3%)
2. Which subjects in your school explicitly teach about online risks?
    a. Assemblies, form time & whole-school pastoral care (73%)
    b. Computer science & information technology (65%)
    c. Relationship education (49%)
    d. Citizenship (37%)
    e. Elsewhere in the curriculum (16%)
    f. It's cross-curricular/ not taught explicitly (11%)
    g. I don't know (8%)

   h. Religious Studies (5%)
   i. Politics/Sociology (3%)

3. The priority of digital citizenship education should be to develop students'...
   a. Judgment to avoid future online harms (55%)
   b. Ability to avoid current online harms (41%)
4. The focus of digital citizenship education should be...
   a. Safety and harm prevention (67%)
   b. Human flourishing and empowerment (26%)
5. Which definition most closely aligns with your idea of good digital citizenship?
   a. Responsible use of digital technology, adhering to standards of conduct, understanding rights and responsibilities, identifying and knowing how to report potential online dangers (53%)
   b. Engaging with and prospering in the digital world, using technology to benefit individuals, families and wider society (15%)
   c. Protecting the data and privacy of the user and others, understanding how personal data is used, verifying sources of information and being able to identify 'fake news' (12%)
   d. Ability to access technology, be productive and communicate effectively on digital platforms using a wide range of tools and skills (9%)
6. You're advising a colleague on some external sources to search for materials on online safety and digital citizenship. Where do you suggest they look?

   Open text answer: Top responses: National Online Safety, CEOP, PSHE Association, NSPCC, Project Evolve, Teach Computing.

The majority responses to questions 4 and 5 suggest a definition of digital citizenship primarily framed in terms of negative 'digital safeguarding' and digital regulation, with a focus on addressing these challenges through schools' pastoral provisions. Many of the go-to resources drawn upon by teachers reinforce this approach, originating from policing and child protection concerns with immediate security. Developing the connections between the pastoral and curricular dimensions of digital citizenship education, with an understanding that these questions are political and have implications for equity and autonomy, remains a minority

concern, though a majority of teachers recognise the importance of cultivating young people's sense of judgment.

1.2: How, if at all, is teaching for digital citizenship informed by national policy priorities on citizenship education?

From its inception in the industrial and democratic revolutions of the 19th century, education has been a prerogative of state sovereignty. Following democratic reforms in the UK in 1867, the Liberal politician Robert Lowe remarked that "we must educate our masters" (Lundie, Ghosh & Zwitter 2022). Education determines the interpretation of history, the position of elites, and the intellectual prowess of a state. Long-standing debates between proponents of freedom of enquiry and advocates of more explicitly politicised curriculum aims aside, when political ideology aligns with the ideas of academia, they can be mutually reinforcing, as was exemplified during the Soviet-US space race in the 20th century. In this context, the incursion of technology corporations into state sovereignty over education does not necessarily represent a worse situation than the monopoly of the state, but a different configuration.

States are interested in educating patriotic citizens, a task which is itself a questionably defensible aim of schooling (Hand 2011), and corporations are likewise interested in developing loyal customers. Beyond individual states, with their ideologies, institutions, and borders, political sovereignty is concerned with the binding idea of the state (Buzan, Weaver & de Wilde 1997) – whereas political parties disagree over the proper uses of state authority, including in the regulation of education and technology, all mainstream parties agree on the legitimacy of state authority on a conceptual level. This collective notion of public consent is tied to the power of a social imaginary (Castoriadis 1998) which is distinct from other forms of free association. The technology sector is also possessed of a shared and binding logic. Beyond the fiduciary or profit motive, shared with other corporate actors, there is an underlying logic to the technology sector, born of its early origins in collaborative digital commons, themselves often funded by institutions of higher learning (Ball 2020). Beyond the competition between platforms and corporations, there is a conviction that there should be platforms, and that consumer choice plays a role in securing such systems. It is this shared conviction that allows otherwise competitor corporate actors to make common cause, such as was the case for the blackout of multiple websites in July 2017 to protest the legislative roll-back of 'net neutrality'. In exploring the influence of technology corporations on schools, then, it is important to avoid simplistic binaries which paint the state as always a beneficent patron of education and the corporate world as monolithic or necessarily malevolent.

Making use of the Delphi method (Baumfield et al. 2012; Adler & Ziglio 1996) as a starting point, a systematic interactive forecasting approach for distilling a diverse range of opinion from policy-makers, educators, software engineers and ethicists, the project identified a right to information integrity as a key framing for digital citizenship education. Young people need to

understand that the information ecosystem we inhabit is not inevitable, it is the product of choices and conditions which are contingent and can be changed. Conflicting and co-equal priorities of urgency and good judgment permeated the discussion. These conflicting priorities were corroborated by our survey findings.

A pre-conference survey was designed to gauge participant opinions on definitions of digital citizenship, an understanding of the state of the sector, and current and future opportunities in the digital space. Thematic analysis was used to derive a summary of this data which formed the initial discussion document presented to participants at the conference. Once the first round of in-person deliberations was complete, a second summary document was prepared as a starting point for discussions on day two. This process was repeated on day three, with a post conference survey representing a final step in honing participant feedback. A final summary sent to participants after the post-conference survey represented a map of themes to be explored in the subsequent ethnographic and practitioner action research stages. Consensus criteria for each set of summaries were formed around fact checking exercises performed at each state of the process where participants were asked to challenge, append, or nuance notes of the previous day's discussions.

Initial definitions of the attributes of a good digital citizen from the pre-conference survey highlighted epistemic virtues and critical dispositions, sense of purpose: "a desire to contribute and create rather than to simply consume", the importance of non-school experiences such as family and friends, connectivity, and productivity. Discussions on day one focused on refining the definition of the digital, recognising that the most prominent technologies in a given hype cycle (e.g. A.I.) are not the totality of the digital domain. As discussions turned towards pedagogy, a number of themes emerged, including the aims and purposes of education, levels of teacher preparedness, the range of young people's online experiences outside education, such as gaming, gamification, the complexification of selfhood and social media, deficit models of digital skills and inequalities. An important distinction emerged at this point between cyber resilience, understood as a set of technical skills for security awareness, and digital integrity as an ability to reflect critically on digital experiences. Days 2 and 3 of the conference provided an epistemic reduction toward a shared conception of digital citizenship education as encompassing both the security and practical elements, including planning, organising, cybersecurity and data management skills, discernment, legal and ethical awareness, and the socio-emotional, including determination, curiosity, honesty, accountability, kindness, freedom of expression, security, and willing participation. Recognition emerged that teachers, and educational theory, already possess expertise in understanding epistemic and moral challenges in the postdigital realm that are under-recognised by the technology sector. Participants later reflected on the need for a transformative approach to digital citizenship education "taking an empowering rather than scaremongering approach", focusing on explicit teaching about information integrity, critical

thinking, information curation and creation, rather than exclusively focused on preventing a narrow range of bad actor threats.

Work package 2: Implementation:

Methodologically, beyond the traditional limitations and challenges of being one ethnographer in one place at one time, ethnography of EdTech brings added complexities. As educational technologies employ increasingly complex levels of automation, there are processes that are running just out of sight, whether in a room down the hall or on a distant server, that play a role in shaping what practices are possible within educational settings. It is worth considering how future ethnographic research in education settings accounts for the postdigital, including the impossibility of exclusively 'virtual' practices (Cornford 2000; Gourlay 2021) within the challenges of the school as enclosure (Lundie 2024a), whether related to research site selection or forms of software, taking account of the varying degrees of distribution, negotiation, and virtuality that now permeate every such site.

Ethnographic work was carried out in two secondary schools in Scotland, two secondary schools and one FE college in England. In addition, ethnographic work was carried out in a primary school that feeds into one of the secondary schools. In total, this involved 45 days' on-site presence, interviews with 59 staff, focus groups with 79 students. In addition, three extended workshop days were carried out, in Oxford (15 students), Glasgow (28 students) and Manchester (8 students), bringing together students from several participating schools and trusts over a full day to explore and ideate. The workshops focused on questions of agency - what opportunities do digital technologies offer young people in schools for agency? How do the affordances of the technology enable or constrain agency? Judgment – How students identify what constitutes good use of agency in digital spaces? From what sorts of examples? Who models good judgment for young people? And pedagogy – Where and how do young people learn good judgment?

A hypothesis generation event was held in May 2024 to explore emerging themes from the first three participating schools. Three clusters of themes emerged from this. Surveillance, caring and control encompassed themes of disciplining of device (mis)use, the datafication of subjective and interpersonal experiences of care, self-regulation, regulation, identify, surveillance, compliance, insecurity and fatalism. The wider community, para-professionals and the private sector encompassed themes of the skill/product use focus of digital pedagogy as juxtaposed with its contribution to active citizenship, resource equity with particular reference to parental cultures, the habits of creation, and consumption of (educational) digital content, the role of software developers, digital champions, IT support, corporate school sponsors, and the resourcing thereof. Socialisation for technology encompassed the social environment around digital learning in and out of school, the pedagogical and datafied structuring of technological affordances (for example whether a teacher monitors a class's tablet use by moving around the classroom or from a networked node at her desk), the

orientation of the classroom when engaging in digitally mediated learning, discourses of personalisation and their meaning in practice, and students' and teachers' levels of awareness of the digital framing of their learning. These codes formed the basis for a focused phase of ethnography, which culminated in the development of our final coding framework.

Our ethnographic encounters broadly correspond to what Hymes (2003) characterises as 'topic oriented' ethnography. In this instance, the ethnographer has in mind a topical orientation towards which the work is oriented. This topic is not merely the artefacts of 'digital technology' in schools, although this constitutes a medium, nor is it limited to the curriculum subject of 'Citizenship Education', which is itself a mediated or imaginary discourse (Bernstein 2000, p.38) distinct from legal definitions of citizenship or political-philosophical debates around the nature of citizenship. Digital citizenship as our topic may be conceptualised at three levels: the young person as a citizen of their school, exercising democratic agency as process in the present (Biesta 2015); the young person as a future political citizen of the state, engaging in processes of formal citizenship education to understand the rights-in-trust they will come to hold and exercise as adults (Franklin-Hall 2012); and the young person as co-evolving an understanding of digital global citizenship as currently existing within the borderless digital world with its threats, logics, and opportunities as these continue to develop through socio-technical entanglements, affordance, and historical contingencies. In this respect we took an open approach to moral framing, in order to understand the spaces of agency which remain available to policy makers, school leaders, teachers, students, and communities. It increasingly became clear as the project progressed that there were a range of back-of-house staff supporting digital infrastructures and practices whose roles were also morally significant for the practice and definition of digital citizenship. Our topic-orientation sought out sites of valorisation, spaces where practices are ascribed moral value through communication in context.

Key questions:

2.1 Where is digital citizenship located within the curriculum? Is there coherence between Personal, Social and Health Education, Citizenship, Modern Studies, and Computer Science approaches to the aims, challenges and practices of teaching for digital citizenship?

2.1a To what extent does the curriculum for Computer Science address ethical issues, and from what perspectives?

Our ethnographic research adopted a purposive sampling approach, actively recruiting schools which saw themselves as having good practice they wanted to share. Across our participating schools, we observed initiatives for digital citizenship education in Citizenship & PSHE, Religious Studies, Mathematics, and English. While we are aware of initiatives in Computer Science, and have been working with the British Computing Society and their teachers' professional association *Teach Computing* in our participatory action research

community of practice, Computer Science was not a focus of digital citizenship education in any of our participating schools.

A broad array of excellent resources are available for digital citizenship education in a number of fields – in addition to those we have seen in participating schools, we are aware of resources in Art & Design, Music, and History. The principal challenge faced by schools is knowing how and where to access good quality resources.

Finding opportunities for reflection on the aims and purposes of digital innovation with regard to forming responsible digital citizens is made more challenging due to the tendency of technology corporations to employ heroic narratives about their own product and corporate mission. These narratives are often ahistorical, in the sense that they present each new development as 'disruptive' and 'transformational'. Despite the UK having had computers in schools for over 40 years (Gazzard 2024), this language tends to occlude attempts to situate new developments within the evolution of educational technology. These narratives also often carry a predefined good, 'disruptive' innovations being presented as positive, reinforced with reinscribed data on student performance wherein increasing granularity of monitoring, enabled by devices and algorithms, is presented as evidence of increasing success against narrowly defined performance goals. In place of these ahistorical and predefined narratives, which leave schools no better equipped to navigate key challenges of digital safety, trust, foster moral growth and challenge inequality, the project has drawn on these findings to co-design a Self Evaluation Framework for Schools which begins from the recognition that technology is not value neutral, and that all aspects of a school's engagement with technology should be guided by its educational values and ethos.

2.1b To what extent are the practices of digitalisation in schools (virtual learning environments, management information systems, etc.) responsive to data justice?

The ongoing digitalisation of schools in the UK sees a proliferation of apps, software, platforms and devices that touch ever more elements of the processes of schooling. Beyond apps for learning, there are technology offerings for administration and course management, attendance, reporting, marking, parent communication, pastoral care, and safeguarding. Our research documents a paradox of technological solutions: while these offerings may seem to increase safety and autonomy, and are marketed as such, they may also hinder the development of moral and pedagogical dispositions that schools wish to foster, both among young people and their teachers. These are not exclusively technological challenges; social and cultural changes are simultaneously being enacted, fitting practices of care and safeguarding around technological objects which are both constantly changing and yet also framed as permanent and immovable, reflecting tensions in technological change. In this process, care is technologically reinscribed (Hartong 2016) as control of data (Palenski & Lundie 2026).

Our explorations of safeguarding technologies highlight central tensions: between apparent freedoms accorded to teachers by the outsourcing of tasks which are difficult to surveil in embodied ways, such as online search terms, and the dependencies that arise from being locked into contracts with opaquely designed black box technological systems; between ensuring safety for students in their day-to-day uses of school digital networks, and creating potentially vulnerable repositories of digital trace data; and between meeting politically determined digital safeguarding responsibilities reinscribed as monitoring and whitelisting, and developing the moral responsibilities of their students through providing frameworks for developing autonomy. Attentiveness to these challenges at this pivotal point in time is significant, since as technologies succeed, there is often a decrease in visibility as the technologies become infrastructural (Latour 1992; Winner 1986). Close attention to these forms of digital safeguarding technologies risk being overshadowed by a focus on artificial intelligence in education. This may be to our collective disadvantage as researchers and educators, as the more mundane practices of technology are equally worthy of attention.

Although the digital permeates every aspect of the educational world, it does not do so seamlessly. Ethnographic findings highlight the often messy, time-consuming and resource-intensive transitions between the digital and analogue in the life of the school. Existing inequalities – of resource, teacher time, and training, and the pre-existing digital social capital of students – were not redressed by the provision of 1 to 1 devices. Further, the transformational capacities of technology were often limited by the spatial-temporal configurations of schooling, and 'sticky' practices in both the analogue and digital spaces often rub up against one another (Lundie & Palenski 2026). The sunk costs involved in 1 to 1 device deals in some schools represent strong incentives towards path dependency and potential forms of device and data lock-in (Cone & Lai 2025), so setting schools on the correct path for digital innovation at the outset is of paramount importance.

2.1c In what respects are teachers aware of the ways the affordances of digital systems shape the practices and aims of their pedagogy?

A further aspect of complexity sits at the intersection between practices of digital safeguarding and practices of evasion, such as students' use of virtual private networks or personal device internet, and the role safeguarding technologies play in reinscribing evasion or privacy as vulnerability, unsafe, and forbidden. Certain combinations of keystrokes, a keyword, a blacklisted site, are essentialised as bad behaviour, with decisions taken far from the teacher-student interaction, irrespective of intent, privileging machine-based automated decision making over human moral judgment. Reactive vigilance and secondary deviant boundary testing reconfigure expectations about what behaviour is 'bad', likely, or dangerous; importantly, there is rarely any significant attention to what might be considered 'good' or model behaviour, besides the avoidance of the above. Expectations are baked in to opaque algorithms, perhaps unreflectively, even as the software is conceptualised around

instrumentally solving a specific problem. These conditions may be wholly divorced from the ethos and values of the social context and community in which they are implemented, indicating the emergence of forms of soft governance while simultaneously pointing first to the need to re-politicise how digital technologies are used in education (Knox 2023) Secondly, there is more research to be done on how these networked practices take root, shape pedagogy, and in turn shape the norms and values of young people.

2.2 How responsive is digital education to community challenges – for example poverty, digital inequalities, rural or remote schools, or schools with high numbers of pupils with English as an additional language?

The historical and material conditions that precede and underpin technologies must be foregrounded; these play an instrumental role in how technological artifacts and systems are designed and implemented (Suchman 2012). Technologies work to enact certain cultural imaginaries, while also crucially shaping and forming the discourse that surrounds the technologies themselves. While innovative technologies might capture collective attention, existing sociotechnical practices in schools must not be overlooked.

Even in schools with 1 to 1 device provision, there were marked differences observed in pupil abilities to make use of available devices and software. Younger secondary pupils and pupils who recently joined the school were often in need of explicit instruction to access class materials and submit classwork; this occurred most frequently during the timetable. Importantly, this further adds to the complexities that add to the body of evidence countering persistent 'digital native' discourse that ignores how inequalities may contribute to differences in the experiences using digital technologies (Eynon 2020).

Further, inequalities were seen to be produced in the extent to which schools could respond to the ongoing challenges of implementing and maintaining devices; pedagogical resources were not only diverted to address shortcomings and failures of devices themselves, but on-site technical support was often severely limited in all cases except for an independent boarding school.

Workshops with young people positioned good judgment in a space between over-confidence in digital spaces and fatalism about digital determinism. Young people identified spaces for political action principally at the micro-social level, in what they share with peers, in the performances of the self they enact through their social media outputs, in forms of evasion, and in peer mentoring of younger students. Political criticism tended to focus on an abstract level of global corporate infrastructure which was seen as beyond their reach or influence, even among students from elite independent schools. Data harms identified included having their time and data stolen by algorithms, habituated acquiescence, and overly restrictive school digital environments.

Work Package 3: Impact & outputs

Drawing on citizen science approaches to critical digital pedagogy (Porto de Albuquerque & Almeida 2022), the participatory action research community of practice critically interrogated resources and findings from the ethnography. Drawing on the findings of 2.1c above, the community of practice was clear from the outset that it did not want to develop another resource which would compete with those already available. Impact activities coalesced around the development of a Self-Evaluation Framework for Schools (SEFS). The framework consists of 8 key points, and a number of indicators, with developmental suggestions for high impact, low resource improvements. The framework functions as an heuristic tool that embodies data justice and enables reflection in schools. Development and evaluation activities that contributed to testing the robustness of the framework included:

- Development of resources at one Multi-Academy Trust
- Evaluation of the delivery of "digital citizenship days" at 3 schools
- Development of whole-school pastoral programmes at 2 schools
- A pilot run of the framework with one school
- The development of scalable interventions
- A survey of Computer Science teachers.

Key questions:

3.1 How can educational software developers, philosophers of digital ethics, teachers, students, and their communities play a role in embedding solutions to the challenges of teaching for digital citizenship and ethics across the curriculum?

Our Community of Practice has arrived at a Self-Evaluation Framework for Schools which identifies four benchmarks, each of which contains four levels, a series of reflective questions, and suggested actions and resources to enhance and develop practice. It is hoped that this provides a framework for enhancement at all levels, whether a school has given no prior thought to these questions, or is already an exemplar of leading practice, there should be further steps for enhancement.

Benchmark	Reflective Questions
1. An institutional ethos that incorporates digital ethics and citizenship at all levels.	• What core values should guide our digital citizenship education? • How does DCE align with our institutional mission, vision, and educational goals? • In what ways can digital citizenship support both academic and pastoral development? • How can we ensure that DCE principles are sustainable and adaptable to emerging digital challenges, including the integration of AI, uses of big data? • What benchmarks or criteria will we use to evaluate

	our success in instilling an institutional culture of digital citizenship?
2. An understanding of what digital citizenship can and should mean in an institutional context, known across the community by the majority of staff, students, and other stakeholders including parents/guardians and governors.	•What specific DCE skills and competencies are essential for our staff and students, including those related to AI and digital ethics? •How can we provide ongoing professional development to build confidence and expertise in DCE across all staff levels? •What resources or external support (such as partnerships) are available to enhance our DCE training programmes? •How will we assess and measure the effectiveness of staff training in DCE? •How can we effectively communicate the goals and importance of DCE to parents, guardians, and community partners? •In what ways can we involve parents/guardians and the wider community in promoting and supporting digital citizenship practices? •How can we design workshops or resources that help parents understand the impact of digital technology, including AI, on student learning and well-being? •What partnerships or community outreach initiatives can enhance our DCE efforts? •How will we collect and act on feedback from parents/guardians and community members to improve our DCE programme? •Are staff and students confident in DCE provision? •Are staff and students consulted/invested in decision making? How? •Do staff and students see provision as a positive experience?
3. A transparent process for quality assuring digital technologies, including their impact in relation to aspiration, accessibility, and inclusion.	•What processes are in place to facilitate ongoing improvements in DCE, and who will be responsible for monitoring these efforts? •How can we document and share best practices to support a culture of continuous learning and improvement in digital citizenship? •What metrics and methods will we use to evaluate the success and effectiveness of our DCE programme? •How can we ensure regular feedback from students, staff, and other stakeholders to refine our DCE approach? •How will we adapt our DCE framework to reflect technological advancements and evolving digital challenges?

	•How accessible is our DCE framework for students with diverse learning needs and those from disadvantaged backgrounds? •What assistive technologies and alternative resources are in place to support accessibility within DCE? •How do we address digital equity, ensuring all students have access to essential DCE resources and tools? •What measures are taken to ensure that inclusive practices are consistently applied across DCE activities? •How will we gather feedback from students and staff to identify and address accessibility gaps within DCE?
4. A strategic approach to aligning the teaching of digital citizenship across schemes of learning in both a subject-specific and extra-curricular context, with accompanying CPD activities.	• In what ways can we encourage cross-departmental collaboration to support a unified approach to digital citizenship? •What extra-curricular activities can be linked to DCE strategy? •Who will coordinate alignment across schemes of work to ensure a coherent strategy? •How will we evaluate alignment of DCE provision? •How can we ensure that the resources used align with institutional values about DCE?
5. A strategic/improvement plan that reflects the commitment to digital citizenship at all levels, including plans for review and adaptation of IT infrastructure as staff and student needs evolve	•To what extent is DCE recognised as a priority in our Improvement Plan? •How will DCE contribute to broader institutional goals, such as inclusivity, safety, and academic excellence? •What measurable outcomes will indicate that DCE is effectively integrated into our strategic/improvement plan? •Who will be responsible for implementing and monitoring DCE's progress within the improvement plan framework? •How can we ensure that DCE aligns with continuous improvement goals, especially in adapting to technological advancements? •Does our current IT infrastructure support the effective delivery of DCE, including secure and equitable access to digital resources? •Are there security protocols and privacy protections in place to foster a safe digital environment for both students and staff? •What improvements or investments are needed to align our infrastructure with DCE objectives? •How does our infrastructure address both digital access and ethical considerations, such as responsible AI use and data protection?

	• What ongoing support and maintenance plans do we need to ensure infrastructure remains relevant and reliable? •Does our current IT infrastructure support the effective delivery of DCE, including secure and equitable access to digital resources? •Are there security protocols and privacy protections in place to foster a safe digital environment for both students and staff? •What improvements or investments are needed to align our infrastructure with DCE objectives? •How does our infrastructure address both digital access and ethical considerations, such as responsible AI use and data protection? •What ongoing support and maintenance plans do we need to ensure infrastructure remains relevant and reliable? •What are the financial implications for areas requiring development? •Does policy need to change at school level or council/authority level?
6. An embedded digital citizenship curriculum that incorporates digital literacy, online safety and security, digital etiquette and communication, digital rights and responsibilities, and digital wellness	•How effective is our teaching of foundational skills for navigating and using digital tools effectively, such as creating and editing documents, using learning management systems, and communicating online? •How adaptive is our DCE provision to new technologies, software platforms and tools such as AI and use of big data? •What lessons do we need to deliver on assistive technologies to support equitable participation? •How do we develop critical thinkers with respect to digital literacy? •How do we ensure children have agency over their learning and are co-creators of a digital learning strategy? •Pupils may know how to use a phone, but can they use other forms of digital technology (word, excel, AI chatbots, etc)? •How will we educate children about ethical use of AI, deep-fakes, disinformation, online bullying and false advertising? •Are pupils aware of the dangers of posting information about themselves online? •How do we promote responsible and effective use of social media platforms, including how to manage personal and professional online personas?

	•Do students understand the importance of consent in digital interactions, such as sharing photos or data about others? •Are students aware of the data gathering that happens when they access specific online sources? •Are they aware of the possible effects on their mental health? •Are pupils aware of the mental health effect of cyberbullying? •What's the approach to issues such as data security, responsible use and resolving ethical conflicts? •How effectively do we educate students about the importance of strong passwords, multi-factor authentication, and recognising phishing attempts? •Are pupils aware of fake news? •Do students understand how algorithms decide what news/content they see? •Do students know how to fact check claims made online and offline? •Is there a cultural shift in the ethos of the school in regard to behaviour online? •How do we ensure students understand how to evaluate the credibility of online information, distinguishing between reliable sources, misinformation, and disinformation?
7. A commitment to digital equity, understanding of digital property rights, addressing the digital divide, and consideration of others in the ethical use of digital technology	•Are students aware of their rights regarding access and control over their data? •Are students aware of the laws that underpin data processing? •Are students aware of ethical/unethical uses of technology? •How does our DCE curriculum address issues of ethical technology use? •Do students have respect for others' digital content, know how to avoiding plagiarism, and recognise intellectual property rights? •Have students had the opportunity to discuss AI ethics, including algorithmic bias, data privacy, and the implications of using AI tools for academic or personal purposes?
8. Staff and students are empowered digital citizens advocating for sustainability and positive social action, recognising the	•How does our DCE curriculum address issues of climate change, sustainability and social justice? •How do we ensure that our curriculum prepares students to be responsible digital citizens with an awareness of both local and global issues? •What learning resources, such as case studies or

	interconnectedness of technology and human well-being	projects, can enhance students' understanding of digital citizenship's social and environmental dimensions? •How will we measure the impact of this curriculum on students' awareness and commitment to social justice and climate action? •In what ways can we link digital citizenship to broader themes of social responsibility, equity, and environmental sustainability? •What steps can we take to minimise the environmental impact of our technology use within DCE? •How do we promote sustainable practices, such as responsible e-waste disposal and energy-efficient technology use? •What impact is the institution's digital citizenship provision having on the local and global community? For example, is this in line with the Global Competency assessment conducted by PISA or are the students involved in implementing their new skills to solve real world issues? •What policies or strategies can support a shift towards greener technology practices in our institution? •How do we raise awareness among students and staff about the environmental implications of digital practices, including AI use? •What metrics will we use to monitor and report on our progress in reducing the environmental impact of technology?

Key Challenges:

An initial desire to engage schools through shared networks of mid-level policy enactors (Singh et al. 2013; Lundie 2022) such as resource developers or 3rd sector bodies failed to generate a usable sample. This may be due to the transient and precarious nature of these partnerships. Nonetheless, the influence of some shared mid-level policy enactors could be traced; particularly large digital corporate sponsors with flagship programmes for schools (Lundie & Palenski 2026).

While the project was initially conceived as a four nations project, we received limited interest from Wales and Northern Ireland. In the case of Northern Ireland, challenges of funding, teacher workload, and lack of political initiative constrained opportunities to engage schools that had meaningful innovations in digital citizenship education to share.

Evidence of Change:

From the outset, the project gathered interest from a range of stakeholders in education. This led to invitations to contribute to a number of consultations, professional conferences, policy and curriculum development processes. This has included:

British Academy

- James Conroy organised an event at the British Academy on the theme of "What is a Good Digital Citizen?" in May 2025 contributing to their 'good digital society' programme: https://www.thebritishacademy.ac.uk/projects/what-are-the-possibilities-of-a-good-digital-society/

Council of Europe

- The project team were in discussion with Alan Britton and Liz Moorse, the UK representatives on the Council of Europe's planning committee for the Year of Digital Citizenship throughout 2023-4
- James Conroy, David Lundie and Ted Palenski attended the launch conference of the European Year of Digital Citizenship in Strasbourg in January 2025
- David Lundie is presenting at the 2nd annual Forum on Digital Citizenship Education in Strasbourg in May 2025, launching our Self-Evaluation Framework for Schools web page

Education Scotland

- Bob Davis presented to the Education Scotland lunchtime research seminar series in December 2023.
- David Lundie was invited as an expert to the Political Literacy and Digital Literacy cross-curricular theme co-design community of practice from 2023-25. This informs the current Curriculum Improvement Cycle, due to report in 2026. Digital citizenship and critical information literacy are 2 of the "big ideas" in the digital literacy theme.

Five Nations Network for Citizenship Education

- David Lundie presented a workshop for citizenship teachers from the UK and Ireland in February 2024. The Network decided to make digital citizenship a theme for a 3 year conference cycle from 2024-26.

House of Commons Education Select Committee

- David Lundie gave evidence on digital literacy to the Select Committee in April 2025. The subsequent Curriculum & Assessment Review recommended renewed efforts in digital literacy and media literacy.
- The project has submitted evidence to a recent enquiry into the use of artificial intelligence and EdTech in education.

Independent Schools' Religious Studies Association

- David Lundie presented at May 2023 event at Whitgift School

Institute for Ethical AI in Education

- James Conroy and David Lundie met with Anthony Seldon in February 2024. Members of the teacher group informing the Institute have joined our Community of Practice.

National Institute of Teaching

- David Lundie has been invited to join the working group developing the teacher continuing education guidelines for Critical Digital Information Literacy, the NIoT's combined framing of the Curriculum & Assessment Review's recommendations around digital and media literacy.

OCR A-Level Religious Studies

- David Lundie presented on the project at the OCR Consultative Forum in 2023, and again in 2025. Discussions are ongoing about the inclusion of a digital component in the Philosophy and Ethics paper at A-Level.

Scottish Council of Deans of Education

- David Lundie has been invited to join the working group reauthoring the guidelines on digital literacy for initial teacher education providers.

Scottish Government AI Taskforce

- David Lundie presented to a meeting in February 2023.

Scottish Teachers' Association for Religious and Moral Education

- David Lundie presented at November 2023 event, gathering some interest from the Scottish Qualifications Agency.

UNESCO

- Jeremy Knox and David Lundie were invited to present at the Digital Learning Week in Paris in November 2025.

Reflections on Building Partnerships:

The project has been a partnership undertaking from the outset. Working with a range of stakeholders in our initial Delphi Conference opened a door to ongoing discussions with a range of stakeholders across education policy sector. Through these discussions, participating schools were recruited for the ethnographic and community of practice research, and engagement with a range of policy bodies secured. At times, the project has functioned as a

'network of networks', each of our co-investigators has a range of professional contacts, so that measuring impact across the sector is a complex and multi-faceted process.

Where networks have been successfully built, they have relied on alignment of mutual goals, respect for one another's time, personal contacts on a 1 to 1 basis, as well as access to the network itself as a benefit to participants.

Testimonials from participating teachers:

"The impact of this work has been most evident at a whole-school level. AI, safeguarding, and digital citizenship are now more coherently embedded within both curriculum and professional learning, supported by a clear and research-informed framework.

Staff have developed greater confidence in engaging with AI, leading to more consistent and informed practice across the school. Students, in turn, are developing a deeper understanding of both the opportunities and risks associated with digital technologies, alongside the ethical frameworks needed to navigate them.

Beyond the school, our work has contributed to wider sector conversations around digital citizenship and AI in education. Through our collaboration with the University of Glasgow and active participation in the Community of Practice, we have both informed and been informed by emerging national and international thinking. The school has also recently been announced as a finalist for the Tes Schools Awards in the "Best Use of Technology" category and our students supported the development of the UK Department for Education's Gen-AI Product Safety Standards through their participation in the Generative AI in Education: Have Your Say Project - https://connectedbydata.org/ai-in-education/

Overall, the project has strengthened our capacity to respond to technological change in a way that is principled, proactive, and aligned with our core mission: ensuring high achievement for all through the development of informed, responsible digital citizens."

"The collaborative nature of the CoP has been particularly impactful. There has been a clear willingness among members to share ideas openly, reflect critically on practice, and support one another in navigating a complex and evolving area of education. As a result, I have found the experience both professionally rewarding and intellectually stimulating.

The support from fellow CoP members has been both practical and strategic. For example, several members contributed to a conference hosted by my organisation, presenting to an audience of approximately 300 teachers. Their contributions, which focused on digital citizenship in practice, were extremely well received and added significant value to the event."

Reflections on Being Part of a Programme:

The Education Research Programme provided us with two key advantages over a stand-alone research grant: methodological synergies with other qualitative researchers, and topic-based synergies on educational technology.

Methodologically, the Education Research Programme supported a number of proposals which made use of ethnographic, or other longitudinal qualitative research methods to understand the lived experience of phenomena in schools. This represents a significant departure from dominant trends in educational research in the UK in the preceding decade, and represents an opportunity to enhance, consolidate, and triangulate understandings arrived at through large-scale quantitative and experimental designs. Together with Ted Palenski, Louise Couciero and Rebecca Eynon, Steph Ainsworth, John Gordon, and incorporating Joanna Malone from the recent Leverhulme-funded project on post-secular childhoods, we were able to propose a Special Issue of *Anthropology & Education Quarterly* on new educational ethnographies from the UK. A writing retreat for potential contributors was held at the University of Glasgow Dumfries Campus on 28-30 May 2025. This Special Issue highlights methodological innovations, ranging from Gordon's use of small story methods, to Palenski's combining of platform studies with in-person ethnography, which represent an advance in qualitative methods brought about by the Programme.

Thematically, our project has worked closely with Rebecca Eynon's EdTech Equity project and John Gordon's Enhancing Teacher Agency with Technology project. These three projects contributed to an evidence brief for the Department for Education on the challenges of digital procurement in schools. Together with John Gordon's project, we have developed a paper, currently in draft, for *Ethics and Information Technology*, which combines the findings of our two teacher surveys, one local and one national. Through these thematic synergies, we were able to present findings at the final programme conference in January 2026 to a shared audience of key stakeholders with an interest in education and technology.

Planned Post-Project Activity:

The project has received ESRC Impact Accelerator Account funding until November 2026 to continue the work of the Community of Practice. The core funded activity is the development of a dynamic website to host our Self-Evaluation Framework for Schools. The website will enable schools to evidence their current practice against the 8 indicators developed by our Community of Practice, and to identify next steps to improve school-wide approaches to Digital Citizenship Education. We have a launch of the beta version of the website planned at the Council of Europe's 2nd Digital Citizenship Education Forum in Strasbourg on 28th May 2026, with ongoing dissemination activities planned in the following 6 months.

Key to the success of the SEFS is its integration with ongoing education reforms in the 4 nations of the UK. We have been working actively with Education Scotland's Curriculum Improvement Cycle since 2024, and David Lundie has been invited to contribute to both the

Political Literacy and Digital Literacy cross-curricular theme working groups. David Lundie has also been invited to contribute to the reauthoring of the Scottish Council for Deans of Education guidelines on Digital Literacy in initial teacher education. We have also been working with the Department for Education's Curriculum and Assessment Review, David Lundie was invited to give evidence to the House of Commons Education Select Committee in 2025, and the final report of the Review recommended renewed focus on Digital Literacy and Media Literacy. David Lundie has subsequently been invited to join the National Institute of Teaching's Working Group on Critical Digital Information Literacy, which is an initiative to combine both of these recommendations.

There are plans to lead a consortium in 2026 for the funding call HORIZON-CL2-2026-01-DEMOCRACY-10: Digital and media literacy as drivers for democratic and civic resilience.

Project Publications:

Davis, R., Conroy, J.C. & Knox, J. (in development) A Genealogy of Digital Global Citizenship. *Journal of Philosophy of Education*.

Nourie, K., Shannon, L., Gordon, J. & Lundie, D. (in development) Teachers' Perceptions of Digital Agency and Digital Citizenship. *Ethics and Information Technology.*

Shannon, L., Porto de Albuquerque, J., Davis, R. & Lundie, D. (in development) Data Justice in the Classroom and Beyond: Co-designing a Self-Reflection Resource for Schools. *Educational Action Research*.

Knox, J. & Lundie, D. (2026) Towards a taxonomy of A.I. learning. In W. Holmes (ed.) *The Handbook of Critical Studies of Artificial Intelligence and Education*. Edward Elgar Publishing.

Lundie, D. (2024a) Educational research and the temporalities of enclosure. In D.R. Cole, M.M. Rafe & G.Y.A. Yang-Heim (eds.) *Educational Research and the Questions of Time*. Springer.

Lundie, D. (2024b) The ethics of research and teaching in an age of big data. *Journal of Comparative and International Higher Education*, 16(2), 86-94.

Lundie, D. & Palenski, T. (2026) The role of digital corporate practices in moral development. In E. Mackintosh & L. Gearon (eds.) *The International Handbook of the Religious, Moral and Spiritual Dimensions of Education*. Springer.

Palenski, T. & Lundie, D. (2026) Safeguarding uncertainty: a data justice approach to digital practices of pastoral care in ethnographies of UK schools. *Anthropology & Education Quarterly* (in review).

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